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PT ERABARU TIMUR LESTARI

NICKEL RESOURCE ESTIMATE

Qualified Persons Report using
JORC Code, 2012

MARCH 2024

EXECUTIVE SUMMARY

PT Erabaru Timur Lestari (ETL) nickel laterite project is located near the village of Batupali, within the Regency of Morowali, in the Province of Central Sulawesi, Indonesia.

PT Danmar Explorindo has estimated Nickel Resources using the JORC Code with a data cut-off at the 18th December 2023. This is the first formal Nickel Resource estimate for ETL.

The ETL nickel mining license is valid until June 2031 and covers 1,159ha.

Since January 2023, Ultra Ground Penetrating Radar (GPR) surveys have covered 839.8ha of the ETL license area and the results suggest more than 130,000,000 BCM of laterite in the area.

Validated drill data, used in this Resource estimate totals, 1,337 holes with a cumulative total depth of 32,798m and 32,933 XRF analyses performed on drill core samples to document the grade characteristics in the main ETL target area.

The estimated Nickel Resource, covering 340ha, at this time, is as follows:

ETL Project Mineral Resource Statement Cut off grade > 0.8% Ni

Lithology	Mineral Resource Category	Mass (Dry Million ton)	Ni	Co	Fe	MgO	SiO2	Cr2O3	METAL CONTENT EQUIVALENT (Ni)
			%	%	%	%	%	%	
LIMONITE	Indicated	47	1.1	0.11	41.0	1.9	6.6	2.9	510,000
	Inferred	4	1.1	0.11	40.9	2.0	7.5	2.9	45,000
	Sub-Total	**51**	**1.1**	**0.11**	**41.0**	**1.9**	**6.7**	**2.9**	**555,000**
SAPROLITE	Indicated	8	1.4	0.04	17.4	12.8	35.2	1.4	110,000
	Inferred	2	1.1	0.04	17.0	13.2	36.7	1.3	20,000
	Sub-Total	**10**	**1.3**	**0.04**	**17.3**	**12.9**	**35.5**	**1.4**	**130,000**
Total ETL Project	Indicated	55	1.1	0.10	37.9	3.3	10.3	2.7	620,000
	Inferred	6	1.1	0.09	33.4	5.5	16.7	2.4	65,000
	Project Total	**61**	**1.1**	**0.10**	**37.4**	**3.5**	**11.0**	**2.7**	**685,000**

Exploration Targets, covering 50ha, still remain unexplored where an additional 1-8million wet tons of nickel laterite are possible. Although it should be noted that there is insufficient data at this time to estimate a Nickel Resource and there is no guarantee further exploration will result in a Nickel Resource.

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LIST OF ABBREVIATIONS

Al_2O_3	Auminum oxide
APL	Areal penggunaan lain (Forestry status for land with no Forestry restriction)
CAD	Computer-Aided Design
CaO	Calcium Oxide
Cm	Centimeter
Co	Cobalt
CoG	Cut off Grade
Cr_2O_3	Chromium Oxide
CRM	Certified reference material
CV	Coefficient of Variation
DA	Pulp duplicate sample
DEX	PT Danmar Explorindo
DMT	Dolomite
DR	Coarse reject duplicate sample
EOH	End of hole
ETL	PT Erabaru Timur Lestari
Fe	Iron
FLS	Flysch
g	Gram
GPR	Ground Penetrating Radar
GPS	Global Positioning System
Ha	Hectare
HM	PT Hengjaya Mineralindo
HPAL	High Pressure Acid Leach
IMIP	Indonesia Morowali Industrial Park
IUP	Izin Usaha Pertambangan
JORC	Joint Ore Reserve Committee
km	Kilometer
KNA	Kriging Neigborhood Analysis
LiDAR	Laser imaging Detection And Ranging
LIM	Limonite
m	Meters
MgO	Magnesium oxide
MLS	Molasse Congolomerate
MnO	Manganese Oxide
Mt	Million metric tons
MUD	Mud
Ni	Nickel
OK	Ordinary Kriging
OREAS	Ore Research and Exploration Australia Limited
QA/QC	quality assurance/ quality control
R^2	Coefficient of correlation
RKEF	Rotary Kiln Electric Furnace

REP	Replicate sample
RTK	Real-Time Kinematic GPS
SAP	Saprolite
Sg	Specific Gravity
SiO_2	quartz/silica
t	metric tons
VO	Variable Orientation
XRF	X-ray refraction
µm	Micrometer

LIST OF APPENDIX

COMPETENT PERSON'S STATEMENT AND DECLARATION

AUTHOR AND CONTRIBUTOR

Position	Name	Qualifications	Signature	Date
Competent Person / Author	Daniel Madre	MSc MAusIMM, MAIG, IAGI		19 Aug 24
Contributing Author / Peer Review	Tobias Maya	BSc MAusIMM		19 Aug 24
Resource Geologist	Yorris Wibriana	BSc, IAGI		19 Aug 24
Resource Geologist	Harman Adhittyo	BSc, IAGI		19 Aug 24

REPORT OBJECTIVES

This report was prepared for PT Erabaru Timur Lestari (ETL) for the purpose of a Nickel Resource estimate at the ETL project area Morowali, Central Sulawesi Province, Indonesia. The report utilizes exploration data until 18 December, 2023.

REPORTING STANDARD

This report is intended to comply with the 2012 Code, of the Joint Ore Reserve Committee (JORC) of Australia for the reporting of Mineral Resources and Reserves (http://www.jorc.org/docs/jorc_code2012.pdf). All the information used in this report was assessed for compliance with the JORC Code and only information that was considered compliant was included in the estimate of a Nickel Resource as specified in the JORC Code of 2012. The competent persons, contributing to this report, have memberships to the Australasian Institute of Mining and Metallurgy that are current and in good standing.

AUTHORS QUALIFICATION STATEMENTS

The information in this report that relates to Exploration Results and Mineral Resources based on information compiled by Daniel Madre, Australasian Institute of Mining and Metallurgy member no: 100878, and Tobias Maya, member no: 304661.

Daniel Madre has a Master of Science degree majoring in geology and more than 40 years of experience as an exploration geologist of which more than 35 years has been working in Indonesia. Since 2003, Daniel Madre has been involved in numerous laterite nickel exploration and mining projects in Indonesia and has held several senior roles in laterite nickel projects including, Managing Director of PT Telen Paser Prima, which opened the first laterite nickel mine in Kalimantan in 2005 and President Director of PT Itamatra Nusantara, that discovered laterite nickel in Morowali Regency in Central Sulawesi. Daniel Madre is currently managing director of PT Danmar Explorindo and a consultant to PT Erabaru Timur Lestari for the purpose of this study. PT Danmar Explorindo has also been the exploration contractor to PT Erabaru Timur Lestari since June 2023, providing exploration management services including geology, drilling, well site geology and core sample preparation.

Tobias Maya has a Bachelor of Science degree majoring in Spatial Science from Charles Sturt University, Australia. Tobias Maya is a Mineral Resource modeling specialist with more than 18 years of experience in exploration and modeling lateritic nickel resources in Indonesia. Tobias Maya is currently a director of PT Geo Search. PT Geo Search has also provided UltraGPR (Ground Penetrating Radar) survey services to PT Erabaru Timur Lestari.

Daniel Madre and Tobias Maya have sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity that they are undertaking, Reporting of Exploration Results and Mineral Resources. Daniel Madre and Tobias Maya consent to the inclusion in the report of the matters based on this information in the form and context in which it appears. Resumes for Daniel Madre and Tobias Maya are attached in Appendix 5.

Daniel Madre, Tobias Maya and PT Danmar Explorindo partners, directors, substantial shareholders and their associates are independent of PT Erabaru Timur Lestari, its directors and substantial shareholders, its advisers and their associates.

Neither Daniel Madre and Tobias Maya or PT Danmar Explorindo nor any of its partners, directors, substantial shareholders, advisor's and their associates have any interest, direct or indirect in PT Erabaru Timur Lestari (ETL), its subsidiaries, associated companies, or any related entities in Indonesia or elsewhere in the world.

Daniel Madre, Tobias Maya and PT Danmar Explorindo have no conflicts of interest that might affect their objectivity in writing this report. PT Danmar Explorindo's fee for completing this report is based on normal commercial terms and the payment is not contingent upon the outcome and findings of this report.

DISCLAIMER

PT Danmar Explorindo has used the results of exploration programs provided by PT Erabaru Timur Lestari as well as the results of exploration drilling done on their behalf for the purpose of writing this report. In making this Mineral Resource estimation PT Danmar Explorindo has assumed as follows:

1) all the relevant data available was provided without prejudice
2) key assumptions are accepted as described in this report

In view of the above assumptions PT Danmar Explorindo has made reasonable enquiries and exercised their judgment on the reasonable use and validity of the data and found no reason to doubt its accuracy and reliability. For this reason, we believe that this report is an objective, accurate and reliable representation of the laterite nickel project at ETL nickel IUP, based on the exploration results until 18th December 2023. PT Danmar Explorindo makes no warranty to PT Erabaru Timur Lestari or any third parties with regard to any commercial investment on the basis of this report. The use of this report by PT Erabaru Timur Lestari or any other parties shall be at their own risk. The report must always be read in its entirety so that all the data and assumptions are fully considered and properly understood.

1. INTRODUCTION

1.1. Background

PT Danmar Explorindo (DEX) has been asked to provide an estimate of the Nickel Resources at the PT Erabaru Timur Lestari (ETL) laterite nickel project. Since January 2023, UltraGPR surveys have been completed in the ETL project area and drilling has started on the UltraGPR targets. The objective is to delineate sufficient Resources of nickel laterite to support the mining operation into the future. A haul road design, to link the ETL mine to the IMIP smelter facility, is well advanced. This will allow saprolite and limonite to be trucked directly to IMIP nickel smelter complex. This greatly enhances the potential for eventual economic extraction of the ETL nickel laterite deposit.

1.2. Location and Access

The ETL lease is located in the village of Batupali, within the Regency (Kabupaten) of Morowali in the Province of Central Sulawesi, Indonesia. The location of the area is shown in Figure 1. Access to the ETL concession, from Jakarta, is by a commercial flight (3 hours) to Kendari, then approximately 9 and half hours by car to the ETL camp site. Figure 2 shows the access from Kendari airport to the ETL project.

1.3. Mining Lease Details

The ETL project mining lease (IUP) area covers 1,159Ha for operation and production of nickel and its associated minerals. The IUP is located in the East Indonesian Ophiolite Belt and for this reason, is surrounded by numerous other nickel mining tenements. The location is also within 50km, of one of Indonesia’s largest nickel smelting and industrial hubs known as Indonesia Morowali Industrial Park (IMIP). The concession map for the area is shown in Figure 3.

Figure 1 Project location map in Indonesia

Figure 2 Project access from Kendari City

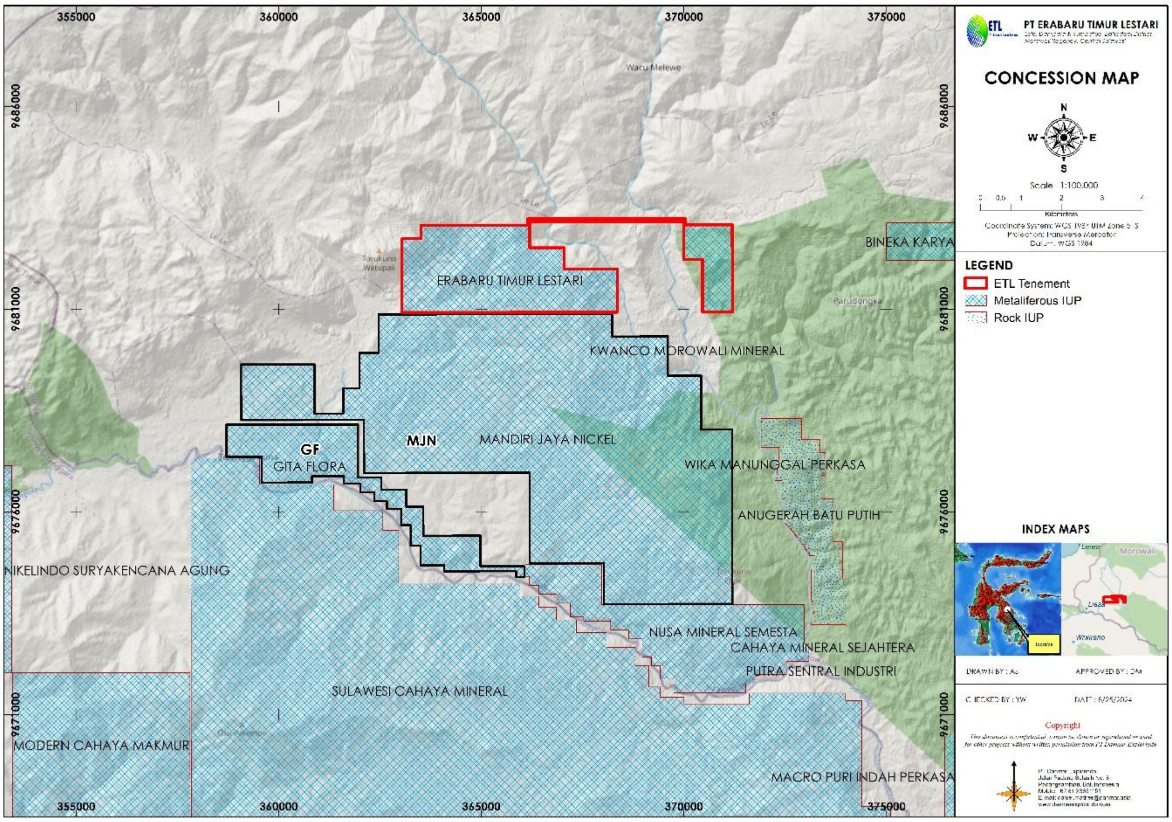


Figure 3 PT Erabaru Timur Lestari concession map

1.4. Forestry and Land Use

Approximately 95% of the ETL IUP area is covered by “area for other uses” (APL), which has no requirement for Forestry permits for exploration or mining. Approximately 5% Conversion Production Forest (HPK) where Forestry permits will be required. Figure 4 shows the ETL lease area on the published Forestry Map of Indonesia.

Figure 5 is a satellite image that displays the forest condition in the area. No villages are located within the concession boundaries and no formal, commercial plantations or farms occur within the project area. Subsistence agriculture, by local people, is occuring in some parts of the concession.

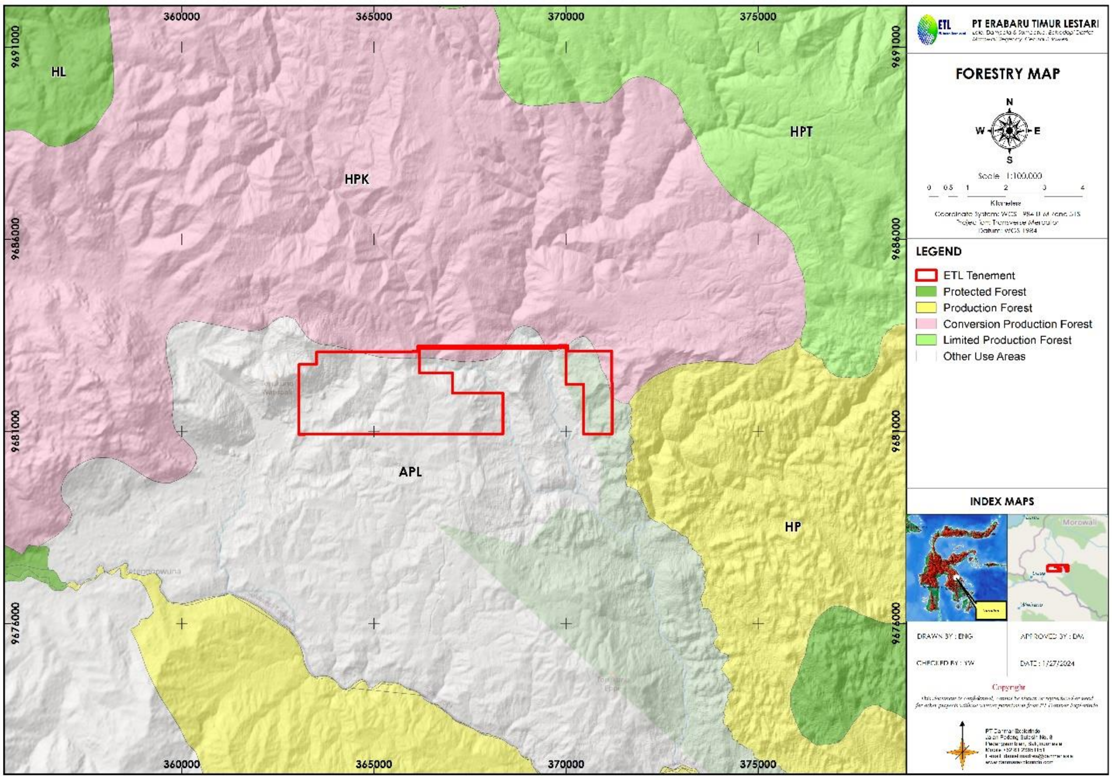


Figure 4 Forestry map of the ETL project area

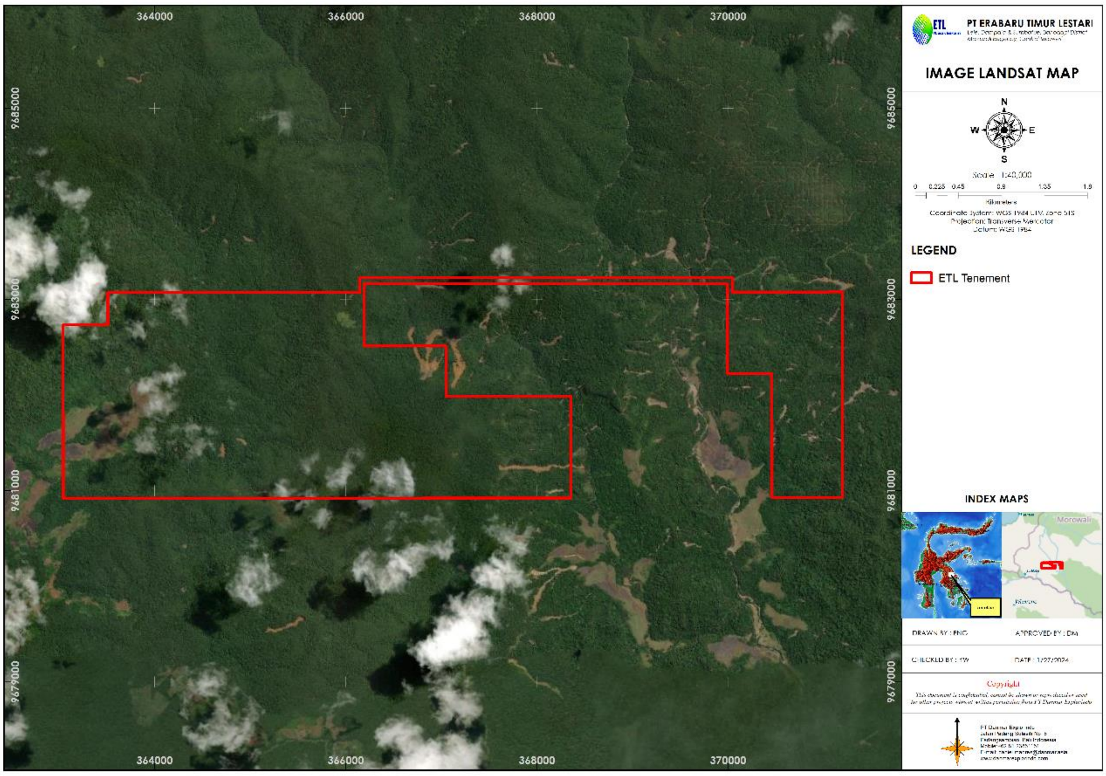


Figure 5 Satellite map displaying forest and land condition of the ETL project area

2 GEOLOGY

2.1. Regional Geology

The regional tectonic setting for Central Sulawesi is the result of a complex collision between 3 of the earth's major crustal plates namely, the Australian plate, the Pacific plate, and the Eurasian plate. As a result, three smaller plates have formed in this collision zone known as the Sunda Plate, Philippine Plate and Caroline Plate. The complex interaction between all these tectonic plates has resulted in of sections of the seafloor to be uplifted and deposited onshore in Sulawesi, North Maluku, and Papua. This is the origin of the East Indonesian Ophiolite Belt which is one of the largest ophiolite regions in the world and the source of nickel laterite deposits in East Indonesia. Ophiolites are the result of the process of obduction of oceanic crust and mantle to a position on top of continental rocks. This intense structural geological setting is also the reason major geological structures such as the Palu, Matano and Lawanopo faults dissect the Central Sulawesi region and control the distribution of rocks in the area.

The ETL project area is located on the southeast arm of Sulawesi where large gravitational collapse structures of the offshore Tolo Trough, east of Morowali, are interpreted to be caused by the regional exhumation of this part of Sulawesi (modified after Rudyawan and Hall, 2012; Titu-Eki and Hall, 2020), see Figure 6.

From the geological map of the Bungku Quadrangle of Sulawesi, published by the Indonesian Geological Research and Development Center (Simandjuntak, Rusmana, Supandjono & Koswara, 1993), the ETL project area is covered by the Matano Formation (Km) and Salodik Formation (Tems) as shown in Figure 7.

Description of the rock types on the Regional Geology Map are as follows:

Salodik Formation (Tems): Calcilutite, sandy limestone, marl, sandstone, and intercalation of chert.

Matano Formation (Km): Calcilutite, marl and shale with radiolaria chert intercalation.

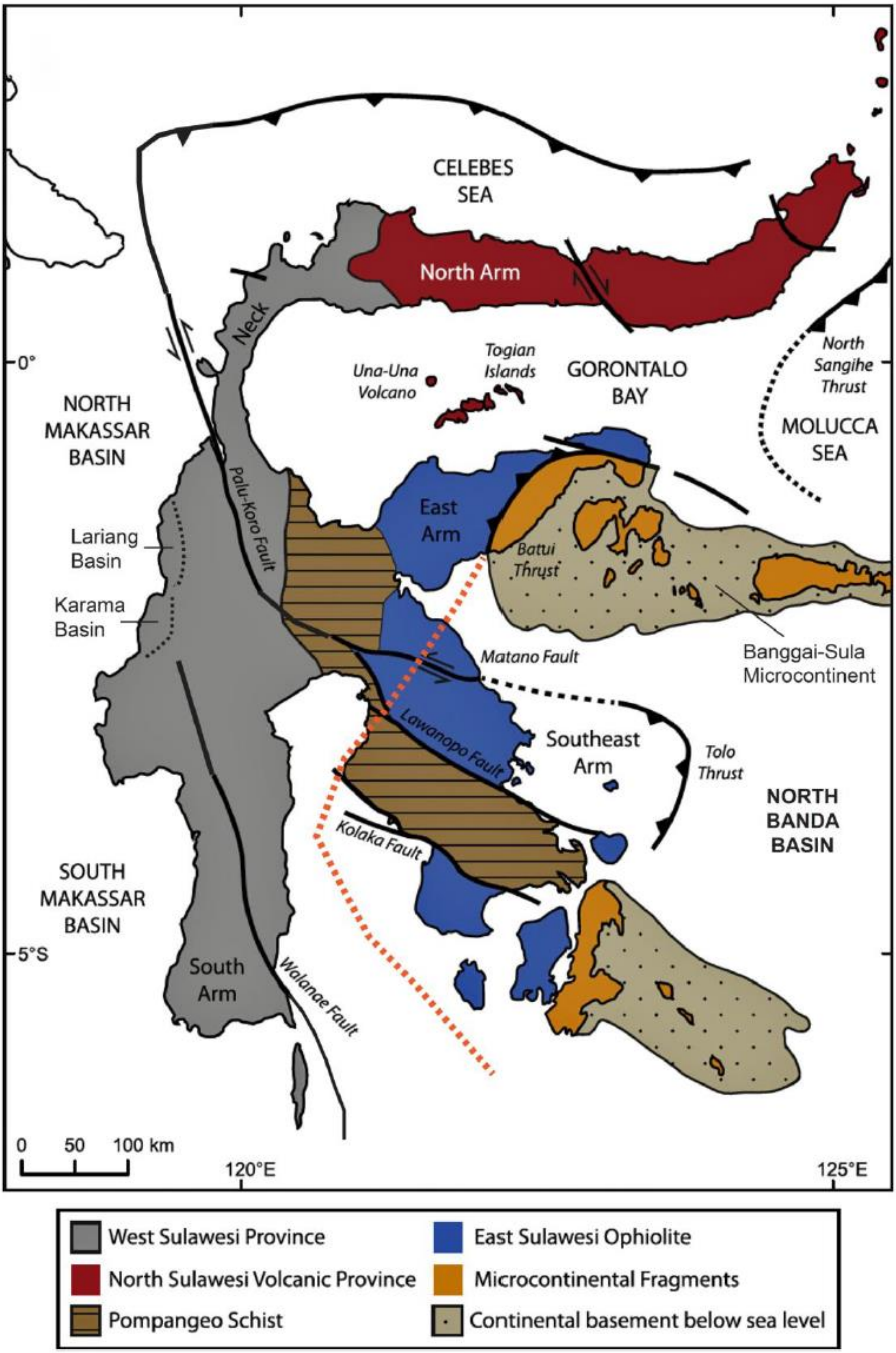
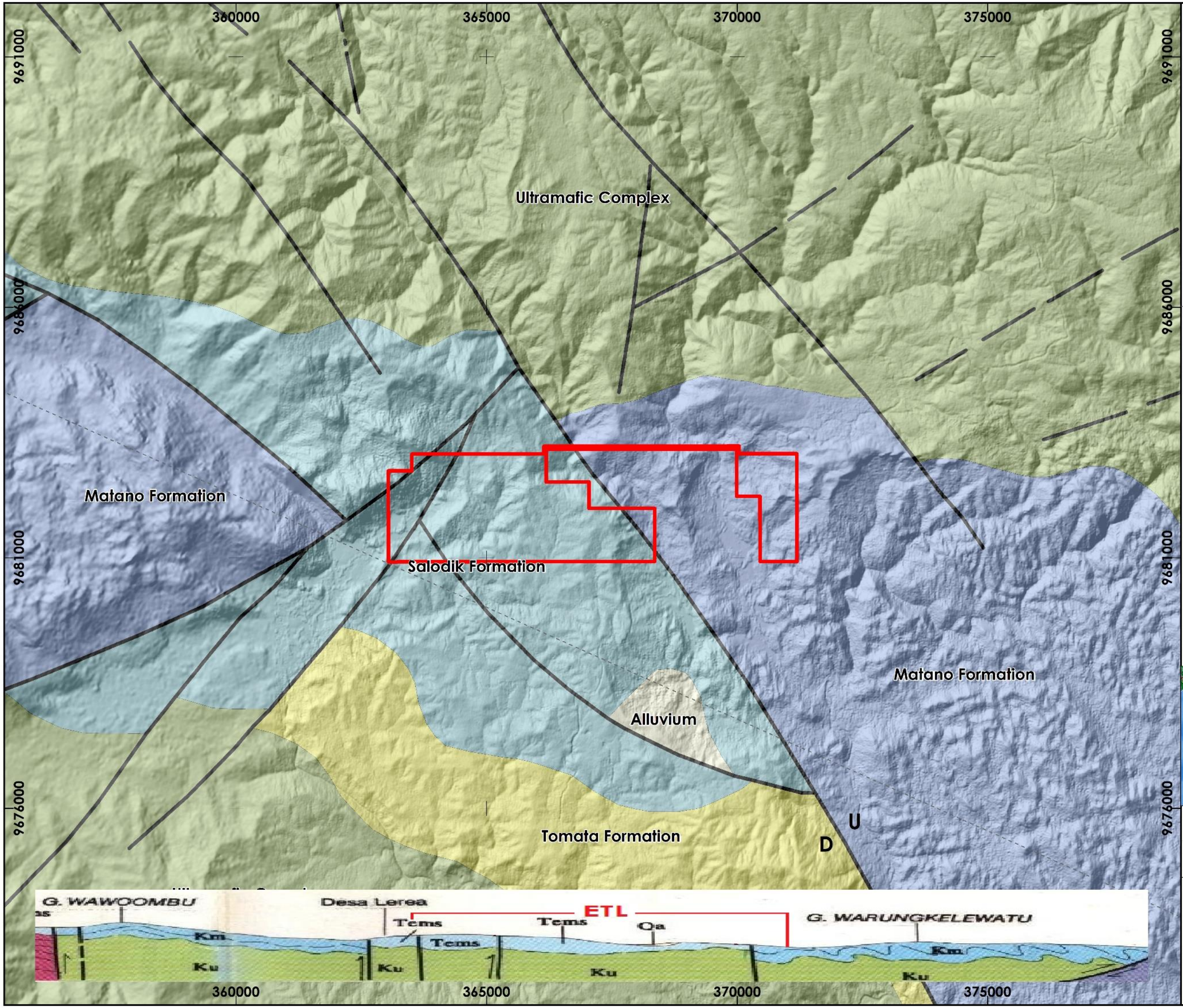


Figure 6 Major geological unit and faults of Sulawesi (Modified after White er al., 2014)



PT ERABARU TIMUR LESTARI
Lele, Dampala & Sumbatue, Bahodopi District
Morowali Regency, Central Sulawesi

REGIONAL GEOLOGY MAP

N
W E
S

Scale 1:100,000

0 0.5 1 2 3 4
Kilometers

Coordinate System: WGS 1984 UTM Zone 51S
Projection: Transverse Mercator
Datum: WGS 1984

LEGEND

🟥	ETL Tenement
Qa	Alluvium *Mud, clay, sand, granule and pebble*
Tmpt	Tomata Formation *Alternating of sandstone, claystone, tuff and conglomerate with lignite intercalations*
Tems	Salodik Formation *Calcilutite, sandy limestone, marl, sandstone and intercalation of chert*
Km	Matano Formation *Calcilutite, marl and shale with radiolaria chert intercalation*
Ku	Ultramafic Complex *Harzburgite, lherzolite, wehrlite, websterite, serpentinite, dunite, diabase and gabbro*

INDEX MAPS

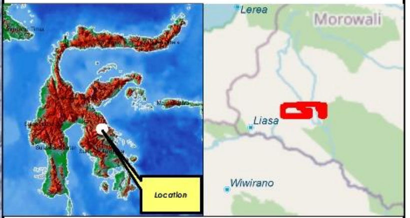


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Table 1 Generalized chronostratigraphy of the project area

Age				**Surficial Deposits**	**Sedimentary and Volcanic Rocks Mendala Sulawesi Timur**	**Igneous Rock Eastern Sulawesi Ophiolite Belt**	**Sedimentary and Volcanic Rocks Mendala Banggai-Sula**	
Cenozoic	Quarternary	Holocene		Qa				
		Pleistocene						
	Tertiary	Pliocene			Tmpt			
		Miocene	Late					
			Middle					
			Early				Tems	
		Oligocene	Late					
			Middle					
			Early					
		Eocene	Late					
			Middle					
			Early					
		Paleocene						
Mesozoic		Cretaceous	Late		Km	Ku		
			Early					JKm
		Jurassic					Jn Tkjt	
		Triassic						

2.2. Local Geology

Although the regional geology map shows that the ETL concession area is part of the Salodik and Matano formations, in the central part of the area (Block D), the lithology is almost entirely a molasse conglomerate deposit. The fragments and the matrix of the conglomerate, consist of predominently olivine rich rocks such as peridotite and other igneous rocks such as gabbro and andesite. The conglomerate contains well rounded, poorly sorted fragments ranging in size from boulders to pebbles, sand and silt. The conglomerate probably formed after ultramafic rocks were transported in the intense erosion of recently uplifted mountains by rivers and streams and redeposited unconformably on top of the Salodik Formation. This molasse conglomerate is the source rock for the nickel laterite at ETL. The conglomerate tend to have a porous sand matrix that is often filled by supergene silicate precipitates.

When the molasse conglomerates are exposed to humid, tropical climates over a long period of time laterization can occur as the rocks are weathered. In this process of weathering by rain, soluble minerals are leached away and less soluble minerals such as iron, nickel and cobalt are left behind in the weathering profile. This laterization process is influenced by the climate, geological structure, rock type, permeability, and topography over long periods of time, to form a soil profile in which minerals containing nickel and other elements can be depleted in some places and concentrated in other areas. Within the ground, the leaching process is enabled by the permeability of the bedrock, often as a result of tectonic movement, causing fracturing and shearing creating conduits for the flow of mineral rich solutions leached from above.

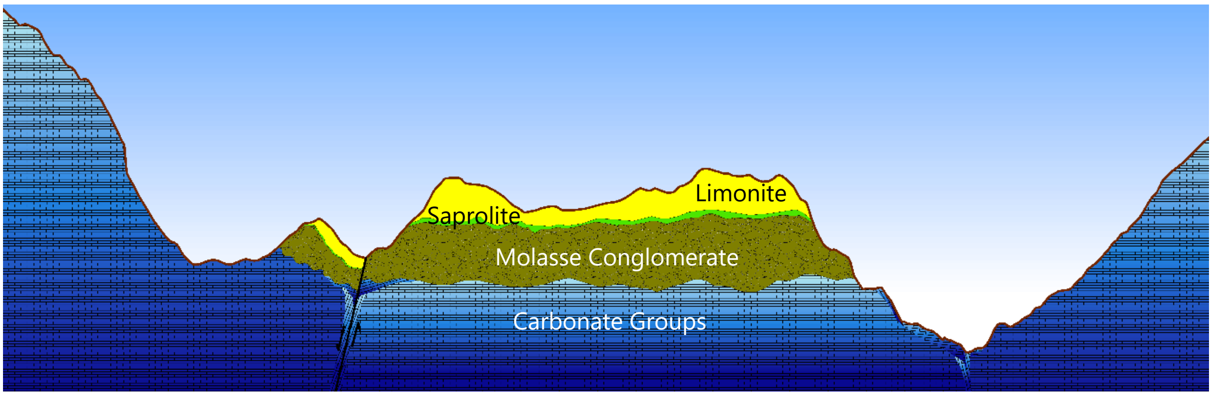
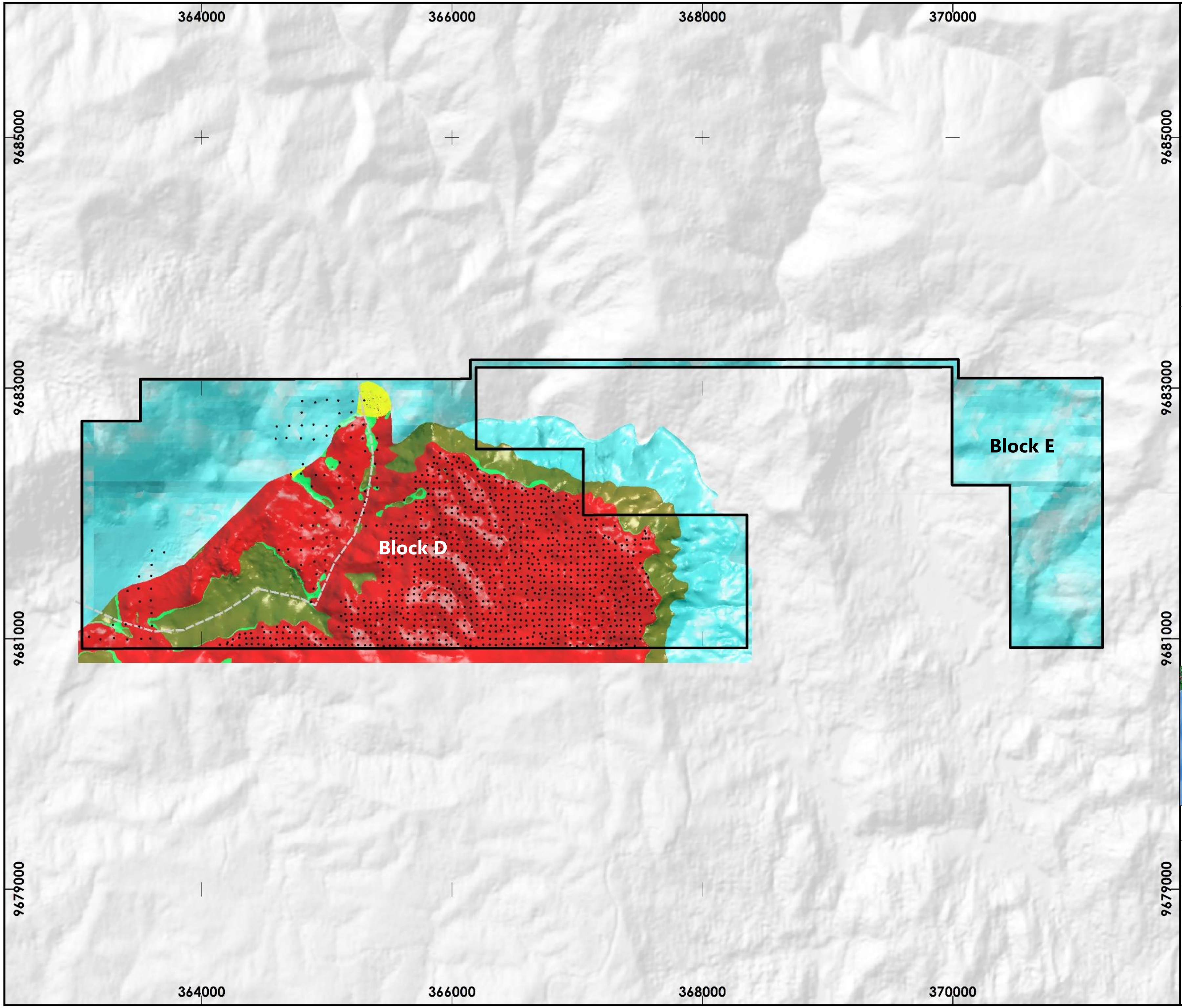


Figure 8 Conceptual geology of the project area

Photo 1 Molasse conglomerate outcrop at ETL

Photo 2 Garnierite mineral filled the conglomerate matrix

In the northern part of the ETL area, several drill holes intersected sedimentary rocks such as dolomite, siltstone and limestone. At this time, this area is considered as carbonate group from Salodik Formation.



PT ERABARU TIMUR LESTARI
Lele, Dampala & Sumbatue, Bahodopi District
Morowali Regency, Central Sulawesi

LOCAL GEOLOGY MAP

N
W E
S

Scale 1:40,000

0 0.225 0.45 0.9 1.35 1.8
Kilometers

Coordinate System: WGS 1984 UTM Zone 51S
Projection: Transverse Mercator
Datum: WGS 1984

LEGEND

▭ ETL Tenement
· Drill Hole Location
--- Fault
ETL Tenement

Lith Type

🟥 LIM
🟩 SAP
🟫 MLS
🟨 MUD
🟦 CARBONATE

INDEX MAPS

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2.3. Mineralisation

The nickel laterite in the project area is assumed to occur as a product of supergene enrichment during the laterization of the molasse conglomerate. Fragments and matrix of the conglomerate, that are relatively high in nickel content, such as dunite and high-olivine peridotites, are the likely to yield higher concentrations of nickel in the resulting laterite.

Certain elements such as nickel (Ni), cobalt (Co) and manganese (Mn) are relatively soluble in the acidic terrestrial (rain)waters which tend to percolate down the laterite profile from the surface but become insoluble as the waters reach the low ph ground water and are precipitated.

In the project area, nickel grade in the limonite layer has the average of 1.05% Ni while the saprolite layer has an average nickel grade of 1.32%. This is likely be a consequence of the poorly sorted molasse conglomerate composition and the fluctuation of the acidic terrestrial waters and ground water table during chemical weathering process of the laterite.

Chromite (Cr_2O_3) is relatively immobile, compared to nickel, in acidic rainwater and for this reason is found concentrated in the limonite profile. Chromite tends to be concentrated at the upper and middle part of the limonite zone and have a good correlation with Fe (see Figure 7). The average grade for Chromite in the limonite zone is 2.88%, while in the saprolite 1.38%.

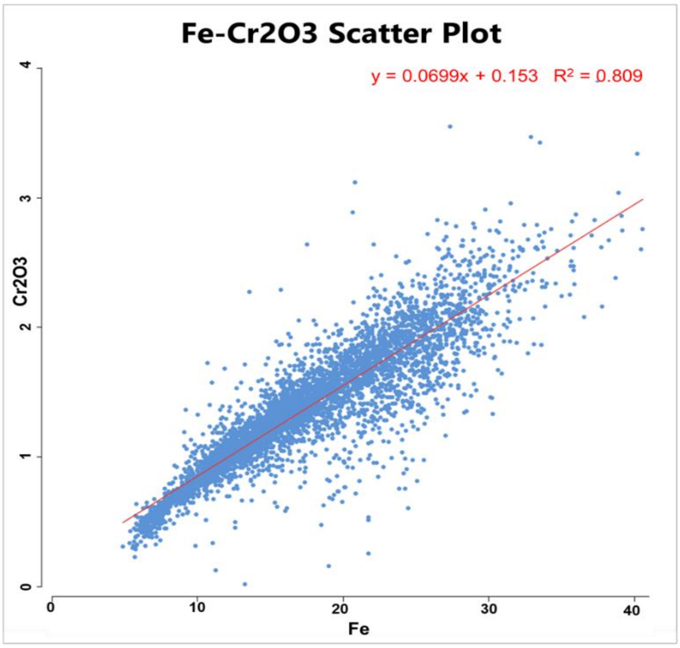


Figure 10 Correlation between Fe and Cr_2O_3 from all samples

Cobalt has relatively lower mobility than nickel in acidic rainwater and for this reason is found more concentrated in the limonite profile. Cobalt tends to be precipitated either at the lower part of the limonite zone or in the saprolite/ limonite transition zone. The average grade for cobalt in the limonite is 0.11%, while in the saprolite 0.04%.

2.4. Previous Exploration, Resource Studies and Reports

In 1999, Rio Tinto began exploring a large area that covered the northern part of Konawe and the the southern part of Morowali Regencies, which apparently included at least some of the current ETL area. Eventually, PT Rio Tinto took up an IUP license in 2010 and subsequently entered into a joint venture with Sherritt International from Canada. Mapping, GPR and drilling were carried out in the areas where, PT Bintang Delapan is currently located. From the data available at the time of writing this report, it appears that no previous work is documented within the ETL area.

During 2010, PT Hengjaya Nickel Utama and PT Mandiri Jaya Nickel did field mapping in the area, where ETL is located today and nickel laterite was identified in the area.

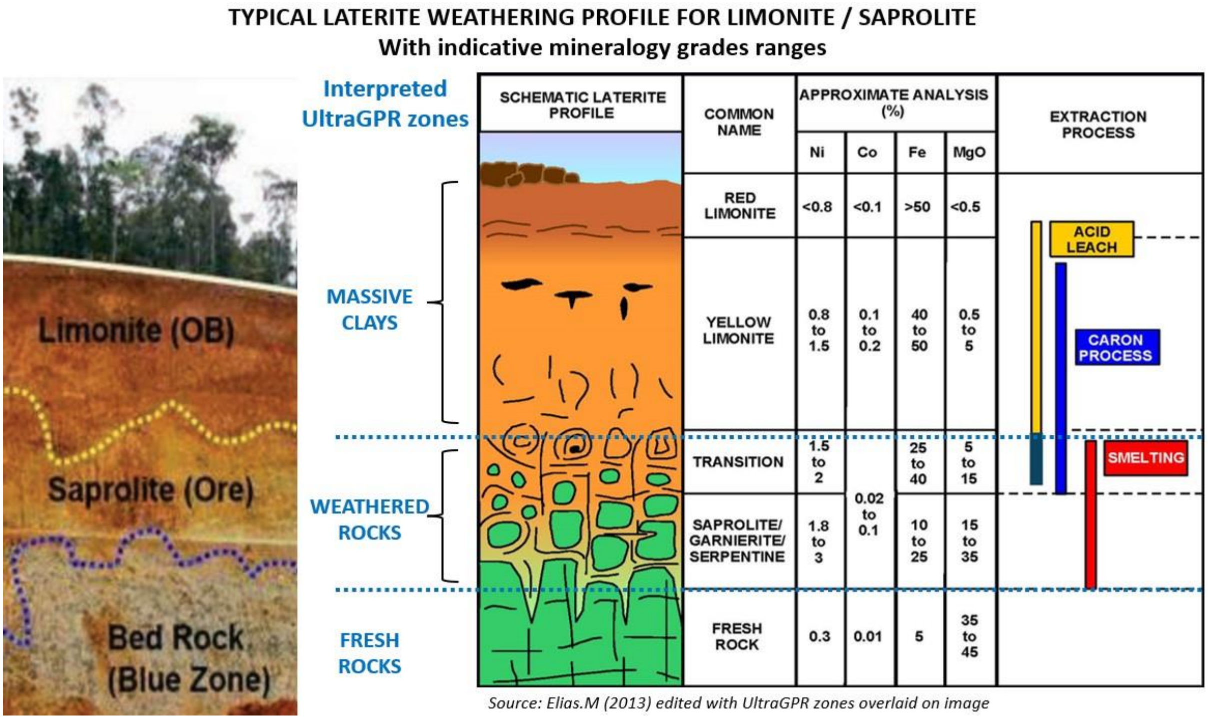
3. CURRENT EXPLORATION PROGRAM METHOD

3.1. Ultra Ground Penetrating Radar Survey

Groundradar's UltraGPR technology is a geophysical survey technique that can be used to detect subsurface geological layering and structure in nickel laterite. Relatively quick and easy to apply in the field, UltraGPR enhances the exploration process for laterites by detecting laterite thickness and bedrock morphology. The use of the UltraGPR survey is designed to increase the confidence of geological interpretation, provide a guide to thickness and depth of the target layers and help to optimize drill programs to focus on the best areas. As with all geophysical methods, UltraGPR provides supportive data for points of observation provided by drilling for Resource estimation using the JORC Code.

Photo 3 Example survey acquisition using UltraGPR (source: Groundradar.com)

At ETL, UltraGPR has been a useful exploration tool to indicate the lithological contact between limonite (massive clays) and the saprolite (weathered rocks) as well as the bedrock. Results provide indicative volumes of potential limonite and saprolite located within the survey area. Results combined with drilling data can give greater confidence of nickel laterite ore body structure, dimensions, and distribution. Figure 8 shows the close correlation of the interpreted GPR zones to the commonly named weathering profiles of nickel laterite.


TYPICAL LATERITE WEATHERING PROFILE FOR LIMONITE / SAPROLITE
With indicative mineralogy grades ranges

COMMON NAME	APPROXIMATE ANALYSIS (%)			
	Ni	Co	Fe	MgO
RED LIMONITE	<0.8	<0.1	>50	<0.5
YELLOW LIMONITE	0.8 to 1.5	0.1 to 0.2	40 to 50	0.5 to 5
TRANSITION	1.5 to 2	0.02 to 0.1	25 to 40	5 to 15
SAPROLITE/ GARNIERITE/ SERPENTINE	1.8 to 3		10 to 25	15 to 35
FRESH ROCK	0.3	0.01	5	35 to 45

Source: Elias.M (2013) edited with UltraGPR zones overlaid on image

Figure 11 Diagrammatic representation of a typical laterite profile in Sulawesi

Highly weathered laterite zones are typically structurally controlled. Geological structure can influence the distribution of where thicker, higher grade limonite and saprolite may be found. Although these structures can often be interpreted from the topographic surface relief, with the help of UltraGPR, these structures can be delineated with relative confidence providing drill targets to optimize drill programs towards the thickest and most prospective locations. Figure 9 shows an example of typical survey results using UltraGPR technologies on laterite deposits of Sulawesi.

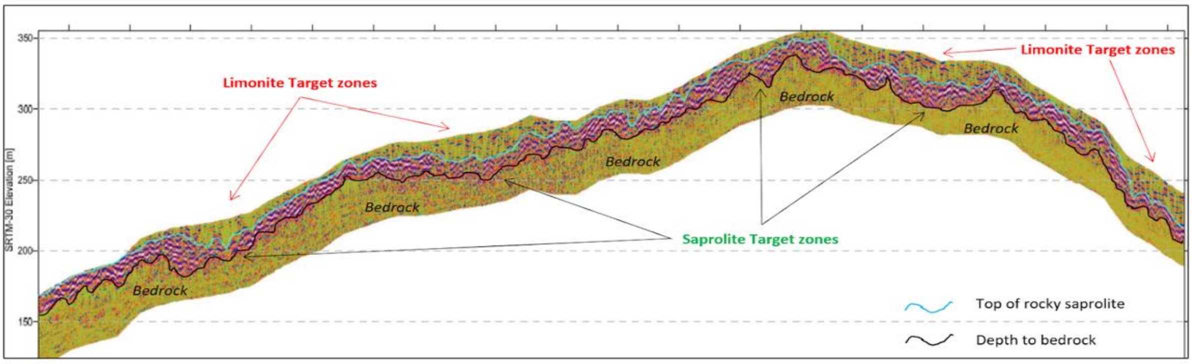


Figure 12 Example UltraGPR survey of a typical laterite profile in Sulawesi

3.2. Drilling

In June 2023, four units of Dexdrill 200 started to systematically drill the ETL nickel laterite project. The drills are ideally suited to laterite core drilling as they are lightweight and man portable. They have the added advantages of providing local people employment for manual moving between drill locations and also have low environmental impact with no need for road access or dozer support. The drills use HQ triple tube core barrels.

Photo 4 Dexdrill 200 operating at ETL

Drilling was carried out using standard operating procedures designed to ensure drill data complies with the JORC Code to be used as points of observation in this study.

3.2.1. Core Recoveries

In the current drill program core runs are restricted to a maximum of 1m intervals to optimize core recoveries. Core is extracted from the inner tube and directly transferred to the core box. core based each core run. The core is then immediately measured for length to determine core recovery and or swelling. Core is arranged, in maximum 1m runs, inside the core box with each run filling a new row in the core box. Consecutive core runs are also arranged in new rows starting on the left side of the core box to avoid any mixing or contamination from other core samples. The bottom of each core interval is labeled for its depth so that the depth of the core is clearly displayed. Core boxes that are partially filled at the wellsite, and not yet completed, are carefully covered so that the samples are kept free from contamination and damage while drilling of the hole is completed.

3.2.2. LiDAR and Drill Collar Survey

The topography of the ETL IUP has been surveyed using LiDAR to produce a digital terrain model of the ground surface in the area. The accuracy of the LiDAR is within 15cm vertical and 40cm in the horizontal plain which is appropriate to support Resource estimates. Drill collar survey using E-Survey RTK GPS equipment, was used to ground survey the drill hole locations.

3.2.3. Geological Logging of Cores

The well site geologists follow a standard operating procedure for the core logging process so that all geological logs are standardized. The core description starts at the surface and follows each 1m core run until the total depth is reached. The core description in a standard format allows the data is easily usable and recognizable by the mine technical team. Core that contains more than 20cm of solid rock is recorded as a geological boundary. The core length is checked against the actual depth recorded in the core box. The detailed description is completed as required in the logging form.

Photo 5 Drill collar survey at ETL

Photo 6 Logging cores at wellsite at ETL

3.2.4. Core Photography

With the core boxes in position, in a level place with no cover, in consecutive order, core photos can take place. Checks are carried out to make sure that the depth labels are clearly visible and in position at the bottom of each core run. Cores with swelling or core loss are clearly marked. The well site geologist checks to make sure the core box label show the correct Hole Identification, sequential arrangement, depth interval, date of start and finish drilling, EOH (end of hole), initials of the wellsite geologist and the rig identification number. When this is ready photos are taken in good light conditions making sure to minimize shadows and reflections.

PT. DANMAR EXPLORINDO

PROJECT : PT. ERABARU TIMUR LESTARI

HOLE NAME : DE_D1482

BOX : 1 - 2

DEPTH FROM : 0,00 M

DEPTH TO: 8,00 M

DATE OF START AND FINISH DRILL: 07-08-23

EOH : 12,00 M

RIG/GEOLOGIST: 06/GAZALI

Photo 7 Core photo example from ETL

3.2.5. Drill Hole Sample Handling

Plastic sample bags are always double layered to protect the integrity of the samples against accidental contamination, damage, or loss. Samples are bagged according to the geological horizon from which they belong and or in 1meter intervals, if there is no geological boundary and the plastic identity label placed inside. After each core box is emptied the outer layer sample bag is tied with string in a bow so that it can easily be undone at the camp for rechecking and final labeling. During the sampling process, the sample form is continuously filled out so that as samples are bagged every sample is recorded. Checks are made to ensure the sample intervals and labels are correct. Rechecks are done so that the sample intervals can be reconciled and there are no gaps in the depth intervals. Samples are then packed in sacks and tied with flagging tape showing the hole identification. If stored in the field the sacks are covered for protection from the weather. Samples are normally transported to the field camp daily. Sample numbers and the depth interval labels are recorded on sampling forms which are photographed and sent to Danmar head office for recording in the ETL database. During this sample labeling process, the condition of the sample bag is checked and changed if damaged. The total number of samples are rechecked against the total number of samples logged in the field at the wellsite.

Photo 8 Sample packing at the well site

3.3. Laboratory Sample and Analysis Procedures

3.3.1. Field Sample Preparation

Once samples from the field are packed and labeled at the well site and delivered to the ETL sample preparation facility, a reconciliation and checking of sample numbers, labels and condition is carried out before being packed and transported to internal laboratory operated by PT Hengjaya Mineralindo.

Photo 9 Core sample processing at ETL camp

3.3.2. Sample Security, Audits and Review

Sample core store at the ETL field office is locked when unattended and has security which operates 24 hours per day. Sample number checks are carried out at the drill site, sample store shed and again at the assay laboratory to make sure samples are not missed or lost in transpotation.

3.3.3. Laboratory QA/QC Protocol

Full cores are bagged, labeled and sent to the internal laboratory operated by PT Hengjaya Mineralindo where strict QA/QC protocols are used to ensure assay result accuracy. The Henjaya Mineralindo QA/QC laboratory Standard Operational Prosedure is documented in the Appendix 3.

4. RESULTS

4.1. GPR Survey

UltraGPR survey results are summarized in Table 2.

Table 2 UltraGPR survey summary

Block-ID	Total Length Plan	2D Length (km)
Block D	Total Line clearing Completed	68.7
	Total Line GPR acquisition	68.7
	Total Line GPR processed	68.7
Block E	Total Line clearing Completed	17.9
	Total Line GPR acquisition	17.9
	Total Line GPR processed	17.9
UltraGPR completed	Total Line clearing Completed	86.6
	Total Line GPR acquisition	86.6
	Total Line GPR processed	86.6

The survey lines shown in Figure 10 below. The UltraGPR survey data from all areas were of good quality and were easily interpretable. Maps were created showing the interpreted thickness of limonite, saprolite and depth to bedrock. The total area surveyed was approximately 839.8Ha. The nominal spacing between GPR lines is 200m spacing. The UltraGPR survey grid, where possible, is in the same location as the drill lines. Table 3 shows the resulting interpretation for laterite volumes using the UltraGPR data.

Table 3 UltraGPR survey laterite volume interpretation

Prospect	Block-ID	Material Type	Area	Volume	Tonnes (Wet)
PT Erabaru Timur Lestari	Block D	Sediments	159.7	18,000,000	32,400,000
		Massive Clays (Lim/Sap)	651	42,000,000	75,600,000
		Weathered Rocks (Rocky Sap)		65,000,000	104,000,000
		Sub-total	651	125,000,000	212,000,000
	Block E	Massive Clays (Lim/Sap)	188.8	2,000,000	3,600,000
		Weathered Rocks (Rocky Sap)		5,000,000	8,000,000
		Sub-total	188.8	7,000,000	11,600,000
	Total Laterite		839.8	132,000,000	223,600,000

**Note: Using density assumptions for limonite 1.8 and saprolite 1.6*

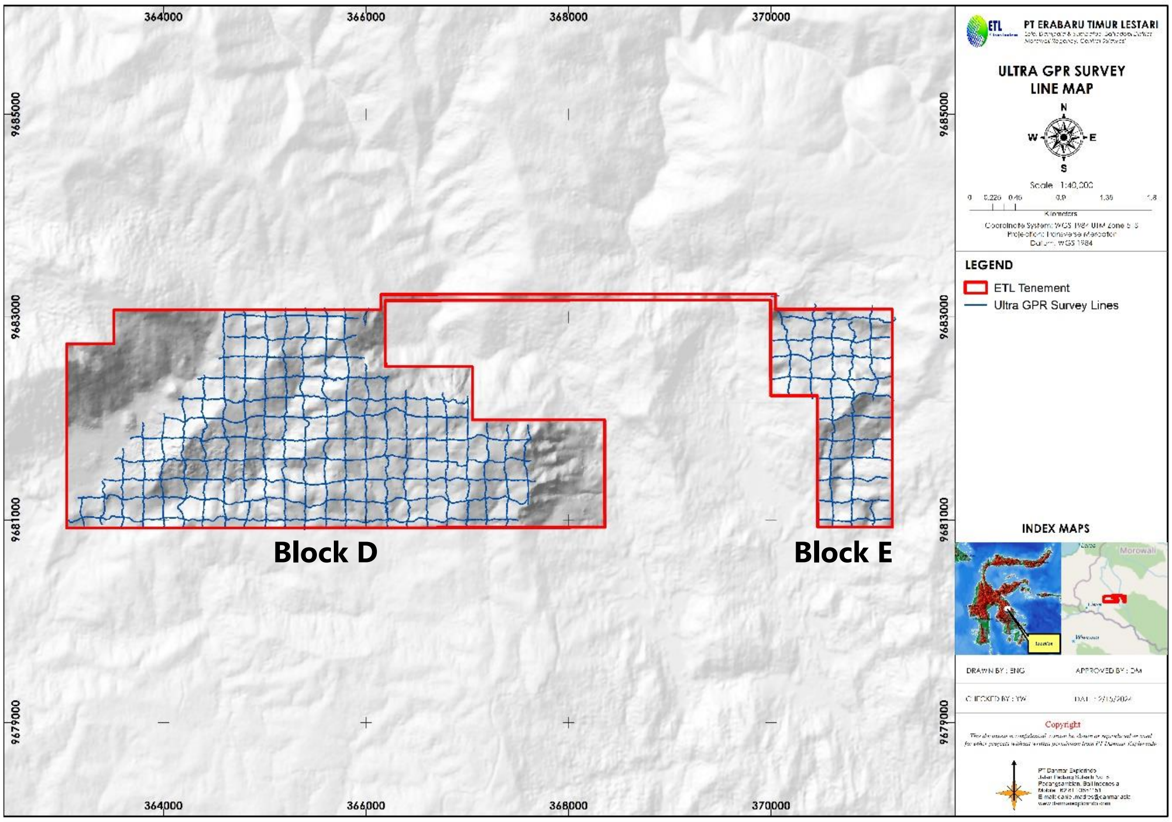


Figure 13 UltraGPR survey lines on topographic map

An example of an UltraGPR section interpretation covering 1,350m in Block D area is shown in Figure 11.

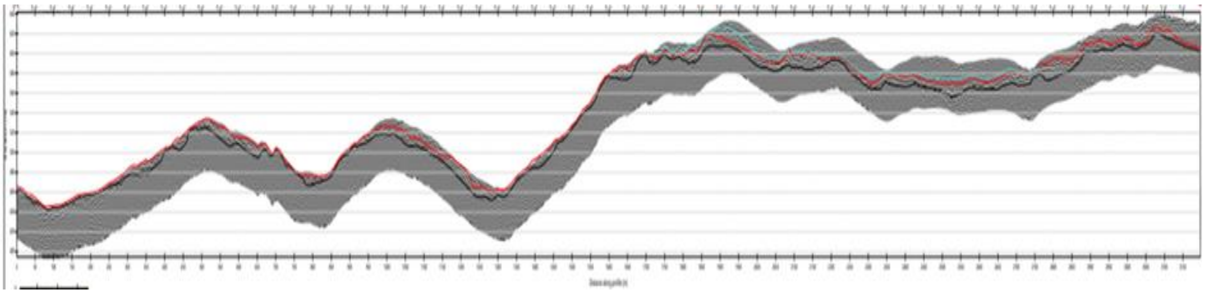


Figure 14 UltraGPR section line interpretation example ETL Block D

From The UltraGPR data in Block D, the thickness of limonite appears to average around 6.3m over the survey area, with only some relatively limited zones showing thickness up to 32.3m. The thickness of rocky saprolite, which we now know included conglomerate bedrock, varies from 0 – 40.4m, with an average 9.8m across all target zones. The total thickness of laterite varies from 0 m to 48.1m with average of 19m of total combined thickness of limonite and saprolite and conglomerate.

In Block E, from the UltraGPR data, the thickness of limonite appears to average around 1.2m over the survey area, with only some relatively limited zones showing thickness up to 9.1m. The thickness of rocky saprolite varies from 0 – 18.6m, with an average 2.6m across all target zones. The total thickness of laterite varies from 0 m to 25.9m with average of 3.8m of total combined thickness of limonite and rocky saprolite.

The limonite thickness, saprolite thickness and depth to bedrock, interpreted from UltraGPR survey data, is shown in Figure 12, Figure 13, and Figure 14 respectively.

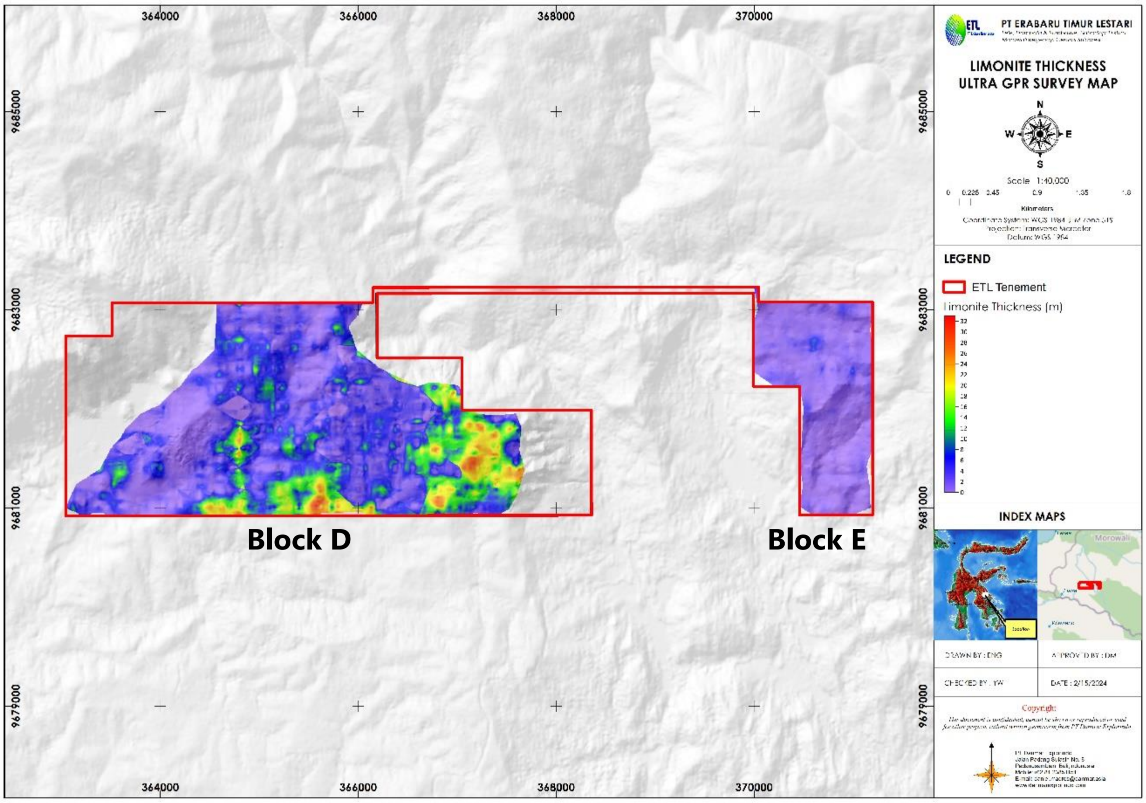


Figure 15 Limonite thickness interpreted from the UltraGPR survey

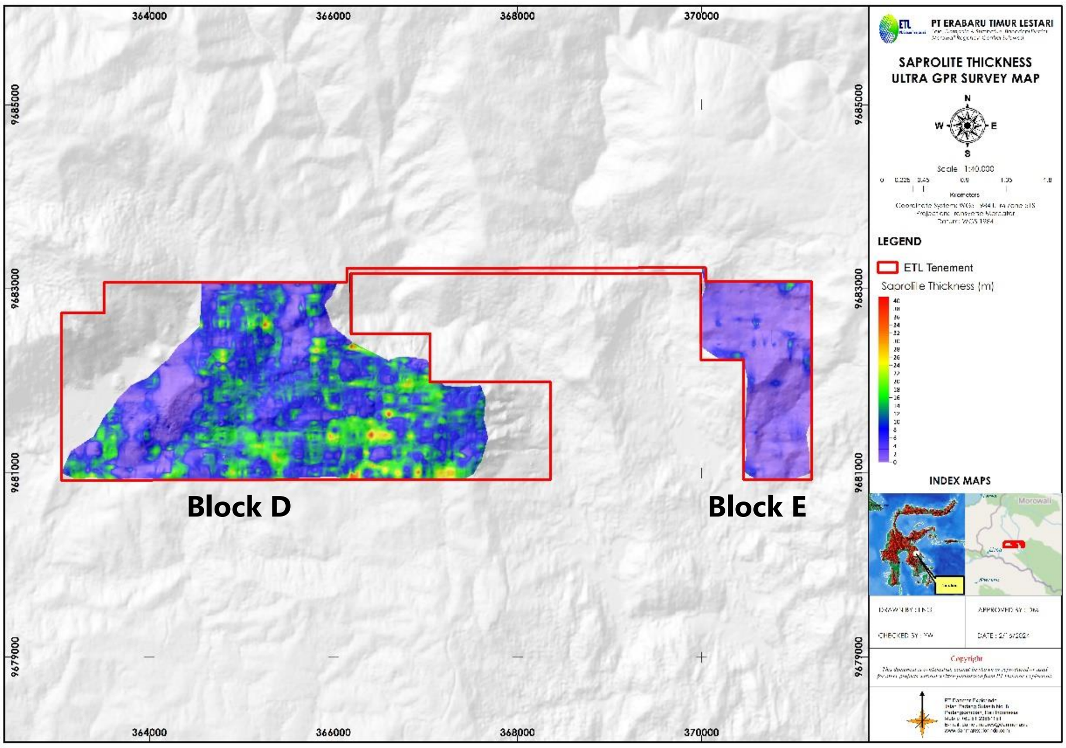


Figure 16 Saprolite thickness interpreted from the UltraGPR survey

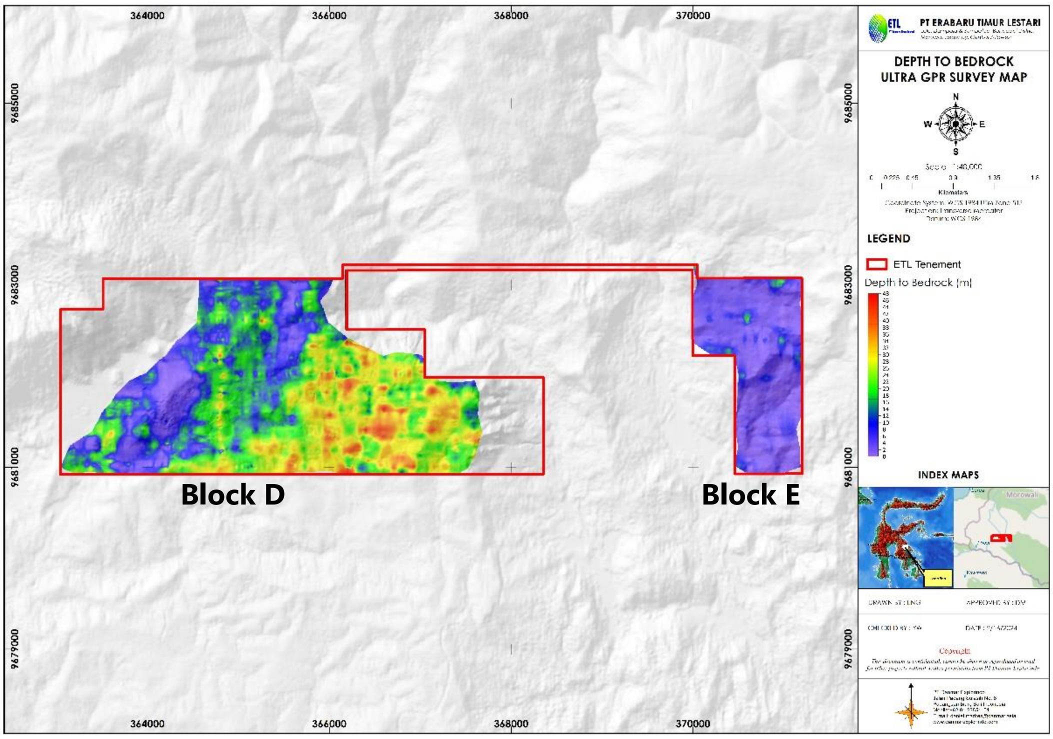


Figure 17 Depth to bedrock interpreted from UltraGPR survey

4.2. Drill Results

Validated drill data used in this study is summarized below in Table 4.

Table 4 Drill data statistics

Block	**Area (Ha)**	**Drilling Used in Resource**			**Drilling Excluded from Resource**		
		Drillholes	**Cummulative (m)**	**Assays**	**Drillholes**	**Cummulative (m)**	**Assays**
Block D	340	1,337	32,798	32,933	1	40	52

For the purpose of this Resource estimate, a database of validated drilling data including 1,337 drill holes with a cumulative total depth of 32,798m and 32,933 analyses results has been constructed. Most of the drilling is on a systematic grid, providing a regular spread of drill data over most of the laterite areas in Block D. Geotechnical drill holes are excluded from the geological model since they do not have the geochemical (assay) analysis data. One hole (DE_D50_1896) was excluded from the Resource estimates because of the drillhole location was clearly eroneous as it was only 16m from a pre-existing drillhole.

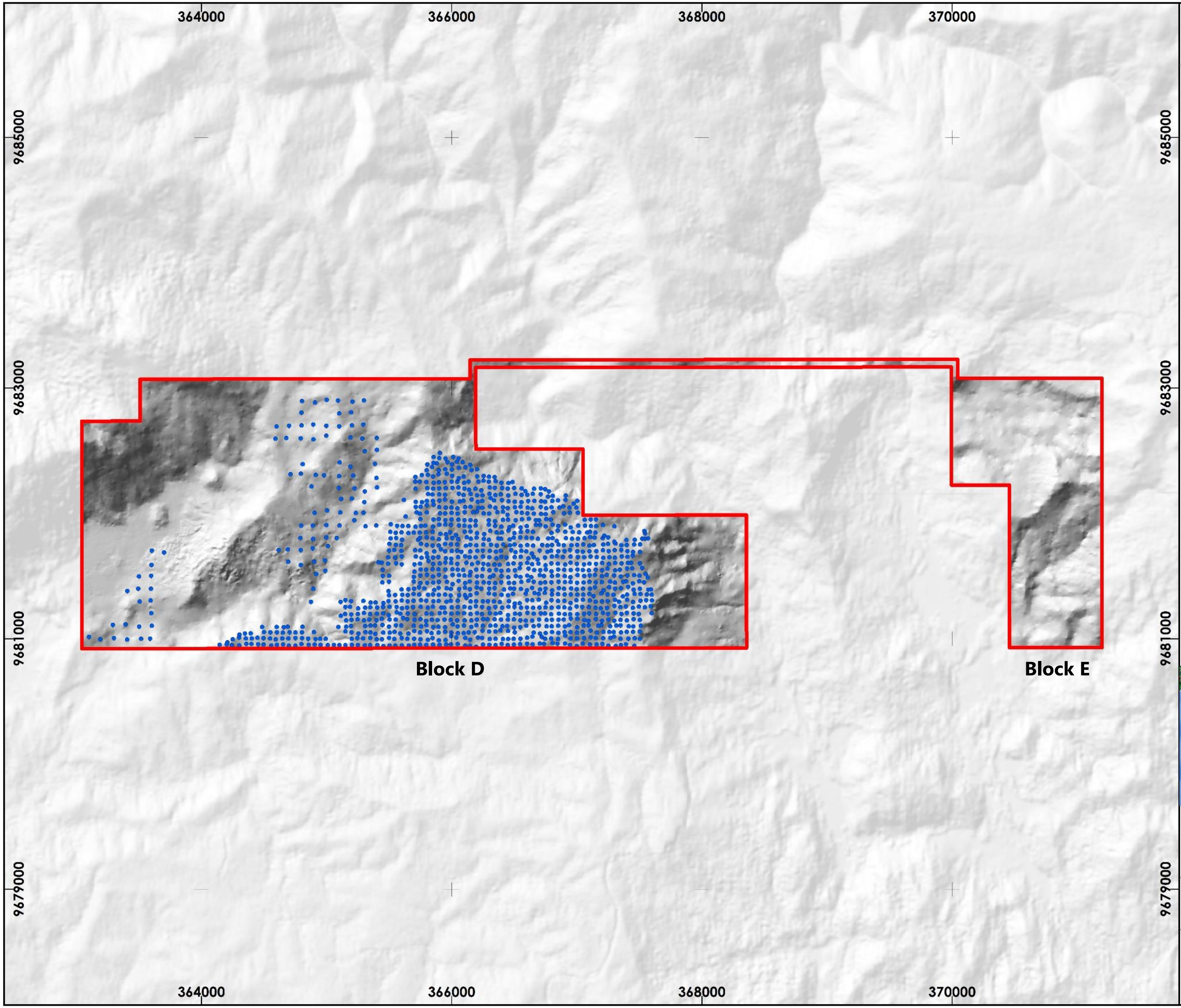
Drill spacing has been done at 50m and 100m spacing with the objective of Resource definition in these areas. Figure 15 shows the drill location map.

The distribution of drilling in each Resource block area is summarized in Table 5.

Table 5 Drilling distribution per Block

Block	**Drilling Spacing (m)**			
	<25-25	**25-50**	**50-100**	**Exploration**
Block D	-	1240	98	-
% of Total Holes	0.0%	92.7%	7.3%	0.0%

Core recovery data is summarized below. Data from the latest drilling programs was systematically recorded and includes core recovery measurements supported by core photography. Core recovery data is summarized in Table 6.



PT ERABARU TIMUR LESTARI
Lele, Dampala & Sumbalue, Bahodopi District
Morowali Regency, Central Sulawesi

DRILL HOLE LOCATION MAP

N
W E
S

Scale 1:40,000

0 0.225 0.45 0.9 1.35 1.8
Kilometers

Coordinate System: WGS 1984 UTM Zone 51S
Projection: Transverse Mercator
Datum: WGS 1984

LEGEND

▭	ETL Tenement
•	Drill Hole Location

INDEX MAPS

DRAWN BY : ENG	APPROVED BY : DM
CHECKED BY : YW	DATE : 2/16/2024

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Table 6 Core recoveries

Data Source	Lithology	Recorded Core Recovery				Not Recorded
		≥ 95%	95%-90%	90%-85%	< 85%	
Danmar Explorindo	Limonite	99.94%	0.01%	0.03%	0.02%	0.00%
	Saprolite	99.21%	0.32%	0.32%	0.15%	0.00%
	Molasse	98.98%	0.41%	0.49%	0.11%	0.00%
	Carbonate	100.00%	0.00%	0.00%	0.00%	0.00%
	Average	**99.53%**	**0.19%**	**0.21%**	**0.07%**	**0.00%**

4.3. Survey Results

LiDAR topography survey was carried out by PT Hengjaya Mineralindo and covers the entire ETL IUP. The work was carried out between March and July 2023.

The resulting topography survey map of the IUP area is shown in Figure 16.

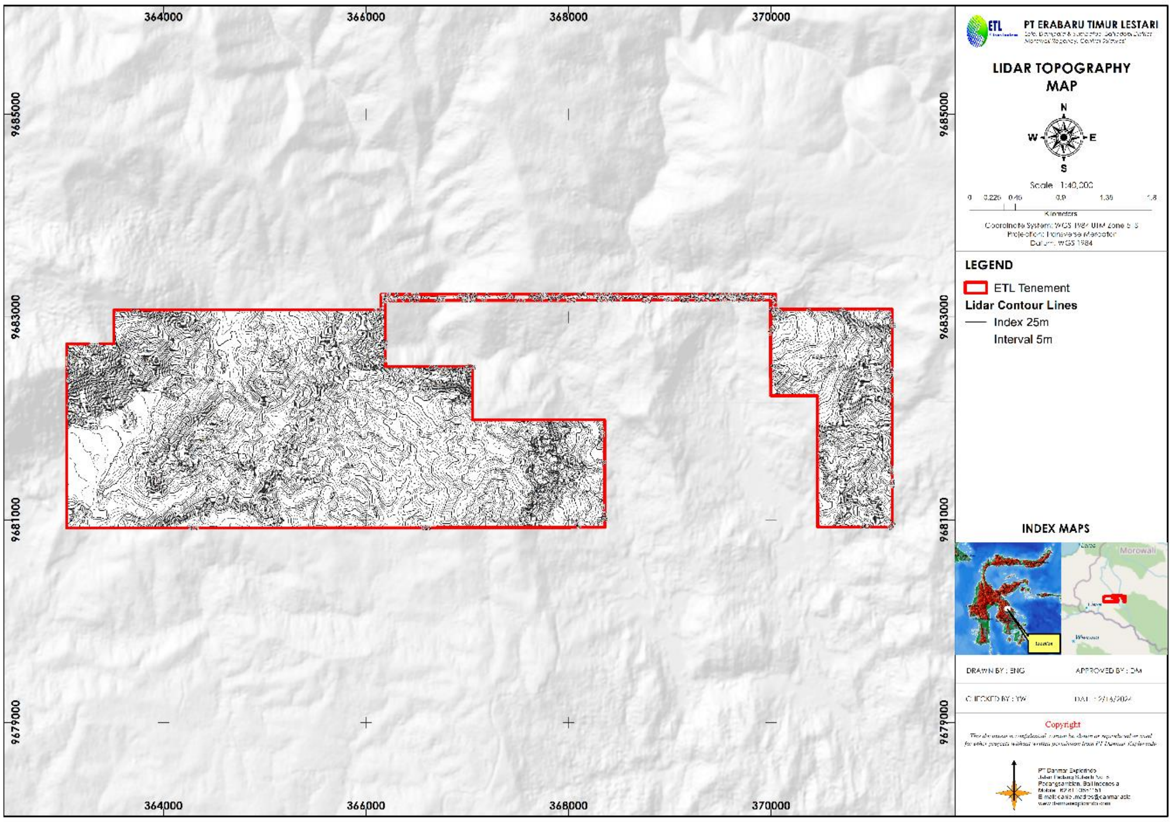


Figure 19 Topography map of the IUP area

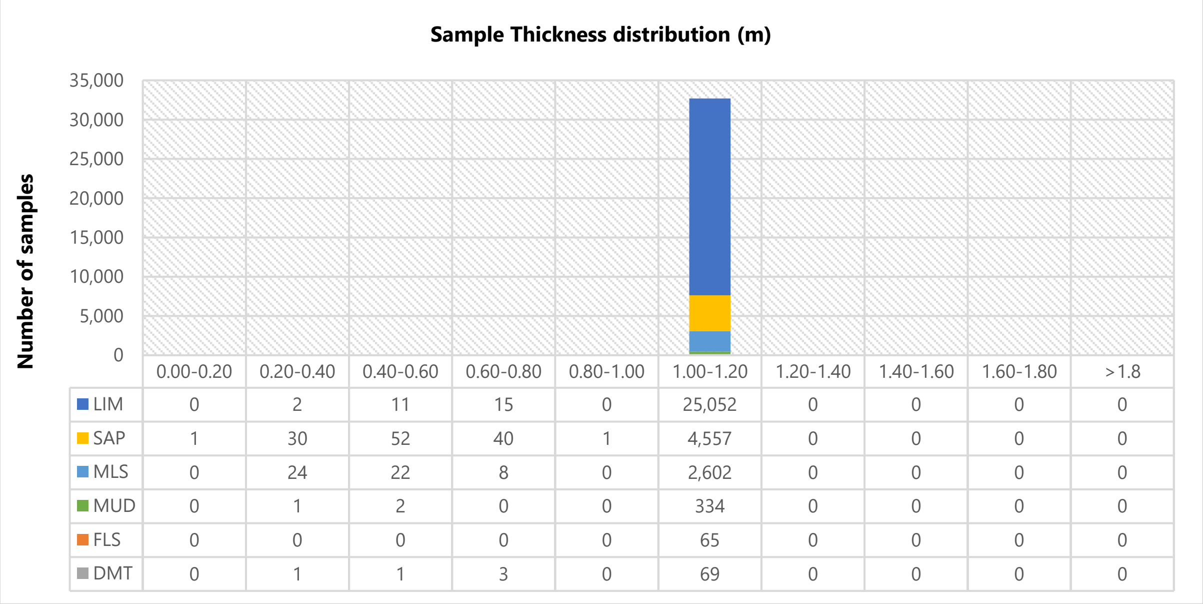
Drill collars have been surveyed by ground survey and these results are summarized in Table 7.

Table 7 Drill collar ground survey

Survey Company	Date of Survey	Total Drill holes
PT Hengjaya Mineralindo	2023	1,337

4.4. Assay Analysis Results

32,945 XRF sample analyses have been performed on drill core samples to document the grade characteristics throughout the Block D, Nickel Resource area at ETL at this time. Sample interval has been predominantly 1m as per each core run. Figure 17 displays the sample interval data.



	0.00-0.20	0.20-0.40	0.40-0.60	0.60-0.80	0.80-1.00	1.00-1.20	1.20-1.40	1.40-1.60	1.60-1.80	>1.8
LIM	0	2	11	15	0	25,052	0	0	0	0
SAP	1	30	52	40	1	4,557	0	0	0	0
MLS	0	24	22	8	0	2,602	0	0	0	0
MUD	0	1	2	0	0	334	0	0	0	0
FLS	0	0	0	0	0	65	0	0	0	0
DMT	0	1	1	3	0	69	0	0	0	0

Figure 20 Sample interval per lithology

4.5. Insitu Density and Moisture Measurements

Insitu density measurements of drill core samples were made for each lithological layer in each hole drilled since June 2023. A total of 3,908 density measurements on drill core samples have been performed. These are insitu density measurements for laterite layers in the ground. Samples relating to limonite, saprolite and molasse conglomerate, used in this Resource assessment are summarised below;

Table 8 Density measurement from core samples

Lithology	Density t/m3 (Wet)	No. of Sample
Limonite	1.76	1,328
Saprolite	1.60	1,252
Molasse	2.70	1,328
Total		**3,908**

Moisture measurements were made by PT Hengjaya laboratory for all samples. Since June 2023, every drill core sample was measured for Moisture Content. A total 32,460 moisture measurement were performed. The results are summarized in Table 9 below.

Table 9 Moisture measurement from core sample by Hengjaya laboratory

Lithology	Average Moisture Content	Standard deviation	No. of samples
Limonite	44.96	6.90	25,080
Saprolite	39.95	10.75	4,681
Molasse	5.98	5.58	2,656
Carbonate	26.5	13.83	476

4.6. Assay Sample Quality Assurance and Control Results

A summary of the 32,933 sample assays results is shown in Table 10.

Table 10 Sample assay summary

Lithology	Assay Observations	Core Recovery (%)	Average Assay results XRF dry						
			Ni %	Co %	Fe %	MgO %	SiO_2 %	Cr_2O_3 %	SM-Ratio
Limonite	25,113	99.99	1.05	0.110	41.06	1.75	6.33	2.88	3.629
Saprolite	4,688	99.88	1.32	0.040	17.58	12.37	35.15	1.38	2.842
Molasse	2,656	99.87	0.39	0.016	6.47	23.79	39.06	0.46	1.642
Carbonate	476	100.00	0.10	0.015	7.13	2.47	47.59	0.20	19.251
Total	**32,933**	**99.97**	**1.02**	**0.091**	**34.44**	**5.05**	**13.67**	**2.44**	**2.709**

4.6.1. Coarse Blanks and Standard

Contamination is assessed by using coarse blank samples which are samples that are barren the elements being tested. At ETL these are Ni and Fe. Limestone was used as coarse blank because of low Ni and Fe. For the ETL analysis, blank samples and OREAS are inserted within exploration batch streams at rate of 4 OREAS and 4 coarse blanks for every 92 exploration core samples to test for cross contamination.

4.6.2. Coarse Duplicates

Double roll crush duplicate samples (DR) are the duplicate samples that are taken from the double roll crusher. The coarse duplicate samples were inserted into the sampling stream at a rate of 1 per every 50 sample.

A scatterplot (Figure 18) showing the results for the four elements Ni, Fe, MgO and SiO_2 from the original and double roll crush duplicate sample results from 639 exploration assays were taken over the period of June 2023 to January 2024. The graphs show the original and double roll crush duplicate elemental values in black plotted on a middle red line representing the mean elemental values of these samples. The two yellow dashed lines above and below the mean line represent the correlation between the assay variables with a variance of +5% and -5%, and the outer green dashed lines represent the variance between the assay variables of +10% and -10%. Scatterplots, where the results slope from the lower left to upper right, indicate a positive correlation.

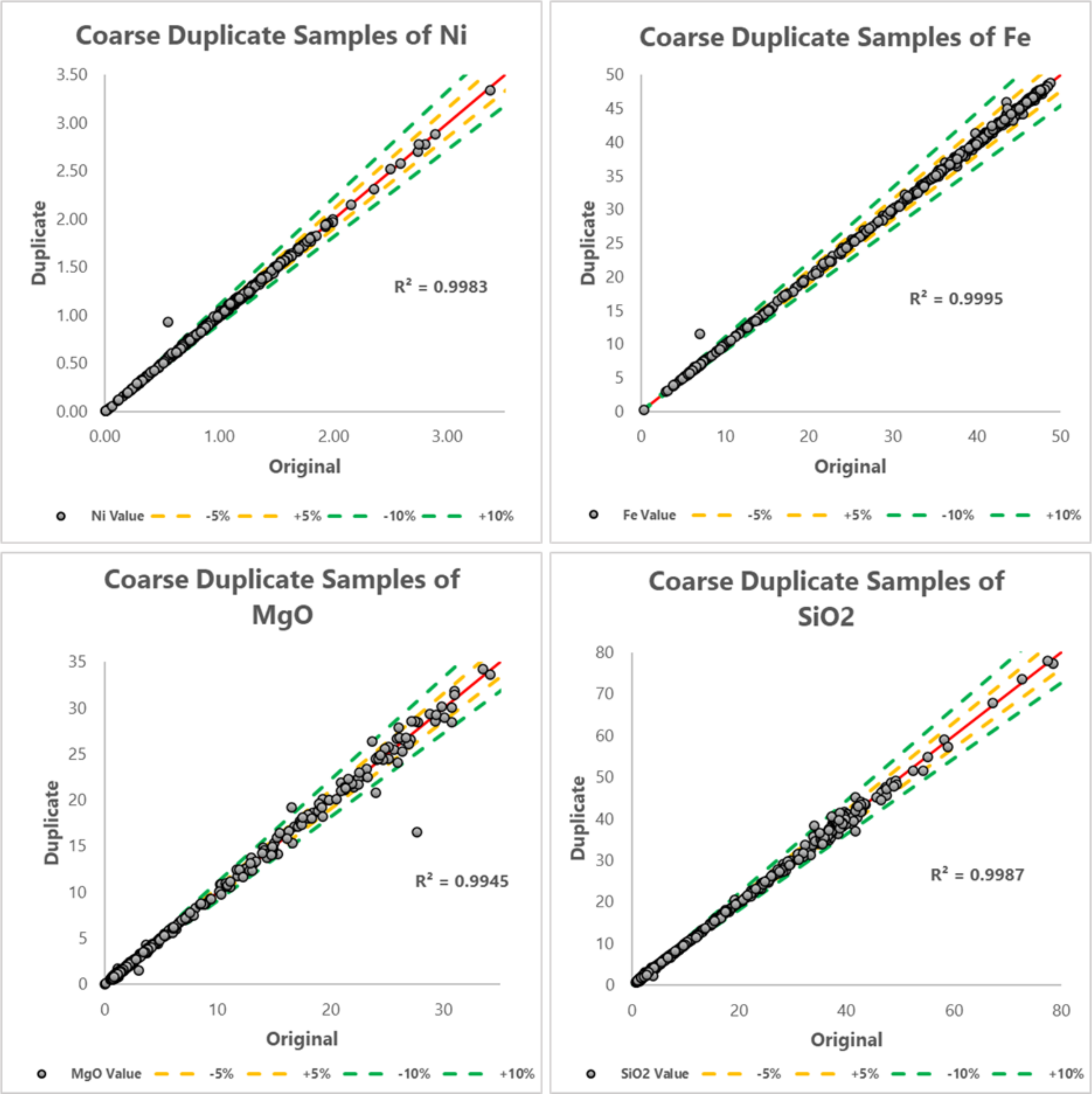


Figure 21 Scatterplot results of 639 double roll crush duplicate vs original assays

The figures above show that with all four elements the black dots plot within the +10% and -10% variance lines. In fact, the majority plotted between the +5% and -5% yellow dashed lines, showing there is a high correlation between the original and the duplicate assay values. This is further confirmed with the correlation coefficient (R^2) values more than 0.99 for the elements being assayed. These figures confirm the high precision of the double roll crushing reflecting an excellent sub-sampling precision and preparation quality.

4.6.3. Pulverizer Duplicates

Pulverize duplicates samples (DA) are second splits of the fine-grained pulp samples that are collected in the final incremental splitting of the samples after pulverizing. The pulp duplicates are indicators of the analytical precision, which can be affected by the quality of the pulverization process and the homogenization of the sample. The duplicate samples were inserted to analyzed every 50 sample with the size of the sample is ~ 200 Mesh (75 µm).

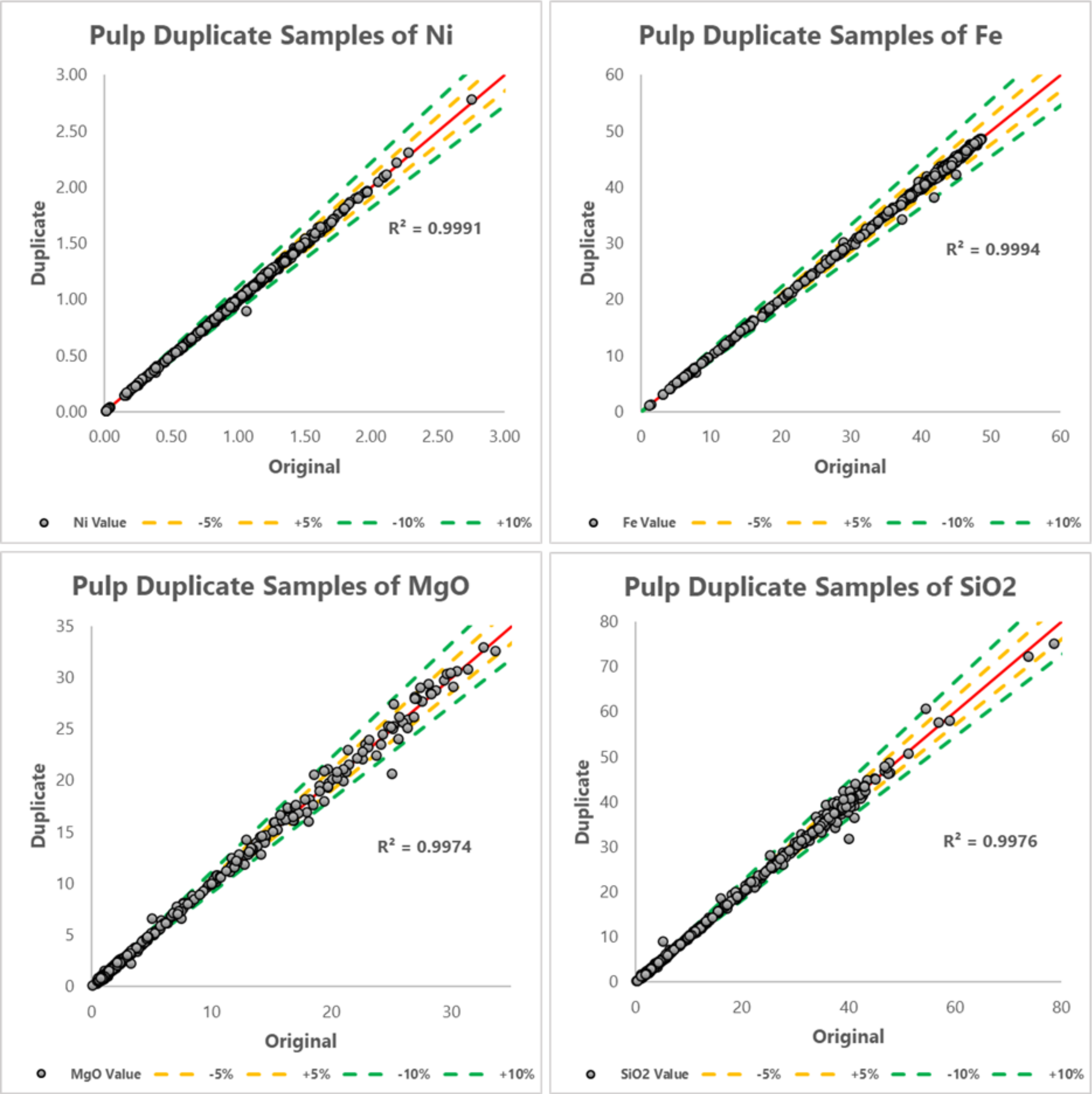


Figure 22 Scatterplot results of 637 plots for pulp duplicate vs original assays

The scatterplots (Figure 19) for the elements Ni, Fe, MgO and SiO_2 from pulp duplicate and original assays from 637 pulp samples analysed between June 2023 to January 2024. The scatterplots are similar to those shown in Figure 18 for the double roll crush duplicate assays, where the majority plotted between the +5% and -5% yellow dashed lines, showing there is a high correlation between the original and the pulp duplicate assay values and reflected with correlation coefficients more than 0.99. These figures confirm the high precision of the pulp duplicate samples indicates the pulverization process and the homogenization of the sample are good.

4.6.4. Certified Reference Materials

Certified Reference Materials, (CRM's), are samples with certified grades, prepared under specially controlled conditions and have a certified mean value for the contained elements in that standard, along with associated confidence and tolerance limits. They are used in Quality Control to monitor the values of the standard against those of the unknown samples being assayed and allow the accuracy of the assay process to be monitored. Hengjaya Assay Laboratory use CRMs produced by OREAS (Ore Research & Exploration P/L, from Victoria, Australia). OREAS CRMs used are 7 Standards with certified Nickel values shows in the Table 11.

Table 11 Certified Nickel values of OREAS CRMs

CRMs	Certified Nickel Values
OREAS 182	0.71
OREAS 184	1.02
OREAS 187	1.37
OREAS 192	1.77
OREAS 193	1.93
OREAS 194	2.13
OREAS 195	2.94

In addition, these standards have certified standard deviations and state the 95% Confidence and Tolerance Limits with low and high values.

Figures 20, 21, and 22 are Shewhart Control Charts for the results of assays using the OREAS standards 182, 187, and 192 over eight months period. The assay results obtained, over a period of time, are plotted on a chart of showing certified values against the number of samples assayed, with one dotted line showing the certified mean value and the zone between two yellow lines showing the expected value plus/minus two standard deviations, also referred to as Upper and Lower Warning Limits, and the zone between two red lines representing the Upper and Lower Control Limits at three standard deviations.

Good quality analyses will be characterized by random distribution points around the certified mean value, with 95% of the data points lying within two standard deviations of the mean. The same number of analyses should fall above and below the mean.

The OREAS Standard 182 (Figure 20) with total 737 samples show the results plotting within three standard deviations of the mean for both Ni and Fe, even though the mean value not really precise or shows a tendency to underestimation, the result still showing a good accuracy.

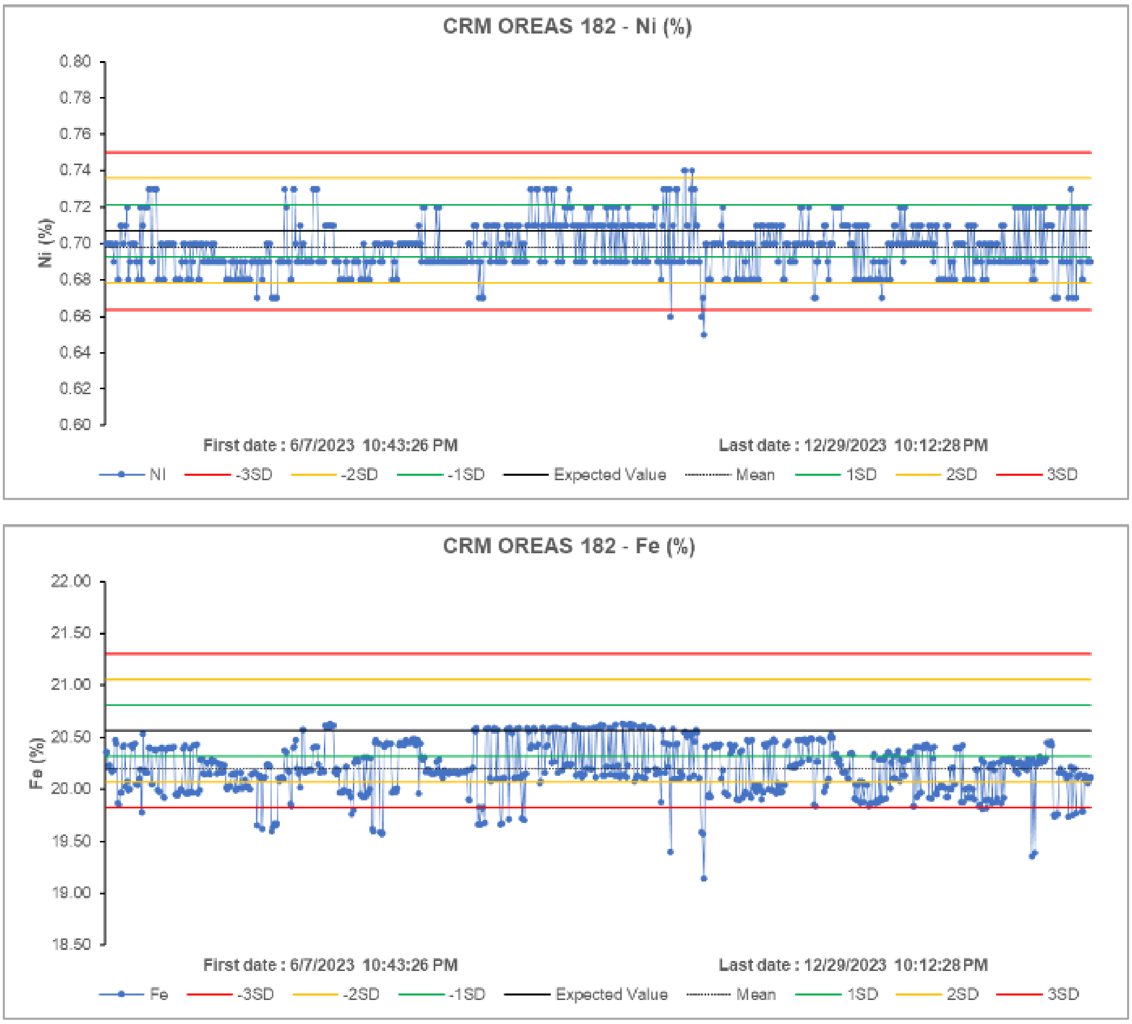


Figure 23 CRM OREAS182 - 737 samples analysis

Figure 21 shows the results for 797 samples of OREAS187 for Ni and Fe, with Ni and Fe showing good accuracy, 95% of the results plotting within two standard deviations of the mean, and similar numbers of samples above and below the mean. Some samples are showing a great variance from the expected value probably because of error while typing the type of Standard.

Figure 24 CRM OREAS187 - 797 samples analysis

The OREAS Standard 192 (Figure 22) with total 958 samples show the results plotting majority within two standard deviations of the mean for both Ni and Fe and showing a good accuracy. Same with OREAS Standard 187, some samples are showing a great variance from the expected value probably because of error while typing the type of Standard.

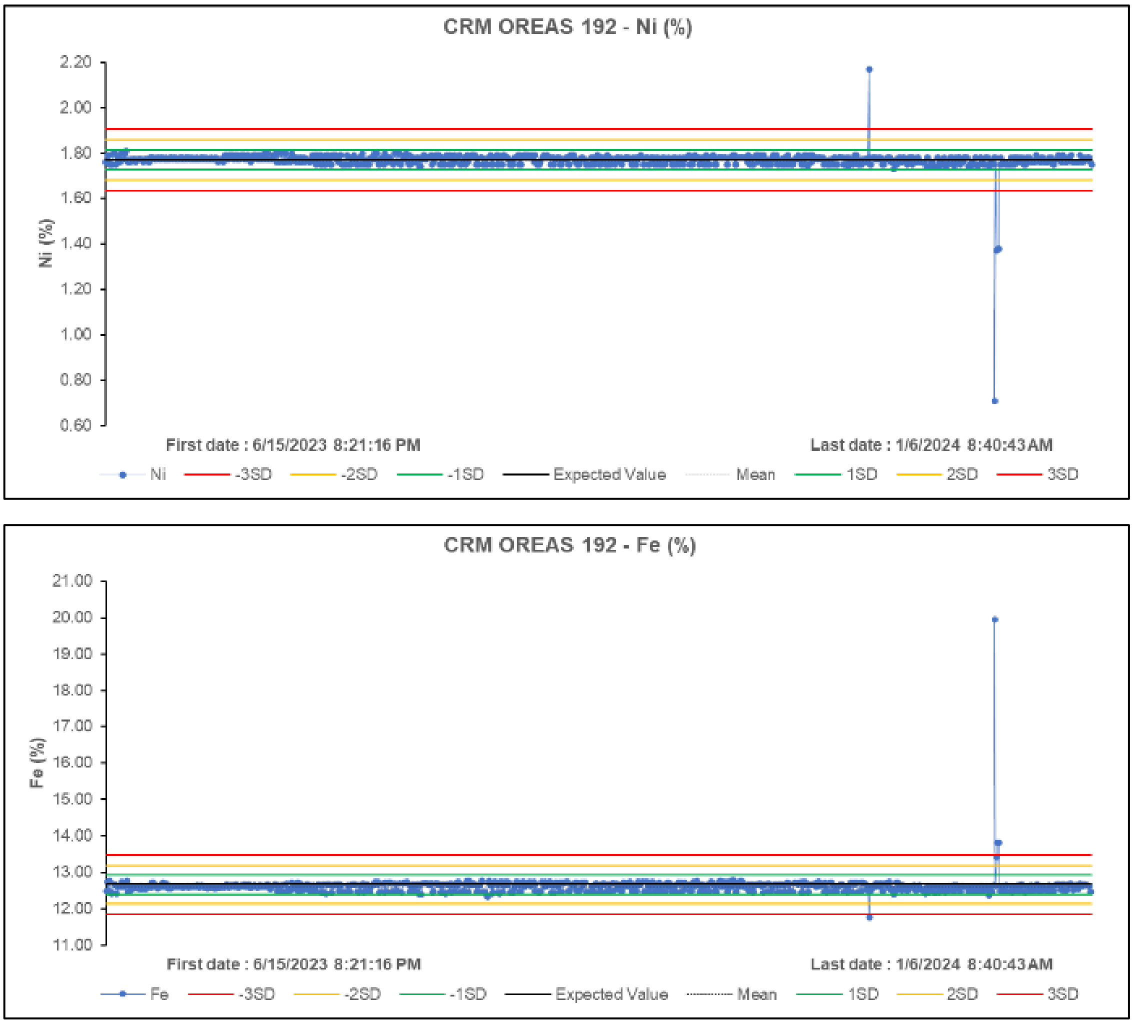


Figure 25 CRM OREAS192 - 958 samples analysis

For details of the CRM analysis see Appendix 3.

4.6.5. Replicate Samples

Replicate samples (REP) are the samples that were taken from the original sample before the preparation. Total 1,270 replicate samples were taken between June 2023 to January 2024 shows in scatterplots (Figure 26) for Ni, Fe, MgO and SiO_2. The format of the scatterplots is the same as for the previous scatterplots.

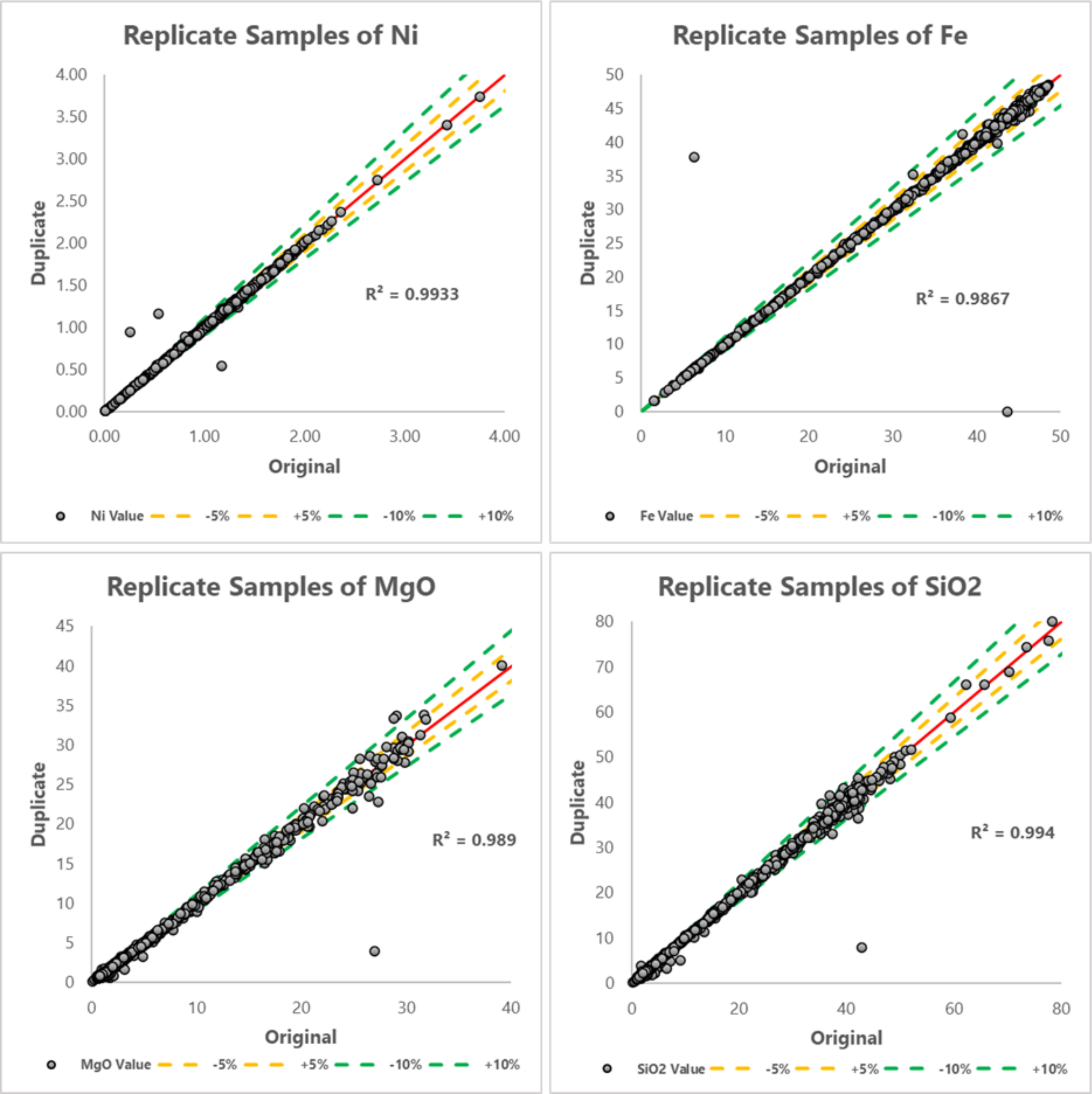


Figure 26 Scatterplot results of 1,270 plots for replicate vs original assays

The scatterplots for replicate sample assays show the majority of the results plotting within the two yellow dashed lines indicating a 95% confidence in the result plotting within these limits and is considered an excellent result. The graphs also show correlation coefficients of more than 0.98 which is indicating high precision on assay quality.

4.6.6. Interlaboratory Check Samples

Interlaboratory Check samples are second splits of both the coarse reject samples and the finer 200 # pulp samples that are routinely assayed at the HM Assay Lab and submitted to second, commercial, laboratories under a different sample number. These samples are used to assess the assay accuracy of the HM laboratory relative to the secondary, Tribhakti Inspektama Laboratory and Geoservices Laboratory.

The first batch was sent in September 2023 with total 60 samples to be checked. This batch of exploration samples were sent to the Tribhakti Inspektama Laboratory in Kendari where the coarse reject samples underwent pulverizing and incremental splitting, to be sent off for XRF assay, along with duplicate pulp assay samples. Once the samples assayed, the results were returned to the Assay Laboratory at the Tangofa site.

Figure 24 shows the results of the inter laboratory check sample tests comparing the results of 60 split Exploration coarse reject and 200# pulp samples assayed at the original HM assay laboratory with samples sent to the Tribhakti Inspektama assay Laboratory in Kendari.

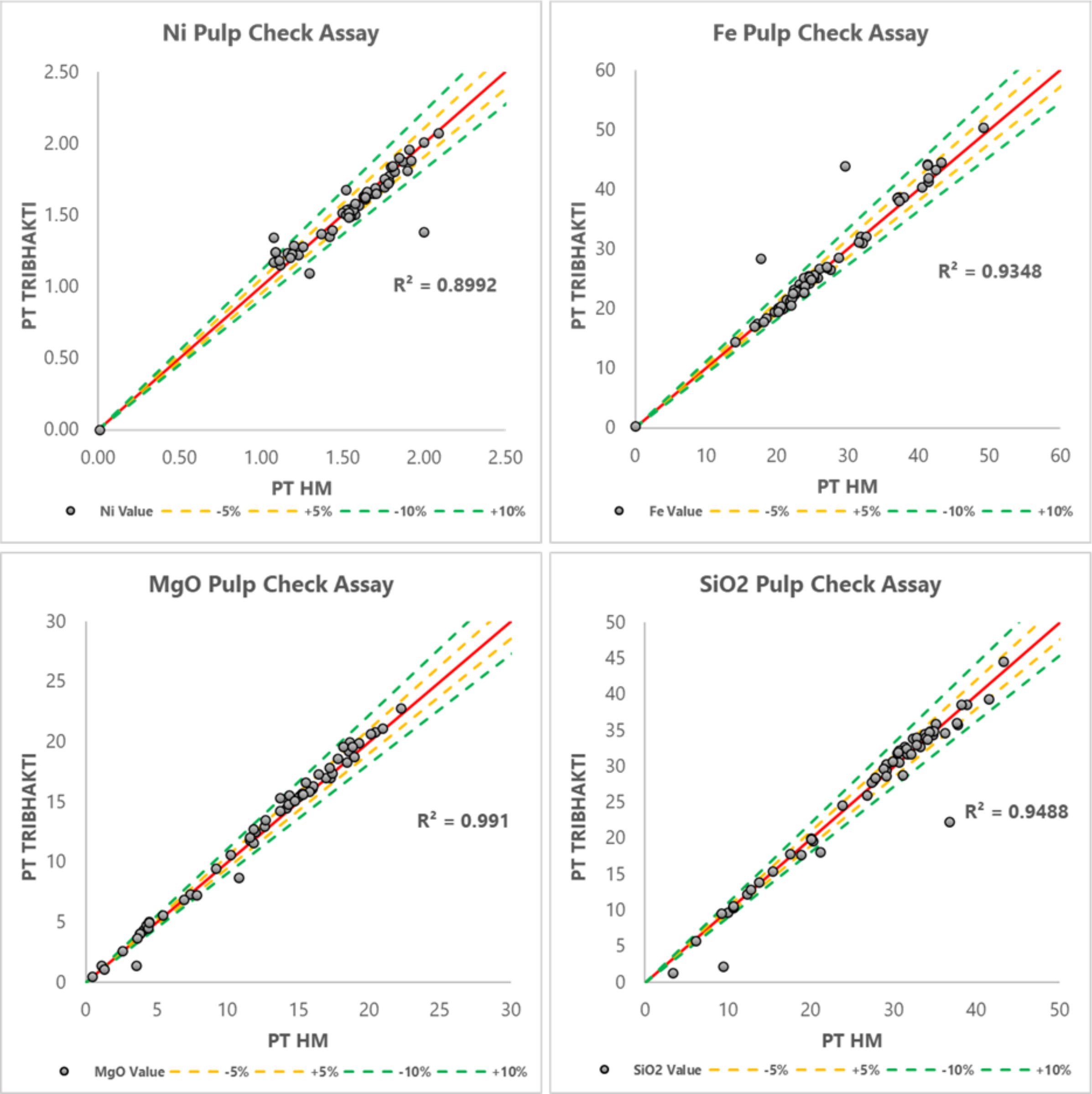


Figure 27 Scatterplot of HM original vs Tribhakti Inspektama duplicate assays

The scatterplots show differing precision for the different elements, with the best correlation between the results for MgO and SiO_2, 0.991 and 0.9488 respectively, Fe and Ni have lower correlations at 0.9348 and 0.8992.

Data for the results for the two laboratories shows a difference between the mean for the Ni and Fe values for the HM Lab as 1.54 % Ni and 26.54 % Fe against 1.56 % Ni and 27.09 % Fe for Tribhakti Inspektama, a difference of 0.02% for Ni and 0.55% for Fe. These represent a +/-

5% variance from the assay, a good precision and reflected with correlation coefficients of 0.8992 and 0.9348 with some of samples are outside the control line.

These results show lesser precision than the internal checks using Coarse Rejects, Pulp Assays and Replicate Assays at the HM Lab. This indicates the difference is likely to be due to different sample processing procedures at the two laboratories, and different accuracies and precision due to different equipment.

In October and November 2023, total 1,030 samples were sent for interlaboratory check at different labs. This batches of exploration samples were sent to the Geoservices Laboratory in Kendari where the coarse reject samples underwent pulverizing and incremental splitting, to be sent off for XRF assay at Geoservices Analytical Laboratory in Bandung, along with duplicate pulp assay samples. Geoservices then forwarded the HM pulp sample checks to their analytical lab as a different consignment and once the samples assayed, the results were returned to the Assay Laboratory at the Tangofa site.

Figure 25 shows the results of the inter laboratory check sample tests comparing the results of 1,030 split Exploration coarse reject and 200# pulp samples assayed at the original HM assay laboratory with samples sent to the Geoservices assay Laboratory in Bandung.

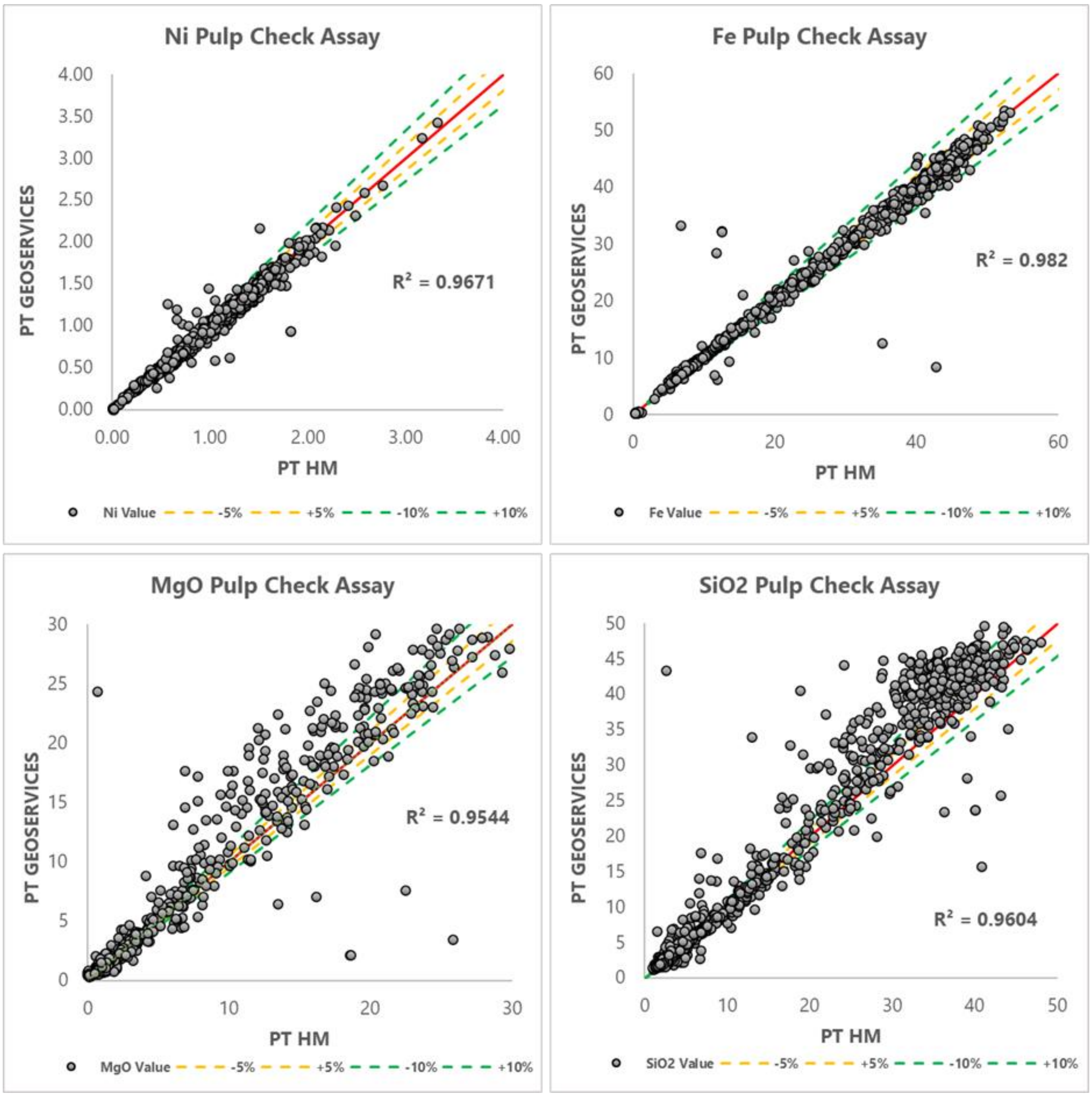


Figure 28 Scatterplot results of 1,030 plots of HM original vs Geoservices duplicate assays

Data for the results for the two laboratories shows a difference between the mean for the Ni and Fe values for the HM Lab as 0.99 % Ni and 31.19 % Fe against 0.97 % Ni and 31.12 % Fe for Geoservices, a difference of 0.02% for Ni and 0.07% for Fe. These represent a +/- 5% variance from the assay, a high precision and reflected with correlation coefficients of 0.9671 and 0.982 with some of samples are outside the control line.

These results also show lesser precision than was the case with the internal checks using Coarse Rejects, Pulp Assays and Replicate Assays at the HM Lab. This indicates the difference is likely to be due to different sample processing procedures at the two laboratories, and different accuracies and precision due to different equipment. There is a difference between the pressed powder pellets used at the HM Lab with the Fused Bead system used at Geoservices. Similarly, the HM Assay Lab uses a Malvern Panalytical Epsilon 4 XRF and a Buker Puma S2 XRF that was brought into operation in 2021 and any differences between these XRF Units and those used at Geoservices could result in the small differences being recorded.

4.6.7. Control Sample Insertion Rates

During the period June 2023 to January 2024 a total of 32,945 exploration samples were processed at the Internal Hengjaya Assay Laboratory. The following check samples were added into this original sample stream:

Table 12 Sample Insertion Rates June 2023 – January 2024

Pediod	Exploration Samples	Double Roll Crush Duplicate		Pulverized Duplicate		Replicate		CRM's		Interlab Checks	
		Total Samples	%	Total Samples	%	Total Samples	%	Total Samples	%	Total Samples	%
June 2023 - Jan 2024	32,933	639	2%	637	2%	1,270	4%	4,187	13%	1,090	3%

The Coarse Reject and Pulp Duplicate samples each comprise 2% of the samples submitted which are considered to be good insertion rates. CRM’s comprise 13% of the samples inserted which is also considered to be an appropriate rate.

1,270 Replicate samples were inserted as laboratory check samples at Hengjaya Assay Laboratory, with insertion rates 4%. The twin samples were not collected at the sample collection stage, because the whole drill core is sent for sample preparation and assay. Coarse blank and CRM were inserted with total insertion rates 8% to check for cross contamination.

In summary, a total of 7,823 check samples were inserted into the sample stream of 32,933 exploration samples and submitted for assay at the Hengjaya Assay Laboratory, which is 23.7% of the total samples. These insertion rates are considered to be sufficient to support good sample quality control appropriate for Mineral Resource estimation.

5. DATA VERIFICATION

The author visited the site in August 2023 during the exploration drilling program. The objective of the site visit was to review the protocols and processes in place to verify the data acquisition is suitable for use in this Resource study. Since then, field program datasets have also been reviewed, checked, and verified by comparing the original field data and core tray photos against the official Certificates of Analysis. A flowsheet for the data verification procedure is shown below.

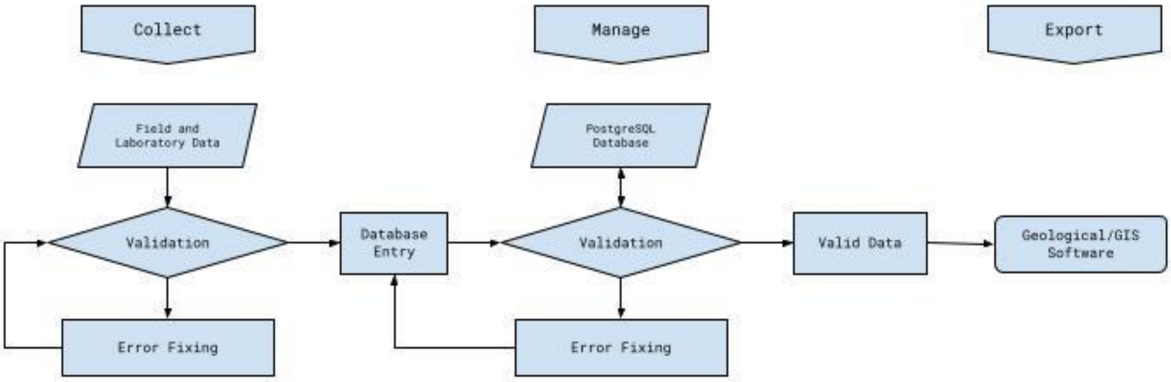


Figure 29 Simplified data verification workflow

5.1. Drill Hole Collar Elevation and LiDAR Topography

ETL has supplied a digital copy of LiDAR topographic data in CAD format. As this data was reviewed, not many variances between drill hole collar elevation and LiDAR topographic surface were identified. This is summarized in Figure 27 below.

From Figure 27, only 0.3% or 4 holes have difference in elevation greater than 0.5m and less than 1m between ground survey elevation and LiDAR elevation, which indicates the ground survey elevation is accurate and representative of the actual ground surface. The 4 holes, with the anomalous elevation, are currently being drapped onto the LiDAR surface for the purpose geological modelling in this report.

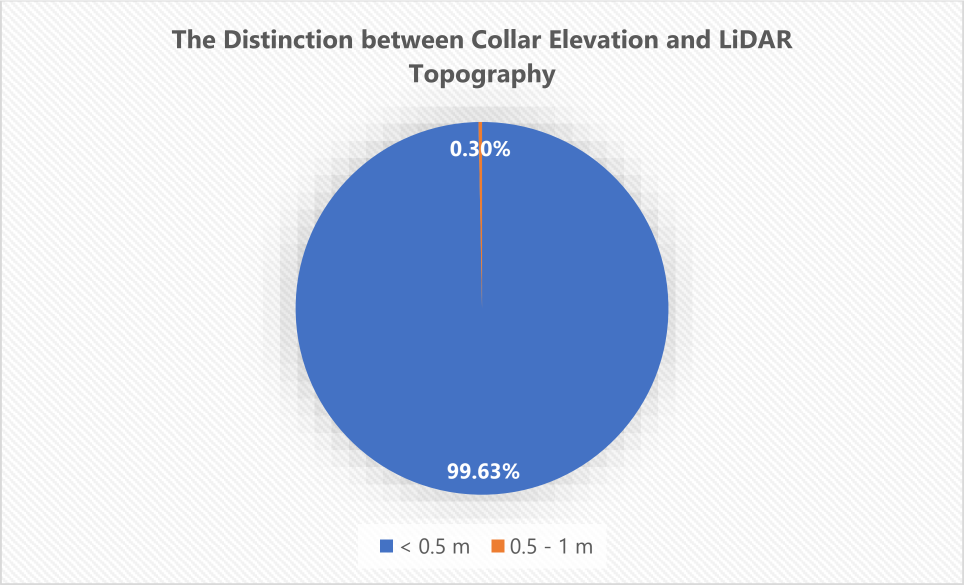


Figure 30 Discrepancy between collar elevation and LiDAR Topography

5.2. Database Validation

Data supplied by ETL field team has been checked and validated using PostgreSQL relational database software built specifically for this project by the authors of this report.

The database validation has been done for common errors and mistakes but not limited to;

1. Typing errors
2. Numbering errors
3. Incorrect codes
4. Missing intervals data
5. Overlapping intervals
6. Missing assay values
7. Negative or non numeric data handling
8. Switched collar easting and northing data

5.3. Geological Domains

As the exploration assay results have accumulated it appears that these can be regarded as distinct lithological domains where the exploration drilling work was completed. At this time, 4 separate geological domain lithology in Block D have been identified for constructing the geological model:

1. MUD; Soft material deposited on top LIM, SAP or MLS
2. LIM; Limonite
3. SAP; Saprolite
4. MLS; Molasse Conglomerate as source/bed rock of the nickel laterite deposit

Other geological domains such as DMT (dolomite) and FLS (other sedimentary rocks) are not modeled since they are outside the nickel laterite boundary.

Visual lithological description from field geologists has been checked using assay data to make better geological definition of the lithological domains intersected in the drilling. As a result, a generalized geochemical characteristic for each lithological domain has been defined as shown in Table 13. Each geological domain has been coded into the database and used for geological modelling.

Table 13 Generalized geological domain based on chemistry data.

Laterite Layers	**Non Laterite**	**Fe**	**MgO**	**SiO_2**	**CaO**	**Ni**
	MUD	≥ 30%	≤ 5%	≥ 30%		<0.1%
LIM		≥ 30%	≤ 7%	≤ 20%		
SAP		8% > x < 30%	7% > x ≤ 20%	20% > x < 40%		
	MLS	≤ 8%	> 20%	≥ 40%		< 0.8%
	DMT				≥ 20%	<0.1%
	FLS	≤ 10%		≥ 30%		<0.1%

Figure 31 Shows the average lithological thickness at each domain area based on the drilling results.

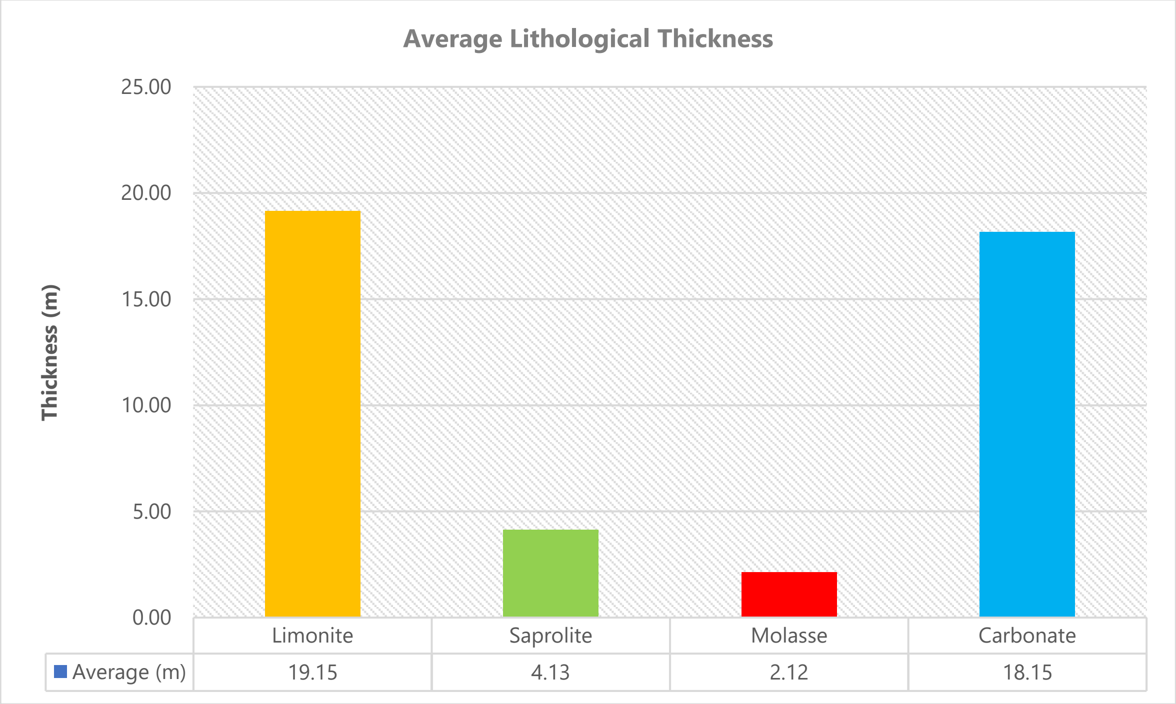


Figure 31 Average lithological thickness chart Block D

Based on the drilling and assay results the thickness of limonite appears to be relatively consistent around 19.22m. Saprolite appears also be relatively consistent at around 4.17m.

Complete descriptive statistics for each domain are summarized in Appendix 4.

6. MINERAL RESOURCE ESTIMATE

6.1. Software

Geological modelling, geostatistical study and Mineral Resource estimation were completed using Seequent Leapfrog Geo 2023.2.1 software.

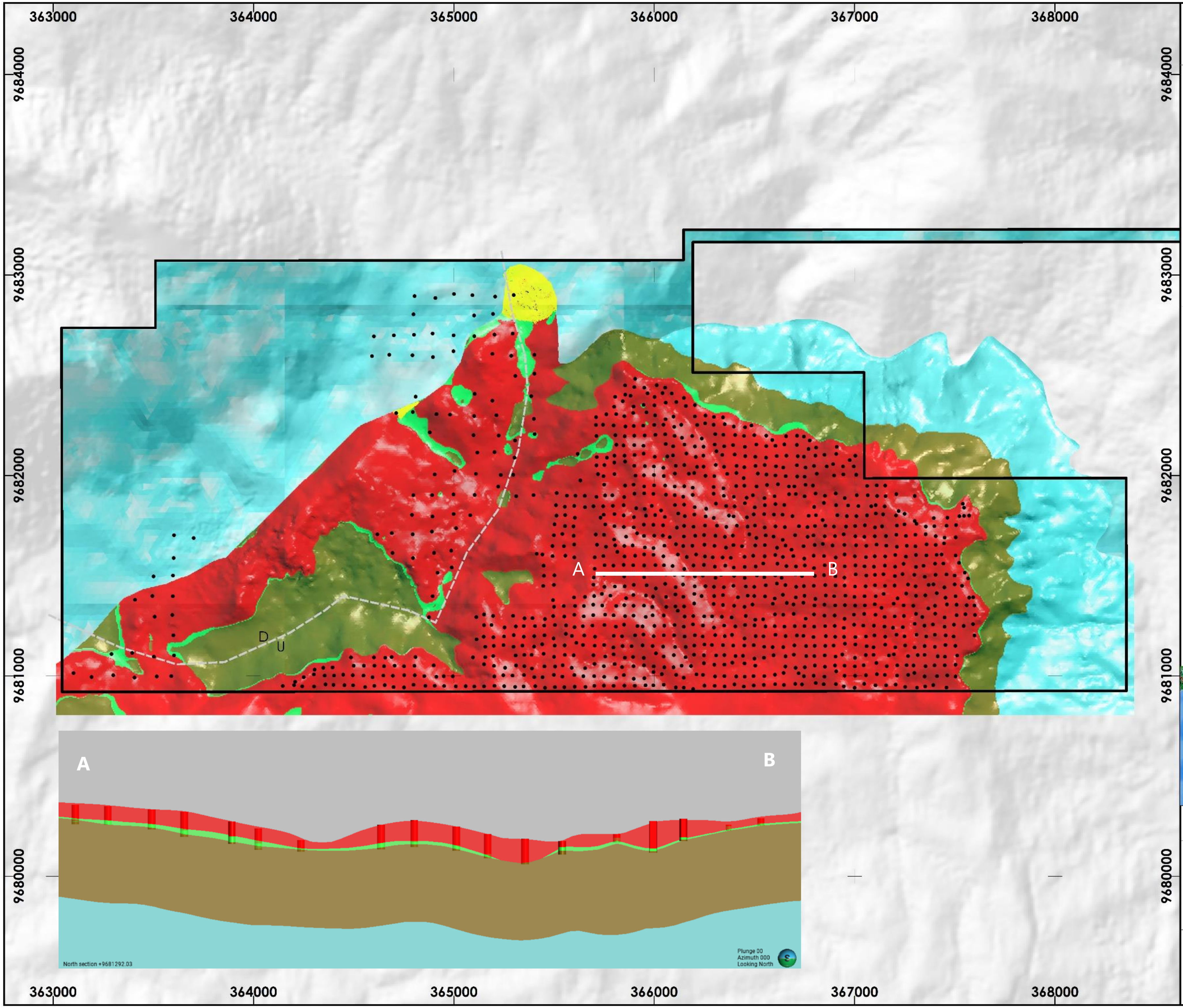
6.2. Geological Modeling

Each lithology in the drill hole data has been coded into distinct geological layers, based on their chemical composition determined by the assay results. Each contact of the layer has been modelled in the 25 x 25meter grid surfaces and visually checked by easting and northing cross sections to ensure the surface fit the drill hole data. The topography surface was used to limit the limonite, saprolite and molasse conglomerate.

The cumulative thickness of the domain layers was compared to the original drill hole data to check the accuracy of the geological model. The cumulative thickness is summarized in the Table 14 below.

Table 14 Drillhole and geological model cumulative thickness comparison

Lithology	Total Drill Hole Thickness (m)	Total Model Thickness (m)	% Matching Length
Limonite	25,077.32	24,939.56	99.45
Saprolite	4,618.42	4,612.80	99.88
Molasse Conglomerate	2,630.26	2,625.91	99.83



PT ERABARU TIMUR LESTARI
Tele, Dampala & Sumbatue, Bahodopi District
Morowali Regency, Central Sulawesi

Geological Model

Scale 1:25,000

0 0.125 0.25 0.5 0.75 1
Kilometers

Coordinate System: WGS 1984 UTM Zone 51S
Projection: Transverse Mercator
Datum: WGS 1984

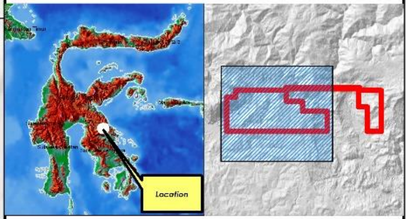
LEGEND

- ▭ ETL Tenement
- • Drill Hole Location
- - - - Fault

Lith Type

- 🟥 LIM
- 🟩 SAP
- 🟫 MLS
- 🟨 MUD
- 🟦 CARBONATE

INDEX MAPS



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6.3. Extrapolatory Data Analysis

The drill hole samples were composited in 1m lengths. The 1m compositing was selected because it represents the modal length of the samples taken during exploration and would preserve the detail information obtained in the samples. Several compositing strategies for sample length with less than 1m have been tested in the geological model by adding it to the previous interval or distribute it equally between previous and subsequent samples or ignoring it completely. The three compositing method show very little change in the coefficient of variation (CV), so that for the current geological model, sample length less than 1m are added to the previous interval composite to include all analyses in the geological model.

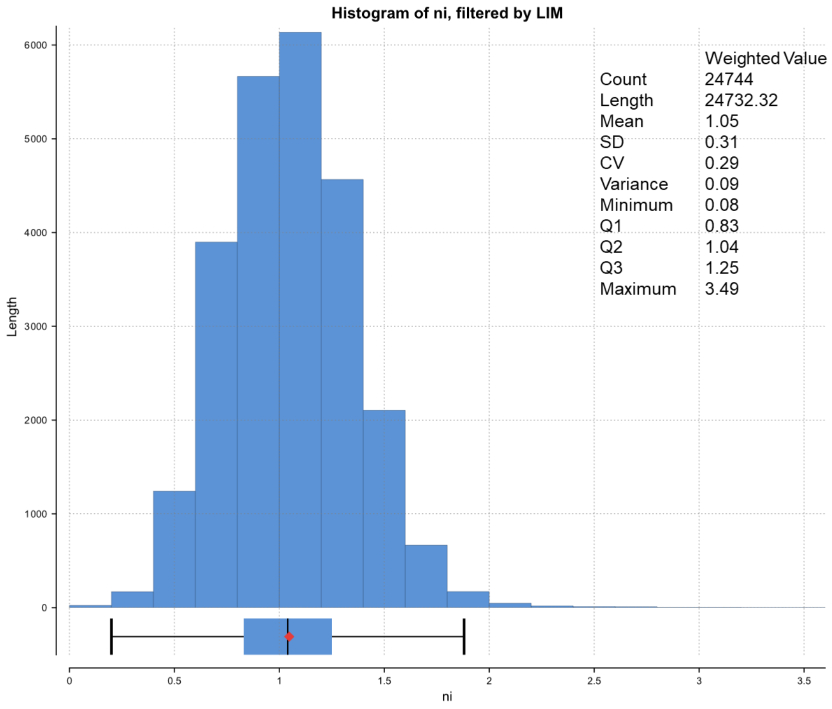
Table 15 Composite statistics for Limonite (LIM)

Parameter	Ni	Co	Fe	MgO	SiO2	Cr2O3
Mean	1.05	0.11	41.06	1.75	6.33	2.88
Standard deviation	0.30	0.05	5.42	1.55	6.94	0.57
Variance	0.09	0.00	29.43	2.40	48.18	0.32
Coefficient of variation	0.29	0.49	0.13	0.89	1.10	0.20
Maximum	3.49	0.89	52.05	23.49	59.83	6.16
Median	1.04	0.1	42.76	1.14	2.96	2.94
Minimum	0.08	0	5.02	0.01	0.01	0.01

Table 16 Composite statistics for Saprolite (SAP)

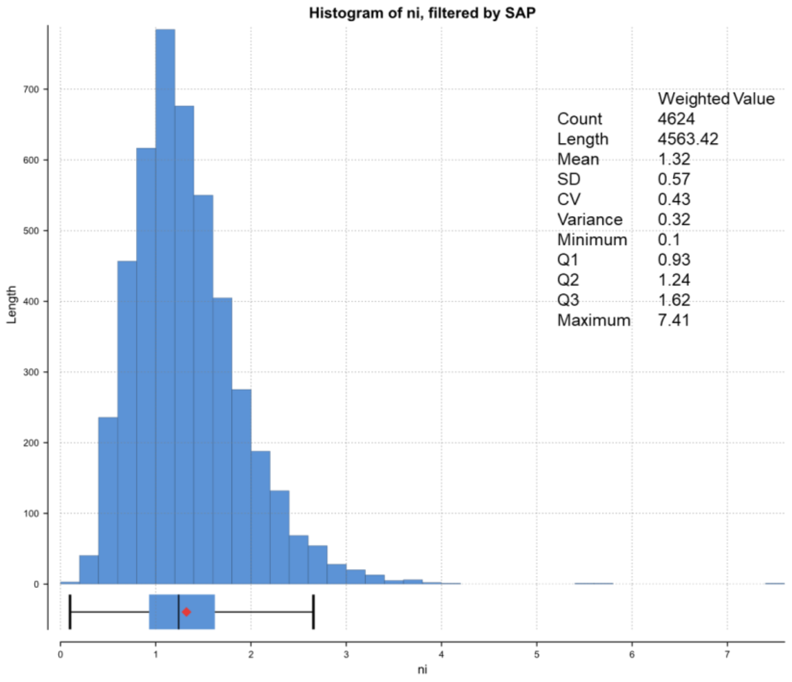
Parameter	Ni	Co	Fe	MgO	SiO2	Cr2O3
Mean	1.32	0.04	17.63	12.33	35.14	1.38
Standard deviation	0.57	0.02	6.25	5.76	7.16	0.49
Variance	0.32	0.00	39.09	33.22	51.29	0.24
Coefficient of variation	0.43	0.44	0.35	0.47	0.20	0.35
Maximum	7.41	0.25	40.61	39.1	77.16	3.91
Median	1.23	0.04	17.02	11.86	35.25	1.36
Minimum	0.1	0.01	4.78	0.11	11.48	0.01

Complete descriptive statistics for each element are summarized in Appendix 4.



	Weighted Value
Count	24744
Length	24732.32
Mean	1.05
SD	0.31
CV	0.29
Variance	0.09
Minimum	0.08
Q1	0.83
Q2	1.04
Q3	1.25
Maximum	3.49

Figure 33 Histogram for Ni Limonite in Block D



	Weighted Value
Count	4624
Length	4563.42
Mean	1.32
SD	0.57
CV	0.43
Variance	0.32
Minimum	0.1
Q1	0.93
Q2	1.24
Q3	1.62
Maximum	7.41

Figure 34 Histogram for Ni Saprolite in Block D

6.4. Variography

6.4.1. Variogram

The variograms for all elements were modelled using the spherical formula in the normalized type of data. A lag distance of 1m was used for the downhole variogram and 25m to 50m was used for horizontal pairing. During fitting the variogram, all data was transformed into normal score data to reduce the noise of the variogram and then transformed back again when exporting the variogram for grade estimation.

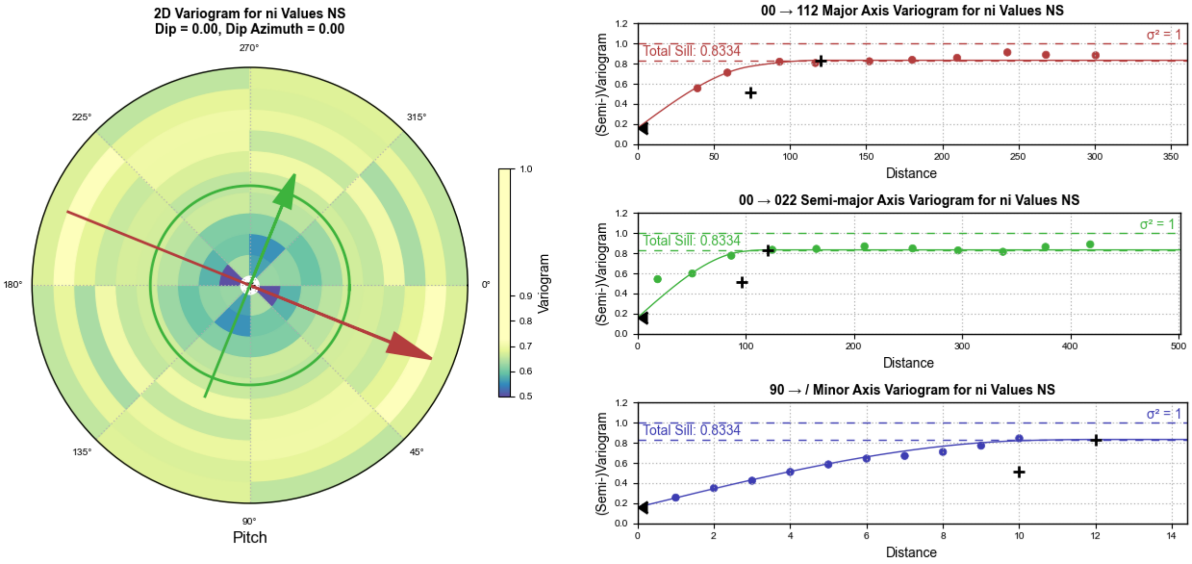
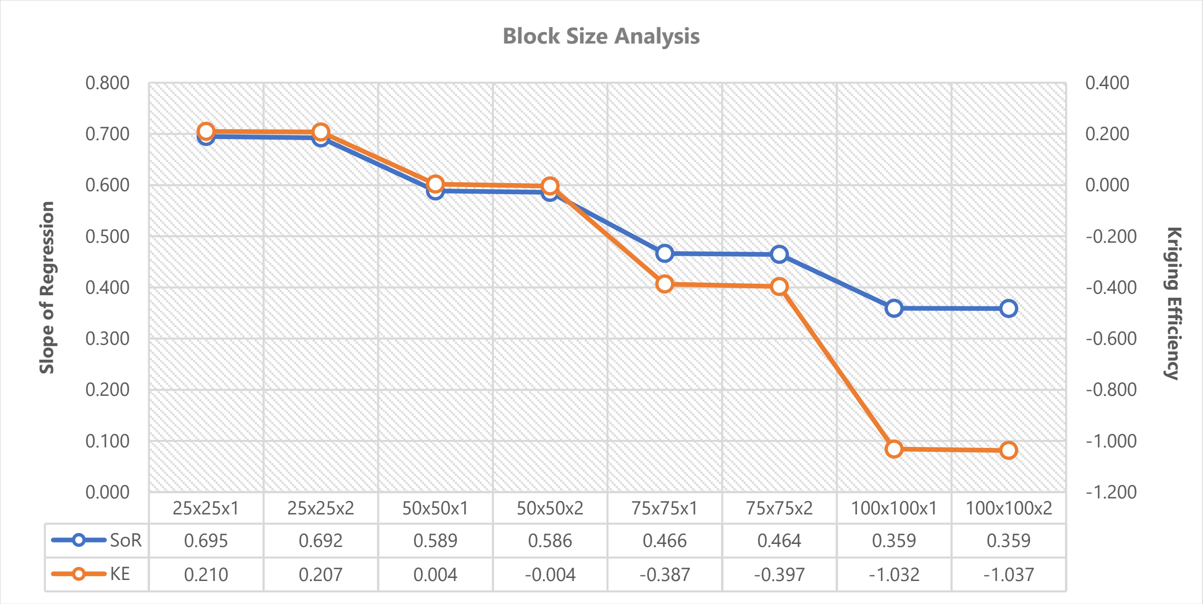


Figure 35 Example of variogram of Ni Saprolite in Block D

Complete variogram modelling for each element and domain are summarized in Appendix 4.

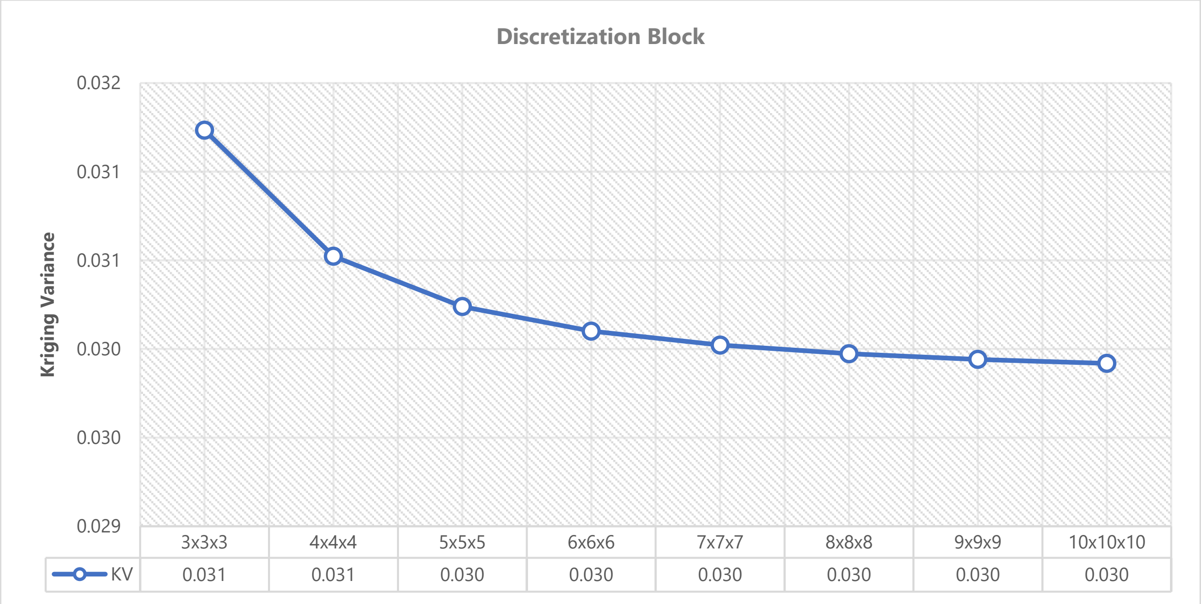
6.4.2. Kriging Neighbourhood Analysis (KNA)

The smoothing effect by Ordinary Kriging is the main source of conditional bias. To minimize the conditional bias, quantitative Kriging neighbourhood analysis (KNA) was performed to determine the optimum block size, discretization block, number of samples and search ellipsoid ranges on the selected variogram model. The Kriging efficiency, Kriging variance and conditional bias slope is used to measure the degree of over smoothing in the local grade.



	25x25x1	25x25x2	50x50x1	50x50x2	75x75x1	75x75x2	100x100x1	100x100x2
SoR	0.695	0.692	0.589	0.586	0.466	0.464	0.359	0.359
KE	0.210	0.207	0.004	-0.004	-0.387	-0.397	-1.032	-1.037

Figure 36 KNA for optimum block model size in Block D



	3x3x3	4x4x4	5x5x5	6x6x6	7x7x7	8x8x8	9x9x9	10x10x10
KV	0.031	0.031	0.030	0.030	0.030	0.030	0.030	0.030

Figure 37 KNA for optimum discretization block for saprolite in Block D

The results of the discretization block study show that the value of Kriging Variance has no significant difference, so that in the Resource estimation the discretization block chosen is 5x5x4 because it is commonly used in the Indonesian nickel industry.

Table 17 KNA Summary

Parameter	Limonite	Saprolite
Block Size	25x25x1	
Discretization Block	5x5x4	
Max. Horizontal Search	80	80
Max. Samples	30	30
Max. Vertical Search	5	4

Complete KNA results are summarized in Appendix 4.

6.5. Block Model

Three-dimensional block models were constructed for the ETL project to cover all the interpreted lithological domain layers. As suggested by KNA, a block model size of 25 x 25 x1m with no rotation has been selected for Block D, the block model size also will support the drill holes with less than 50m spacing.

The position of the block model centroid is placed as close as possible to the location of the drill hole collar. No sub-blocking was applied to the parent block to reduce the grade bias of the Resource estimation. The percentages of material in each block from the interpreted geological wireframes has not been applied in the block model.

The block model dimension and attributes, coded into the block models, including interpreted generic lithology, estimated grades and Kriging estimation attributes are as shown in Table 18 and Table 19 respectively.

Table 18 Block model dimensions

Type	Y	X	Z
Minimum Coordinates	9680837.833	363039.909	302.322
Maximum Coordinates	9683087.833	367714.909	672.322
User Block Size	25	25	1
Min. Block Size	25	25	1
Rotation	0	0	0

Table 19 Block model attributes for all blocks

Attribute	Type	Decimals	Background	Description
al2o3	Float	4	-999	OK interpolated grades for Aluminum Oxide (Al2O3%)
cao	Float	4	-999	OK interpolated grades for Calcium Oxide (CaO%)
co	Float	4	-999	OK interpolated grades for Cobalt (Co%)
cr2o3	Float	4	-999	OK interpolated grades for Chromium Oxide (Cr2O3%)
fe	Float	4	-999	OK interpolated grades for Iron (Fe%)
lithology	Character	-	UNDEF	
material	Character	-	UNDEF	OB, LGL, HGL, LGSO, MGSO, HGSO, WASTE
mgo	Float	4	-999	OK interpolated grades for Magnesium Oxide (MgO%)
mno	Float	4	-999	OK interpolated grades for Mangan Oxide (MnO%)
ni	Float	4	-999	Estimated Ni
ni_avgd	Float	4	-999	Average Distance
ni_dom	Character	-	UNDEF	Geological domain LIM, SAP, MLS
ni_est	Character	-	UNDEF	Krigging Pass; Pass 1, Pass 2, and Pass 3
ni_ke	Float	4	-999	Krigging Efficiency
ni_kv	Float	4	-999	Krigging Variance
ni_ndh	Float	4	-999	Number of drillhole
ni_ns	Float	4	-999	Number of Negatif Weight
ni_sor	Float	4	-999	Slope of Regression
res_class	Character	-	UNDEF	Measured, Indicated, Inffered, Undef
sg	Float	4	-999	Insitu lab density measurement (wet s.g)
sio2	Float	4	-999	OK interpolated grades for Silica Oxide (SiO2%)

6.6. Insitu Density and Moisture Content

As discussed in section 4.5 of this report the results of Insitu Density and Moisture Content measurements are considered be representative of the Density and Moisture instu at ETL, as they were taken from almost all drill holes. For this reason, these measurements have been used for this Resource estimate, to be as follows;

Table 20 Insitu Density and Moisture Content applied in this Resource estimate

Laterite Layers	Density (g/cm3)	Moisture Content (%)
Limonite	1.76	44.96
Saprolite	1.6	39.95

6.7. Grade Estimation

Ordinary Kriging grade estimate has been applied for all chemical elements. The number of samples, search radius and discretization block for each domain were taken from block size analysis results. Several run tests (passes) have been applied to the grade estimate to cover all the laterite domains in the block model. The first search radius (pass 1) obtained from KNA and then multiplied by 2 for the subsequent passes.

Table 21 Example of grade estimation nickel for limonite and saprolite

Parameter	**Limonite (Ni)**			**Saprolite (Ni)**		
	Pass 1	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**
Minimum Sample	5	3	1	5	3	1
Maximum Sample	30	30	30	30	30	30
Max. Search Radius	80	160	320	80	160	320
Max. Vertical Distance	5	10	20	4	8	16
Pitch	90			90		
Dip Azimuth	0			0		
Dip	0			0		
Major/Semi-major 1	0.595			0.771		
Major/Semi-major 2	1.000			1.000		
Major/Minor 1	2.500			7.400		
Major/Minor 2	8.800			10.000		
Nugget	0.086			0.161		
Structure 1	0.383			0.356		
Structure 2	0.397			0.317		
Range 1	25			74		
Range 2	88			120		
Block Discretization	5 X 5 X 4			5 X 5 X 4		

For details about grade estimation see Appendix 4.

In classic geostatistical estimation, a single constant orientation for search and variogram is applied across the geological domain. This type of estimation is considered not appropriate to be applied in the project area since the nickel laterite deposits are mostly flat and undulated. To overcome the problem, Leapfrog Edge’s Variable Orientation (VO) was used to allow re-orientation of the search and variogram to better match the local geometry (see Figure 35).

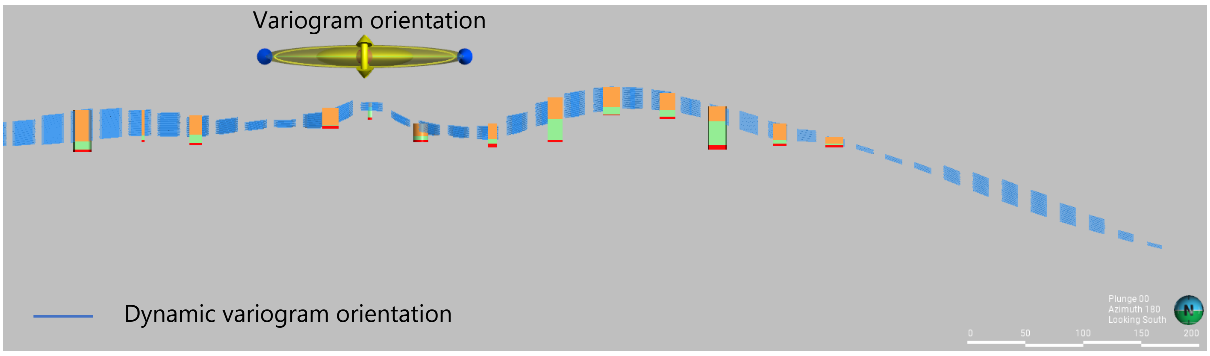


Figure 38 Example of variable orientation (Leapfrog) applied in limonite

6.8. Block Model Validation

The estimated block model was validated visually on screen as well as by the statistical means.

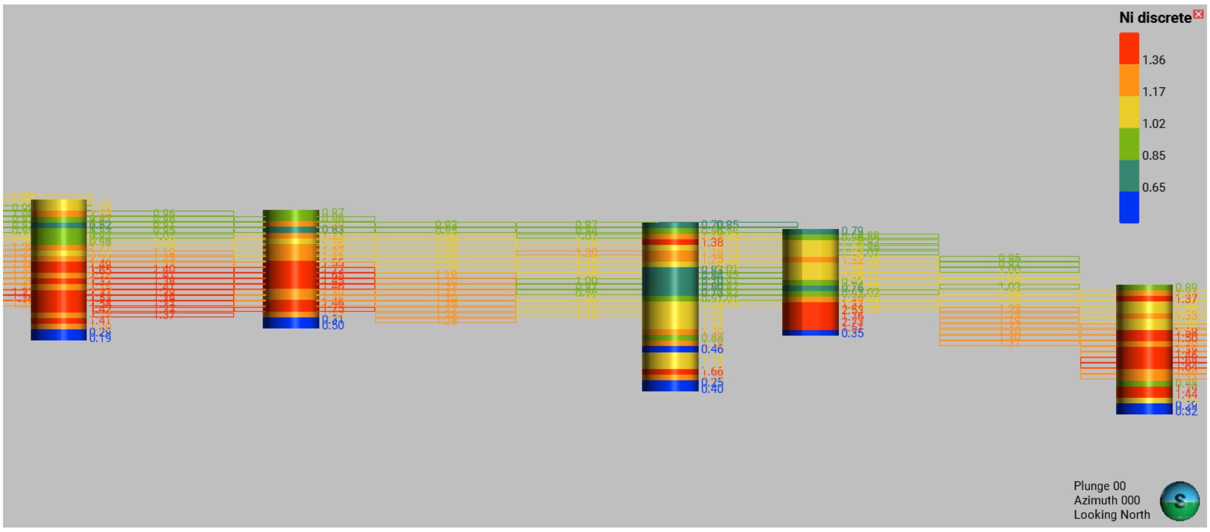


Figure 39 Example of block model validation for limonite using visual method

The block model was compared with drill hole sample data on cross sections to verify the geological interpretation and estimated grades. Swath plots were used to visualize the statistical mean and magnitude of error between composite samples and the estimated grades.

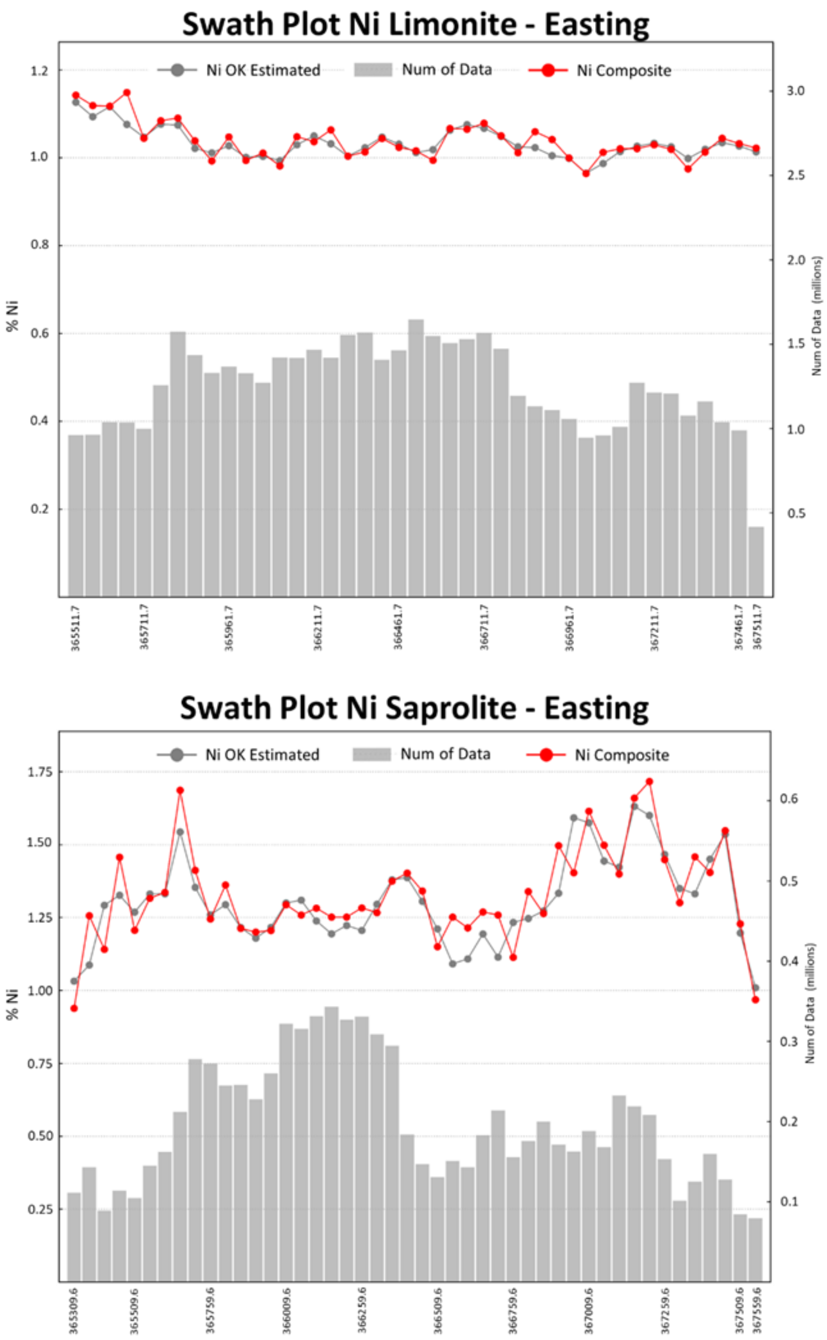


Figure 40 Block model validation using swath plot

For details about block model validation see Appendix 4.

6.9. Resource Classification

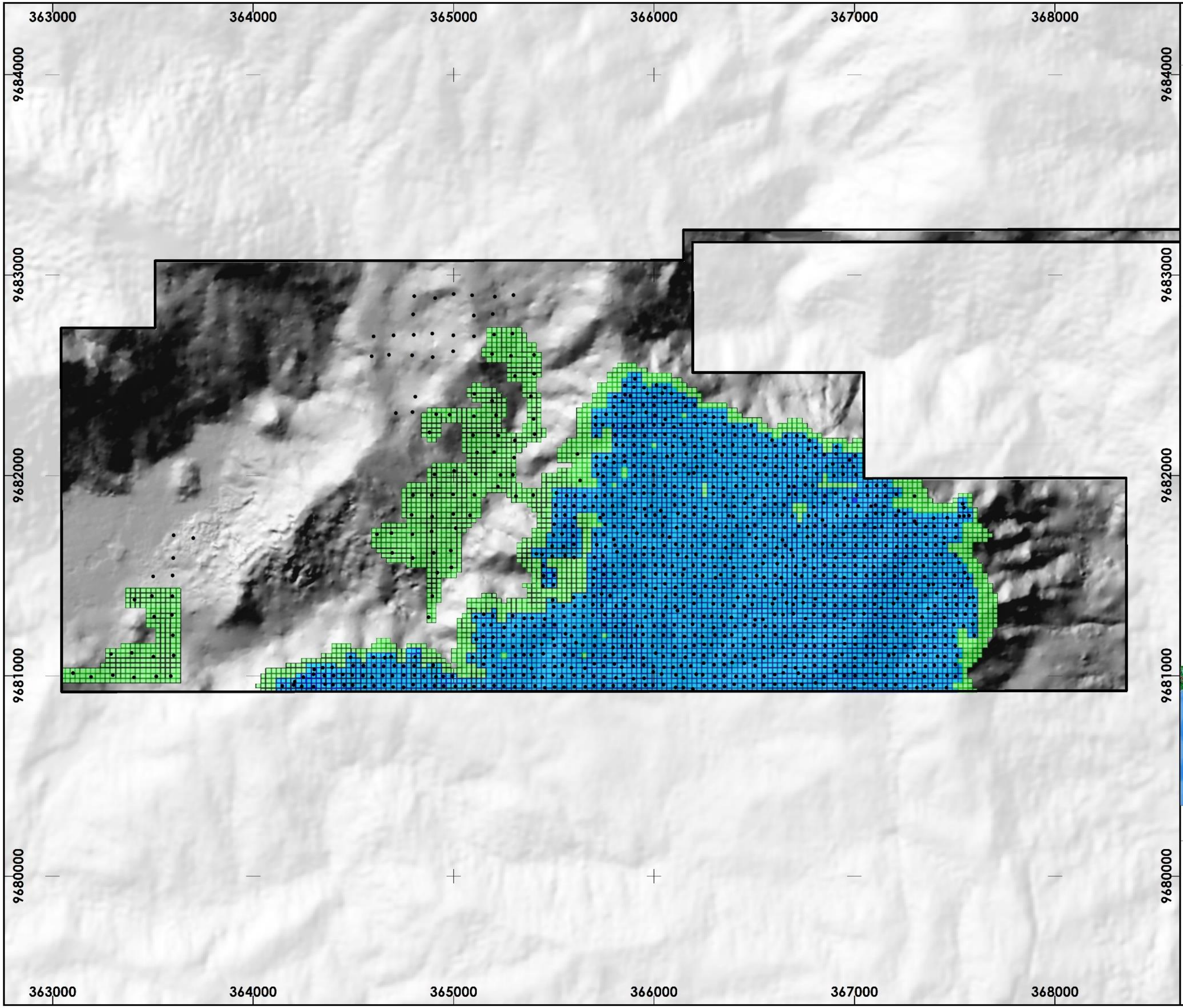
The Mineral Resource has been classified on the basis of drill hole spacing grid, grade continuity with geostatistical considerations such as Kriging variance, slope of regression and average influence from surrounding samples.

The vast majority of the deposit is drilled in a 50x50m grid although in the western part of the IUP, a 100x100m of drill hole spacing grid also has been drilled. At this time, the current drill hole spacing grid is considered to be too widely spaced to support a Measured Resource category.

The Kriging Variance, slope of regression and average distance to samples has been used to assess the confident level of estimation. Kriging variance less than 0.02 and slope of regression more than 0.90 has been considered as high level confidence. Medium level confidence has Kriging Variance between 0.02 and 0.05 and slope of regression between 0.45 and 0.90 which means coherent and spatially consistent with 50x50m drill spacing. Whereas low level confidence has Kriging Variance higher than 0.05 and slope of regression less than 0.45 which means coherent and spatially consistent with 100x100m drill spacing.

Table 22 Kriging properties to assess the Resource classification in ETL Project

Kriging Variance	Slope of Regression	Average Distance to samples	Category
KV <= 0.02	SoR > 0.9	<= 25m	Measured
0.02 < KV <= 0.05	0.45 < SoR <= 0.9	25m < AvD < 55m	Indicated
KV > 0.05	SoR <= 0.45	55 >= AvD < 100m	Inferred



PT ERABARU TIMUR LESTARI
Lele, Dampala & Sumbatue, Bahodopi District
Morowali Regency, Central Sulawesi

RESOURCE CLASSIFICATION MAP

Scale 1:25,000

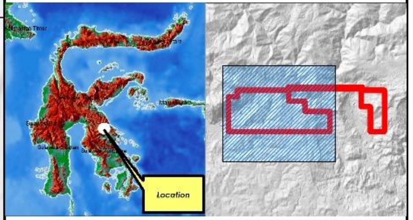
0 0.125 0.25 0.5 0.75 1
Kilometers

Coordinate System: WGS 1984 UTM Zone 51S
Projection: Transverse Mercator
Datum: WGS 1984

LEGEND

▭	ETL Tenement
•	Drill Hole Location
🟦	**Indicated Resource**
🟩	**Inferred Resource**

INDEX MAPS



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6.10. Prospect for Economic Extraction

The ETL company management is currently targeting the sale of nickel ore to the PT Indonesia Morowali Industrial Park (IMIP) nickel smelter located 50km east of the project area. The requirement for HPAL is limonite whereas the requirement for RKEF smelters is saprolite. Based on these requirements, cut off grade (CoG) of 0.8% Ni for limonite and 0.8 Ni for saprolite have been applied in the Resource estimate. See Figure 39 and 40.

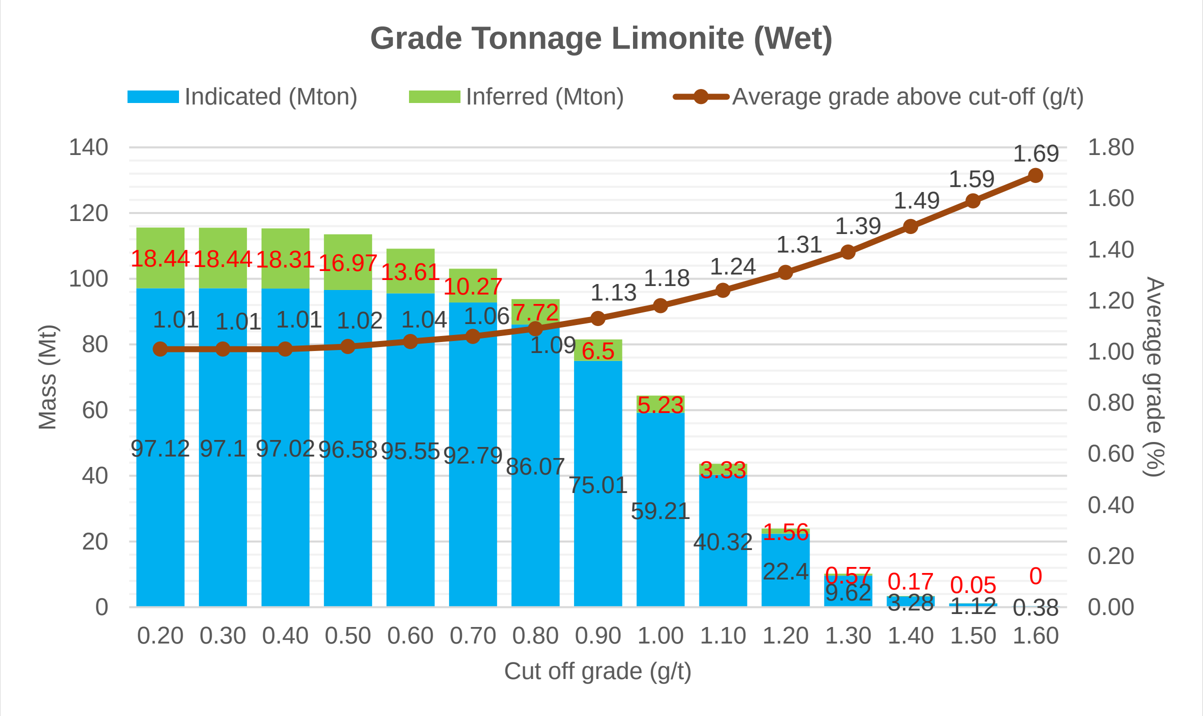

Figure 42 Grade tonnage of Limonite

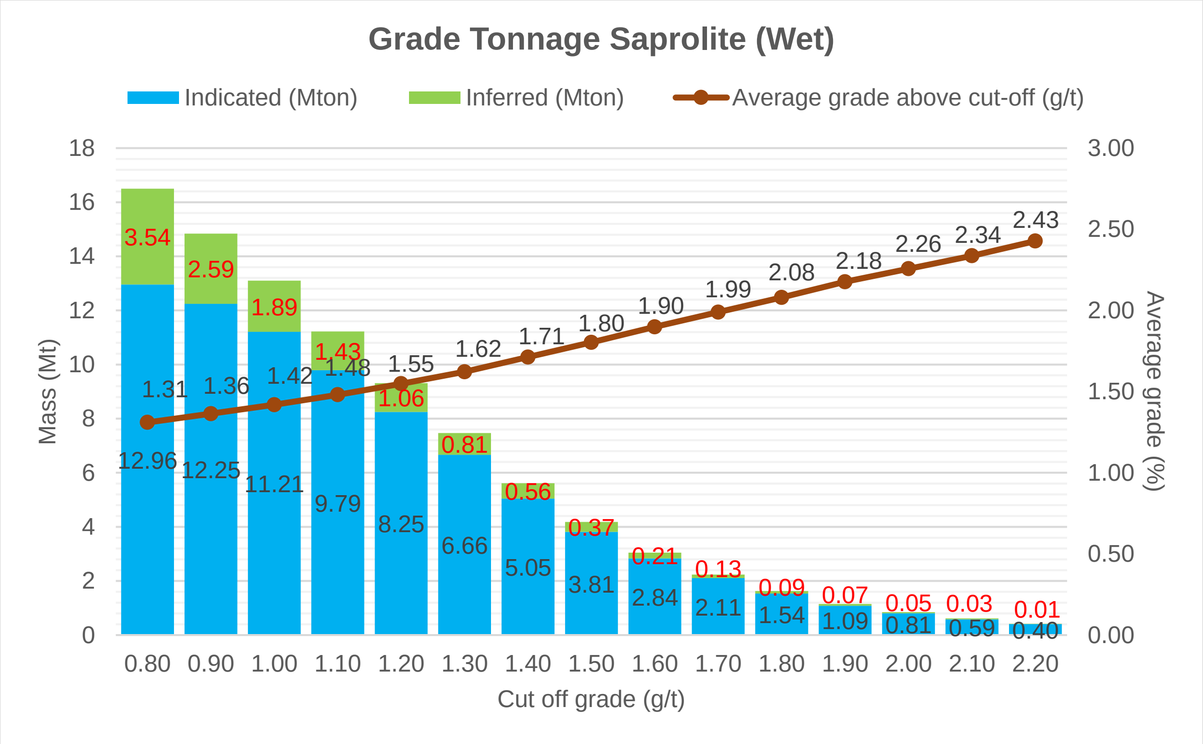

Figure 43 Grade tonnage of Saprolite

6.11. Statement of Mineral Resources

The Mineral Resource estimate for ETL project has been completed with data until the 18th December 2023. The numbers have been rounded to reflect the relative accuracy of the estimate.

Table 23 Nickel Laterite Resource

Lithology	Mineral Resource Category	Mass		Ni	Co	Fe	MgO	SiO2	Cr2O3	Metal Content Ni
		Wet Mt	Dry Mt	%	%	%	%	%	%	000' t
LIMONITE (Ni Cut off Grade 0.8%)	Indicated	86	47	1.1	0.11	41.0	1.9	6.6	2.9	510
	Inferred	8	4	1.1	0.11	40.9	2.0	7.5	2.9	45
	Sub-Total	**94**	**51**	**1.1**	**0.11**	**41.0**	**1.9**	**6.7**	**2.9**	**555**
SAPROLITE (Ni Cut off Grade 0.8%)	Indicated	13	8	1.4	0.04	17.4	12.8	35.2	1.4	110
	Inferred	3	2	1.1	0.04	17.0	13.2	36.7	1.3	20
	Sub-Total	**16**	**10**	**1.3**	**0.04**	**17.3**	**12.9**	**35.5**	**1.4**	**130**
Total ETL Project	Indicated	99	55	1.1	0.10	37.9	3.3	10.3	2.7	620
	Inferred	11	6	1.1	0.09	33.4	5.5	16.7	2.4	65
	Project Total	**110**	**61**	**1.1**	**0.10**	**37.4**	**3.5**	**11.0**	**2.7**	**685**

6.12. Risk and Opportunities

Systematic grid drilling spaced at 50m and 100m and the supportive data provided by UltraGPR surveys and detailed core analyses has greatly enhanced the confidence in the geological interpretation and resulting geological model at ETL, Block D.

The database has been validated and rechecked for errors. Drill holes collar coordinates used in the geological model, have been surveyed with high accuracy giving relatively high confidence to the current Nickel Resource estimate.

The final geological models for Limonite (LIM), Saprolite (SAP) and Molasse Conglomerate (MLS) have been interpreted separately using lithological logs and analysis results so that all blocks in the geological model are correctly coded according to their occurrence in the laterite profile. For this reason, it is considered unlikely that any misallocation of lithology will have significant influence on the Nickel Resource.

Relative confidence in the laboratory analysis results is supported by proper quality assurance and quality control protocols including, sample blanks, sample standards, duplicate samples and interlaboratory checks samples.

The planned haul road to IMIP provides a direct road transportation opportunity for ore from ETL to the market. This greatly enhances the economic potential of the ETL nickel project area and potential for production of saprolite and limonite ore for processing at IMIP.

7. EXPLORATION TARGET

Mapping carried out by PT Hengjaya Nickel Utama and PT Mandiri Jaya Nickel in 2010 identified nickel laterite in Blocks D and E. Block E has not yet been drilled. Based on recent mapping data, approximatly 50ha of area may provide an Exploration Target for additional nickel laterite. Figure 41 shows the location identified as laterite in the historic data.

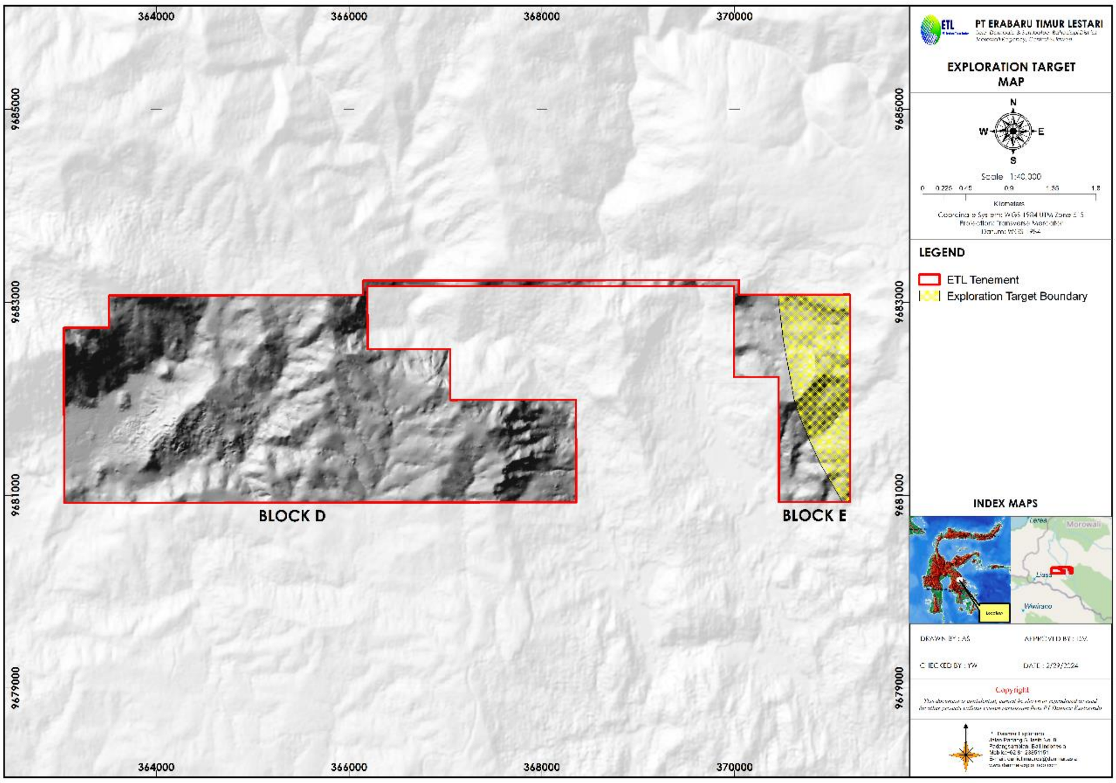

Figure 44 Exploration target location

Table 24 shows an estimated range of potential additional nickel laterite, based on the recent mapping results in the Block E area. Although it should be noted that there is insufficient data at this time to estimate a Nickel Resource and there is no guarantee further exploration will result in a Nickel Resource.

Table 24 ETL Exploration Target

Layer	Target Area (Ha)	Thickness Assumption		Estimate Wet Ton (Million)		Density
		Min (m)	Max (m)	Min (Mt)	Max (Mt)	
Limonite	50	1	5	1	4	1.76
Saprolite		0.5	5	0	4	1.6
Total	**50**	**1**	**5**	**1**	**8**	

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SIMANDJUNTAK T.O., RUSTAMA E., SUPANDJONO J.B., KOSWARA A,, 1993, GEOLOGICAL MAP OF BUNGKU QUADRANGLE, SULAWESI

SURATMAN (INCO) GEOLOGY OF NICKEL LATERITE WEATHERING DEPOSIT IN THE SOUTHEAST ARM OF SULAWESI

APPENDIX

1. TABLE 1 OF THE JORC CODE
2. PT ERABARU TIMUR LESTARI LEGAL DOCUMENTATION
3. PT HENGJAYA MINERALINDO LABORATORY QAQC REPORT
4. ETL BLOCK MODEL DOCUMENTATION
5. RESUME OF COMPETENT PERSONS AND CONTRIBUTING AUTHORS
    i. DANIEL MADRE
    ii. TOBIAS MAYA
    iii. YORRIS WIBRIANA
    iv. HARMAN ADHITTYO

APPENDIX 1

PT ERABARU TIMUR LESTARI
TABLE 1 OF THE JORC CODE

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• HQ core samples taken in 1m intervals and all core photographed and filed as a reference • All drilling to date is on a systematic 50 X 50m grid over GPR targets for this reason the estimate has been classified as an Indicated Resource at this time. Future infill drilling will be required to raise confidence to estimate Indicated and Measured Resources status. • All core photographed and described by well site geologists. Sample preparation and moisture determination follow the Japanese Industrial Standard (JIS), Method for Sampling and the Determination of Moisture Content of Garnieritic Nickel Ore, 1996 • Full core 1m sample intervals were analysed at PT Hengjaya Mineralindo lab. High confidence in the laboratory analyses results are supported by rigorous quality assurance and quality control protocols including; sample blanks, sample standards, duplicate samples and interlaboratory checking. More than 32,900 samples were analysed to support the Resource estimate.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• HQ wireline triple tube coring in 1m runs to ensure accurate measurement of core expansion (swelling) and recovery • Vertical drilling, core orientation not required
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Full coring used and core recovery data collected for all runs (1,337 holes with total cumulative meters 32,798), core recoveries documented by photography • Minimum 95% recovery maintained for all holes • If 3 consecutive runs are less than 95% the hole is re-drilled • Some lower recoveries in silica boxwork zones were tolerated due to geological conditions but overall drilling conditions are relatively good and recoveries remain consistently high

Criteria	JORC Code explanation	Commentary
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• 100% of laterite layers drilled have been logged by geologists and photographed in the drilling to date • Logging includes core recoveries and core swelling measurements • Every meter of the core is logged using standard format and sampled progressively for lab analysis
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• With the exception of a small density sample weighing 700-800g taken from each of the 4 main geological horizons observed in each drill hole, full drill core was submitted to the lab for analysis • Industry standard laboratory sample preparation methods suitable for nickel laterite mineralization style and involve drying, crushing, incremental splitting & pulverizing to -75um pulps for assay. • Most of the samples were were analysed at PT Hengjaya Mineralindo’s internal laboratory following JIS M-8109-1996 SOP to maintain accuracy and precision at all sub-sampling stages eg coarse blanks, coarse replicates and 200# pulp sieve tests, whilst reducing sample particle size and volume. Interlaboratory checks were carried out at PT Tribakti Inspektama and PT Geoservices (commercial labs) • Sample sizes are according to JIS M-8109-1996 Industry Standard and have shown to be effective regarding accuracy and precision during life of project to date and show good correlation with samples analysed at external labs adding confidence to the accuracy of the results (see Chapter 4.6.6 in the Mineral Resource Report).
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Industry standard laboratory sample preparation methods suitable for nickel laterite mineralization style and involve drying, crushing, incremental splitting and pulverizing to -75um pulps for assay. • Representivity at sub-sampling stages at sample prep lab maintained by following JIS M-8109-1996 SOP to maintain accuracy and precision at all sub-sampling stages eg coarse blanks, coarse replicates and 200# pulp sieve tests, whilst reducing sample particle size and volume.

Criteria	JORC Code explanation	Commentary

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.*
		• Geological logs of the drill core are reconciled against assay results to verify lithology for any misallocation.
		• All geological data are stored and validated in PostgreSQL database software before exported to the Leapfrog Geo 2023 geological model software. Several checks have been carried out, including:
		  • Duplicate points error
		  • Duplicate hole id error
		  • Collar and survey depth error
		  • Lithological depth exceeds collar depth error
		  • Overlapping segments error
		  • Invalid assay value handling

Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All recent drilling located by ground RTK GPS survey methods • UTM (Universal Traverse Mercator) Projection; WGS 1984 UTM Zone 51S grid is being applied in the Resource estimation • LiDAR topographic surface was used • The distinction between drill hole collar elevation and LiDAR topography surface in general is less than 0.5m which sufficient for mineral resource estimation
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Ultra GPR targets and geological surface mapping were used for Exploration Targets recognition only • 50 X 50m grid drilling was drilled in the center and southern part of Block D, while 100 x 100 m grid drilling was drilled in the west part of Block D. • The drill hole samples were composited in 1m lengths. The 1m compositing was selected because it represents the modal length of the samples taken during exploration and would preserve the detail information obtained in the samples. Several compositing strategies for sample length with less than 1m have been tested in the geological model by adding it to the previous interval or distribute it equally between previous and subsequent samples or ignoring it completely. The three compositing method show very little change in the coefficient of variation (CV), so that for the current geological model, sample length less than 1m are added to the previous interval composite to include all analyses in the geological model.
Orientation of data in relation to	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• Vertical drilling is appropriate for nickel laterite as the laterite is relatively horizontal, so the drilling intersects a true thickness of each lithological horizon

Criteria	JORC Code explanation	Commentary
geological 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 bias is considered to be introduced as a result of the drilling orientation
Sample security	- *The measures taken to ensure sample security.*	- Samples left in the field are properly stored, covered and guarded by night security - Sample stores are locked at night and continuously guarded
Audits or reviews	- *The results of any audits or reviews of sampling techniques and data.*	- Comparisons between internal lab results and 2 external labs showed close correlation between results suggesting relative accuracy acceptable for use in Resource estimation

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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	- Mining rights are held under an Operation and Production Mining Business Permit (IUPOP), Area Code 540.3/SK.0017/DESDM/VI/2011. The area covers 1,159Ha and gives ETL the right to mine nickel and its associated minerals. The IUPOP was granted by the Regent of Morowali in 2011 and is valid until June 2031.The Operation Production IUP may be renewed twice, each for a period of 10 years. - Land has been compensated, no Forestry restrictions in the main Resource area
Exploration done by other parties	- *Acknowledgment and appraisal of exploration by other parties.*	- The exploration work has been carried out over various stages since 2010 by Rio Tinto, Sherrit and other groups. Historic data records from this work are incomplete and cannot be used for Resource estimation
Geology	- *Deposit type, geological setting and style of mineralisation.*	- Laterization of molasse conglomerate containing of ophiolite rocks, formed in a tropical climate environment through a process of surface leaching over time, two distinct enriched zones of Limonite clays and Saprolite clays & weathered rocks are typically found in this type of geological setting where concentrations of Ni, Co, Fe and other

Criteria	JORC Code explanation	Commentary
		associated metals are characteristic and diagnostic

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ◦ *easting and northing of the drill hole collar*
	  ◦ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ◦ *dip and azimuth of the hole*
	  ◦ *down hole length and interception depth*
	  ◦ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• The drill database at ETL contains 1,337 holes with a cumulative total depth of 32,738m. Assays total 32,933 samples.
		• It is not practical or relevant to include these individual results to understand this report because;
		Ni laterite deposits are at relatively low concentrations (1.13% Ni average) and the Resource can only be represented by a compilation of large numbers of points of observations. For this reason, the report has described the deposit using maps of borehole locations, Ni grade isopach and thickness isopach, descriptive statistical analyses of assay results, variograms and swath plots of the data to understand the data and check its validity and variability

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Only assay data from the validated database were extracted for use in the compositing process. Composite lengths of 1m were used, which correlates with the majority of the sample length records. Composites were split into 4 lithologies namely; mud, limonite, saprolite and molasse conglomerate bedrock • Cutting of high grades was done as required by looking at the data distribution, cumulative histogram & log probability plots. • Metal equivalents for Nickel content were shown in the Resource table with ore grades as wet and dry tons
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Vertical drilling provides good representation of the deposit geometry and depth and reasonably assumed to represent true thickness, 1m core and assay sampling procedures were sufficient to provide accurate wellsite observations and reconciliation of logs • Mineralization is basically horizontally orientated • Total depths of drilling were guided by the interpretation of the Ultra GPR surfaces to target at least 2-3m of bedrock was intersected at the end of each hole
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.*	• Diagrams, maps, sections are all included in the body of the report

Criteria	JORC Code explanation	Commentary
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.*	- All reliable(validated) data included without prejudice - Thickness established through drilling intercepts supported with Ground Penetrating Radar (UltraGPR) geophysics, reliable assays and exposed lithological layers observed in outcrops
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.*	- 86.6km of ground penetrating radar (UltraGPR) survey lines were completed, providing excellent section profiles views of limonite, saprolite and bedrock layers, global volumes and thickness grids were used for exploration planning and understanding of the weathering patterns of the nickel laterites to best optimize the drilling patterns by domains
Further work	- *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* - *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	- Plans for infill drilling in the Indicated Resource area - Exploration Target at ETL have already been surveyed using Ultra GPR and are planned to be drilled to delineate a Resource area if successful - Exploration Target areas map is provided

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.*
	- *Data validation procedures used.*
		- The collar survey, assay and geology tables were validated to correct data error issues such as:
		  - missing or duplicate collar records
		  - overlapping intervals in the assay records
		  - collar elevation errors compared to current LiDAR topography
		  - downhole accuracy issues, total depths, from/to intervals
		  - core recoveries and swelling
		  - lithology description from wellsite geologists
		  - reconciliation of lithology with laboratory assay results
		  - moisture records from core lab analysis
		  - downhole statistical analysis
		- All data was validated and included in the Resource estimate

Criteria	JORC Code explanation	Commentary
Site visits	- *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* - *If no site visits have been undertaken indicate why this is the case.*	- Two site visits by the CP (Daniel Madre) were completed. The objective was to review exploration progress; including drilling, and sampling procedures, review sample handling, preparation and analyses. Site inspection of molasse conglomerate bedrock as the source of the nickel laterite
Geological interpretation	- *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* - *Nature of the data used and of any assumptions made.* - *The effect, if any, of alternative interpretations on Mineral Resource estimation.* - *The use of geology in guiding and controlling Mineral Resource estimation.* - *The factors affecting continuity both of grade and geology.*	- Due to a systematic drill program on the same grid as more than 86.6km of UltraGPR survey, allows for a relatively high confidence in geological interpretation of the ETL nickel laterite deposit. Historical records for surface mapping, combined with the more recent UltraGPR survey traverse on 200m spaced grids over 100% of the Resource area provides good correlation and understanding if the laterization distribution, bulk volumes and mineralization. This is considered to be sufficient for estimation of the Mineral Resource - All data included into the geological interpretation was validated to be free of errors and downhole wellsite logging reconciled with assay results into composited zones of Mud, Limonite, Saprolite & Molasse Conglomerate lithology zones - Use of Ground Penetrating Radar (UltraGPR) interpretative data source was used in combination with points of observations from the validated database in extrapolating between drill holes - Geological structure and bedrock topology, which are often displayed on Ultra-GPR interpretations, helped to target thick, high grade laterite areas
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.*	- Resource dimensions are determined by the drilling area at this stage which are approximately 2,000m in length, 1,500m in width and covering 564ha. Laterization thickness for up to 40m to bedrock in some places - Limonite thickness average in the Resource area is approximately 18m and saprolite thickness is averaging around 6m.
Estimation and modelling techniques	- *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* - *The availability of check estimates, previous estimates and/or mine*	- Geological modeling and Mineral Resource estimate were completed using Leapfrog Geo 2023.2. The domain modeling in the software use implicit modelling with FastRBF, a mathematical algorithm developed from radial basis functions. The surface resolution for each domain model is 25 x 25m (half distance of the 50x50m drill hole spacing) with adaptive interpolation ability. - Kriging Neighborhood Analysis (KNA) has been done to minimize the smoothing effect by Ordinary kriging. Quantitative KNA was

Criteria	JORC Code explanation	Commentary
	production records and whether the Mineral Resource estimate takes appropriate account of such data. - *The assumptions made regarding recovery of by-products.* - *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* - *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* - *Any assumptions behind modelling of selective mining units.* - *Any assumptions about correlation between variables.* - *Description of how the geological interpretation was used to control the resource estimates.* - *Discussion of basis for using or not using grade cutting or capping.* - *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	performed to determine the optimum block size, discretization block, number of samples and search ellipsoid range for each element. - Three-dimensional block models were constructed for the ETL project to cover all the interpreted lithological domain layers. As suggested by KNA, a block model size of 25 x 25 x1m with no rotation has been selected for Block D, the block model size also will support the drill holes with less than 50m spacing. - The block model was compared with drill hole sample data on cross sections to verify the geological interpretation and estimated grades. Swath plots were used to visualize the statistical mean and magnitude of error between composite samples and the estimated grades. - Ordinary Kriging grade estimate has been applied for all geochemical elements. The number of samples, search radius and discretization block for each domain were taken from block size analysis results. Several run tests (passes) have been applied to the grade estimate to cover all the laterite domains in the block model. The first search radius (pass 1) obtained from KNA and then multiplied by 2 for the subsequent passes. - Leapfrog Edge's Variable Orientation (VO) was used to allow re-orientation of the search and variogram to better match the undulated laterite geometry - A comparison against previous Mineral Resource could not be made as this is the first formal nickel Resource estimate in this area - Deleterious elements such as MgO and SiO2 were reported. Acid drainage of the Mineral Resource was not considered in the model at this time as there has been no mining activity yet in the project area. Pits are relatively shallow and plan to be backfilled and rehabilitated progressively
Moisture	- *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	- Moisture measurements were performed every 1m drill core sample - In areas where Moisture content measurements were not available from core lab analysis the domain default weighted average was applied to the corresponding composite zone - Mineral Resource was reported on a wet basis
Cut-off parameters	- *The basis of the adopted cut-off grade(s) or quality parameters applied.*	- The ETL company management is currently targeting the sale of nickel ore to the PT Indonesia Morowali Industrial Park (IMIP) nickel smelter located 50km east of the project area. The requirement for

Criteria	JORC Code explanation	Commentary
		HPAL smelters is assumed to be 1% of Ni from limonite whereas the requirement for RKEF smelters is assumed to be 1.6% of Ni from saprolite. Based on these requirements, cut off grade (CoG) of 0.8% Ni for limonite and 1.3% Ni for saprolite have been applied in the Resource estimate • Based on statistical analysis of the domain databases & ongoing ore mining operations at nearby mining projects a 0.80% cut off for nickel was applied to both Limonite and Saprolite to best represent the global Mineral Resource estimate for representation of eventual economic extraction. A range of Ni cut-off grades up to 2.0%, split by laterite type to better understand the other elements (Co, Fe, MgO, SiO2, Al2O3, CaO, Density & Moisture) in relation to Nickel (Ni), was also supplied
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.*	• no mining or modifying factors were applied to the Mineral Resource statement that would result in a conversion to Ore Reserve at this time. • assumptions for open cut mining operation similar to current production at the Hengjaya Project nearby and supply agreements with nearby IMIP smelter provide sufficient evidence for determination of reasonable prospects of eventual economic extraction of the MJN Mineral Resource • proximity to the smelter and the prospect of direct haul road access indicates excellent prospect for eventual economic extraction
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• Metallurgical factors and assumption based on ongoing supply requirement to the RNI & HNI smelters (majority owned by NIC) at the IMIP facility were considered when selecting the cutoff ranges for the Mineral Resource and by product splits between Limonite & Saprolite
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*	• Limonite below 0.8% Ni content and Saprolite below 1.3% were extracted separately and considered as waste for future mine planning • Environmental Impact studies will be completed as part of the mining operation permitting process,

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td><i>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.</i></td><td></td></tr>
<tr><td><i>Bulk density</i></td><td><i>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.</i>
<i>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.</i>
<i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i></td><td>Density measured on samples from every hole from each of the 4 layers. This represents the insitu density of the laterite</td></tr>
<tr><td><i>Classification</i></td><td><i>The basis for the classification of the Mineral Resources into varying confidence categories.</i>
<i>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).</i>
<i>Whether the result appropriately reflects the Competent Person’s view of the deposit.</i></td><td>The Mineral Resource has been classified on the basis of drill hole spacing grid, grade continuity with geostatistical considerations such as Kriging variance, slope of regression and average influence from surrounding samples. The Kriging Variance, slope of regression and average distance to samples has been used to assess the confident level of estimation. Kriging variance less than 0.02 and slope of regression more than 0.90 has been considered as high level confidence. Medium level confidence has Kriging Variance between 0.02 and 0.05 and slope of regression between 0.45 and 0.90 which means coherent and spatially consistent with 50x50m drill spacing. Whereas low level confidence has Kriging Variance higher than 0.05 and slope of regression less than 0.45 which means coherent and spatially consistent with 100x100m drill spacing.
<table>
<tr><th>Kriging Variance</th><th>Slope of Regression</th><th>Average Distance to samples</th><th>Category</th></tr>
<tr><td>KV <= 0.02</td><td>SoR > 0.9</td><td><= 25m</td><td>Measured</td></tr>
<tr><td>0.02 < KV <= 0.05</td><td>0.45 < SoR <= 0.9</td><td>25m < AvD < 55m</td><td>Indicated</td></tr>
<tr><td>KV > 0.05</td><td>SoR <= 0.45</td><td>55 >= AvD < 100m</td><td>Inferred</td></tr>
</table>
The vast majority of the deposit is drilled in a 50x50m grid although in the western part of the IUP, a 100x100m of drill hole spacing grid also has been drilled. At this time, the current</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		drill hole spacing grid is considered not sufficient to support Measured Resource category. - Determination of the Resource classes, at this stage, was applied to the Mineral Resource with a digitized polygon boundary based on the spatial continuity of each geological domain around a regular spaced drilling grid 50m from included points of observation in the final validated database. Also taken into account was the Ultra GPR grid lines between the drilling locations increasing confidence in interpretation of the laterization contact surface between the points of observation in the model. Resources were classified as Indicated at this time as drill spacing was all at 50m intervals. - INDICATED - Areas of 50m of drilling spacing on a continuous grid pattern, where significant influence from Pass 1, 2 and 3 dominate the search ellipsoids, with 50m extrapolation from the last line of drilling. - Another factor in selection of resource polygon limits used for the Mineral Resource was a review of the geostatistical inputs and the weighting on each category. This was done by comparing the influence of each pass within the polygon boundaries. The results show that 96% of the blocks in Inferred class are interpolated by Pass 1 & 2. These results give sufficient confidence in the polygon strategy respectively.
Audits or reviews	- *The results of any audits or reviews of Mineral Resource estimates.*	- No formal audit was carried out on the geological model at this time. - The Resource numbers were compared against estimates made by the ETL team and our own internal manual estimate, which showed similar volumes of limonite and saprolite giving confidence that the Resource estimate is within an acceptable range of accuracy.
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*	- Sufficient exploration has been carried out at the ETL project to delineate a significant deposit of laterite nickel. The drilling used for the Mineral Resource estimate is based on a systematic drill grid of 50X50m. The resource classification is mostly Indicated at this time based on this spacing of points of observation. According to the geostatistical analysis, provides sufficient detail for the purpose of the

Criteria	JORC Code explanation	Commentary
	discussion of the factors that could affect the relative accuracy and confidence of the estimate. - *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* - *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	Indicated Mineral Resource stated in this report - It is likely with further infill and exploration drilling in all domains the Mineral Resources estimated in this report will increase - Long term supply contracts to refining facilities already in operation nearby significantly increase the potential for eventual economic extraction of the ETL nickel laterite Mineral Resource

Section 4 Estimation and Reporting of Ore Reserves (Not Required)

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	- *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* - *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	- Insert your commentary here…
Site visits	- *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* - *If no site visits have been undertaken indicate why this is the case.*	-
Study status	- *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* - *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	-
Cut-off parameters	- *The basis of the cut-off grade(s) or quality parameters applied.*	-
Mining factors or assumptions	- *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* - *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.*	-

Criteria	JORC Code explanation	Commentary
	• *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	•
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	•
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	•
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.*	•

Criteria	JORC Code explanation	Commentary
	- *Derivation of transportation charges.* - *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* - *The allowances made for royalties payable, both Government and private.*	
Revenue factors	- *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* - *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	•
Market assessment	- *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* - *A customer and competitor analysis along with the identification of likely market windows for the product.* - *Price and volume forecasts and the basis for these forecasts.* - *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	•
Economic	- *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* - *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	•
Social	- *The status of agreements with key stakeholders and matters leading to social licence to operate.*	•
Other	- *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* - *Any identified material naturally occurring risks.* - *The status of material legal agreements and marketing arrangements.* - *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	•

Criteria	JORC Code explanation	Commentary
Classification	- *The basis for the classification of the Ore Reserves into varying confidence categories.* - *Whether the result appropriately reflects the Competent Person's view of the deposit.* - *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	-
Audits or reviews	- *The results of any audits or reviews of Ore Reserve estimates.*	-
Discussion of relative accuracy/ confidence	- *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* - *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* - *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* - *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	-

APPENDIX 2

PT ERABARU TIMUR LESTARI
LEGAL DOCUMENTATION

BUPATI MOROWALI
Komplex Perkantoran Bumi Fonuasingko
Telp. (0411) 402355, 402356 Fax. (0411) 402356 BUNGKU

KEPUTUSAN BUPATI MOROWALI
NOMOR : 540.3 / SK 017 / DESDM / VI / 2011

TENTANG
PERSETUJUAN PENINGKATAN IZIN USAHA PERTAMBANGAN EKSPLORASI MENJADI IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI KEPADA PT. ERABARU TIMUR LESTARI

BUPATI MOROWALI

Membaca : Surat Direktur PT. ERABARU TIMUR LESTARI Nomor : 12/ETL/VI/2011 Tanggal 19 Juni 2011 perihal Permohonan Peningkatan Izin Usaha Pertambangan Eksplorasi menjadi Izin Usaha Pertambangan (IUP) Operasi Produksi;

Menimbang :
- a. bahwa berdasarkan hasil evaluasi kegiatan IUP Pertambangan Eksplorasi PT. ERABARU TIMUR LESTARI telah memenuhi syarat untuk diberikan persetujuan peningkatan IUP Eksplorasi menjadi IUP Operasi Produksi;
- b. Keputusan Bupati Morowali Nomor : 660.1/73.B/KLH/VI/2011 tanggal 14 Juni 2011 tentang Kelayakan Lingkungan Kegiatan Penambangan Bijih Nikel di Desa Lele, Dampala dan Siumbatu Kecamatan Bahodopi Kabupaten Morowali Provinsi Sulawesi Tengah kepada PT. ERABARU TIMUR LESTARI.

Mengingat :
1. Undang-Undang Nomor 13 Tahun 2000 tentang Ketenagakerjaan (Lembaran Negara RI Tahun 2000 Nomor 39, Tambahan Lembaran Negara RI Nomor 33817);
2. Undang - Undang Nomor 32 Tahun 2004 tentang Pemerintahan Daerah (Lembaran Negara RI Tahun 2004 Nomor 125, Tambahan Lembaran Negara RI Nomor 4437) sebagaimana telah diubah dengan Undang-Undang Nomor 8 Tahun 2005 tentang Penetapan Peraturan Pemerintah Pengganti Undang-Undang Nomor 3 Tahun 2005 tentang Perubahan atas Undang-Undang Nomor 32 Tahun 2004 tentang Pemerintahan Daerah (Lembaran Negara RI Tahun 2005 Nomor 108, Tambahan Lembaran Negara RI Nomor 4548);
3. Undang-Undang Nomor 25 Tahun 2007 tentang Penanaman Modal (Lembaran Negara RI Tahun 2007 Nomor 67, Tambahan Lembaran Negara RI Nomor 4724);
4. Undang-Undang Nomor 26 Tahun 2007 tentang Penataan Ruang (Lembaran Negara RI Tahun 2007 Nomor 68, Tambahan Lembaran Negara RI Nomor 4725);
5. Undang-Undang Nomor 20 Tahun 2008 tentang Usaha Milik Mikro, Kecil dan Menengah (Lembaran Negera RI Tahun 2008 Nomor 93, Tambahan Lembaran Negara RI Nomor 4866);
6. Undang-Undang Nomor 4 Tahun 2009 tentang Pertambangan Mineral dan Batubara (Lembaran Negara RI Tahun 2009 Nomor 4, Tambahan Lembaran Negara RI Nomor 4959);

7. Undang-Undang Nomor 28 Tahun 2009 tentang Pajak Daerah dan Retribusi Daerah (Lembaran Negara RI Nomor 5049);
8. Undang-Undang Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup (Lembaran Negara RI Tahun 2009 Nomor 140, Tambahan Lembaran Negara RI Nomor 5059);
9. Peraturan Pemerintah Nomor 27 Tahun 1999 tentang Analisis Mengenai Dampak Lingkungan Hidup (Lembaran Negara RI Tahun 1999 Nomor 59, Tambahan Lembaran Negara RI Nomor 3838);
10. Peraturan Pemerintah Nomor 38 Tahun 2007 tentang Pembagian Urusan antara Pemerintah Pusat, Pemerintahan Daerah Provinsi, Pemerintahan Daerah Kabupaten/Kota (Lembaran Negara RI Tahun 2007 Nomor 82, Tambahan Lembaran Negara RI Nomor 4737);
11. Peraturan Pemerintah Nomor 26 Tahun 2008 tentang Rencana Tata Ruang Wilayah Nasional (Lembaran Negara RI Tahun 2008 Nomor 48, Tambahan Lembaran Negara RI Nomor 4833);
12. Peraturan Pemerintah Nomor 22 Tahun 2010 tentang Wilayah Pertambangan (Lembaran Negara RI Tahun 2010 Nomor 28, Tambahan Lembaran Negara RI Nomor 5110);
13. Peraturan Pemerintah Nomor 23 Tahun 2010 tentang Pelaksanaan Kegiatan Usaha Pertambangan Mineral dan Batubara (Lembaran Negara RI Tahun 2010 Nomor 29, Tambahan Lembaran Negara RI Nomor 5111);
14. Peraturan Pemerintah Nomor 55 Tahun 2010 tentang Pembinaan dan Pengawasan Penyelenggaraan Pengelolaan Usaha Pertambangan Mineral dan Batubara (Lembaran Negara RI Tahun 2010 Nomor 85, Tambahan Lembaran Negara RI Nomor 5142);
15. Peranturan Menteri Energi dan Sumber Daya Mineral Nomor 28 Tahun 2009 tentang Penyelenggaraan Usaha Jasa dan Pertambangan Mineral dan Batubara (Berita Negara RI Tahun 2009 Nomor 341);
16. Peraturan Menteri Energi dan Sumber Daya Mineral Nomor 34 Tahun 2009 tentang Pengutamaan Pemasokan Kebutuhan Mineral dan Batubara dalam Negeri (Berita Negara RI Tahun 2009 Nomor 546);
17. Peraturan Daerah Kabupaten Morowali Nomor 20 Tahun 2003 tentang Penyelenggaraan Pengelolaan Usaha Pertambangan Umum (Lembaran Daerah Tahun 2003 Nomor 41);
18. Keputusan Bupati Morowali Nomor : 540.2/SK.017/DESDM/III/2009 tanggal 23 Maret 2009 tentang Persetujuan Izin Usaha Pertambangan Eksplorasi Kepada PT. ERABARU TIMUR LESTARI

MEMUTUSKAN:

Menetapkan : KEPUTUSAN BUPATI MOROWALI TENTANG PERSETUJUAN PENINGKATAN IZIN USAHA PERTAMBANGAN EKSPLORASI MENJADI IUP OPERASI PRODUKSI KEPADA PT. ERABARU TIMUR LESTARI

KESATU : Memberikan Izin Usaha Pertambangan Operasi Produksi kepada :

Nama Perusahaan : PT. ERABARU TIMUR LESTARI
Nama Direktur : MARTHEN HENTIANA
Nilai Saham : RP. 750.000.000,-
Pemegang Saham
1. Nama : MARTHEN HENTIANA
Nilai saham : Rp. 450.000.000,-
Pekerjaan : Swasta
Alamat : Taman Anggrek Tower RT.012 RW.001 Kel. Tanjung Duren Sawit Kec. Grogol Petamburan Jakarta Barat

Kewarganegaraan : Indonesia

2. Nama : MARTIN UNSULANGI HENG
Nilai saham : Rp. 262.500.000,-
Pekerjaan : Swasta
Alamat : Jl. Albasia I Blok F No. 21 RT.018 RW.004 Kel. Kedoya Selatan Kec. Kebon Jeruk – Jakarta Barat

Kewarganegaraan : Indonesia

3. Nama : ANTONIUS KAMARGA
Nilai saham : Rp. 37.500.000,-
Pekerjaan : Swasta
Alamat : Jl. Pelepah Hijau IV TT 1 No. 1 RT.012 RW.001 Kel. Gading Timur Kec. Gading – Jakarta Utara

Kewarganegaraan : Indonesia

Alamat Perusahaan : Taman Anggrek Tower RT.012 RW.001 Kel. Tanjung Duren Sawit Kec. Grogol Petamburan – Jakarta Barat

Komoditas : Nikel DMP

Lokasi penambangan
Desa : Lele, Dampala dan Siumbatu
Kecamatan : Bahodopi
Kabupaten : Morowali
Propinsi : Sulawesi Tengah
Kode wilayah : MW316
Luas : 1.159 Ha

Peta dan daftar koordinat WIUP yang diterbitkan oleh Bupati Morowali sebagaimana tercantum dalam Lampiran I dan Lampiran II Keputusan ini.

Lokasi Pengolahan dan Pemurnian : Desa Lele, Dampala dan Siumbatu
Pengangkutan dan Penjualan : Desa Lele, Dampala dan Siumbatu
Jangka waktu berlaku IUP : 20 Tahun
Jangka waktu Tahap Kegiatan :
a. Konstruksi selama 3 Tahun
b. Produksi selama 17 Tahun

KEDUA : Pemegang IUP Operasi Produksi mempunyai hak untuk melakukan kegiatan konstruksi, produksi, pengangkutan dan penjualan serta pengolahan dan pemurnian dalam WIUP untuk jangka waktu 20 Tahun dan dan dapat diperpanjang 2 (dua) kali masing-masing 10 tahun. Terhitung mulai tanggal ditetapkannya Keputusan ini sampai dengan tanggal 27 Juni 2031 ***apabila dalam WIUP terdapat Kawasan Hutan (Hutan Lindung, Hutan Produksi Terbatas, Hutan Produksi Tetap dan Hutan Produksi yang dapat di Konversi dan areal Izin Usaha Pengelolaan Hasil Hutan Kayu (IUPHHK), maupun perijinan lainnya yang sah menurut peraturan perundang-undangan dilarang melakukan kegiatan apapun sebelum mendapat izin dari pejabat yang berwenang.***

KETIGA : IUP Operasi Produksi ini dilarang dipindahtangankan kepada pihak lain tanpa persetujuan Bupati Morowali.

KEEMPAT : PT. ERABARU TIMUR LESTARI sebagai Pemegang IUP Operasi Produksi dalam melaksanakan kegiatannya mempunyai hak dan kewajiban sebagaimana tercantum dalam Lampiran III keputusan ini.

KELIMA : Selambat-lambatnya 60 (enam puluh) hari kerja setelah diterbitkannya Keputusan ini Pemegang IUP Operasi Produksi sudah harus menyampaikan RKAB kepada Bupati Morowali untuk mendapat persetujuan.

KEENAM : Terhitung sejak 90 (sembilan puluh) hari kerja sejak persetujuan RKAB sebagaimana dimaksud dalam diktum Kelima Pemegang IUP Operasi Produksi sudah harus memulai aktifitas di lapangan.

KETUJUH : Tanpa mengurangi ketentuan peraturan perudang-undangan maka IUP Operasi Produksi ini dapat diberhentikan sementara, dicabut, atau dibatalkan, apabila pemegang IUP Operasi Produksi tidak memenuhi kewajiban dan larangan sebagaimana dimaksud dalam diktum Ketiga, Keempat, dan Kelima dalam Keputusan ini.

KEDELAPAN : Keputusan Bupati ini mulai berlaku pada tanggal ditetapkan.

Ditetapkan di : Bungku
Pada Tanggal : 27 JUNI 2011

BUPATI

ANWAR HAFID

Tembusan disampaikan kepada Yth :

1. Menteri Energi dan Sumber Daya Mineral di Jakarta;
2. Menteri Keuangan di Jakarta;
3. Sekretaris Jenderal Departemen Energi dan Sumber Daya Mineral di Jakarta;
4. Inspektur Jenderal Departemen Energi dan Sumber Daya Mineral di Jakarta;
5. Direktur Jenderal Pajak, Departemen Keuangan di Jakarta;
6. Direktur Jenderal Perbendaharaan, Departemen Keuangan di Jakarta;
7. Direktur Jenderal Pendapatan Daerah, Departemen Dalam Negeri di Jakarta;
8. Gubernur Sulawesi Tengah di Palu;
9. Kepala Biro Hukum dan Humas/Kepala Biro Keuangan/Kepala Biro Perencanaan dan Kerjasama Luar Negeri, Setjen Departemen Energi dan Sumber Daya Mineral di Jakarta;
10. Sekretaris Direktorat Jenderal Mineral, Batubara dan Panas Bumi di Jakarta;
11. Direktur Teknik dan Lingkungan Mineral, Batubara dan Panas Bumi di Jakarta;
12. Direktur Pembinaan Program Mineral, Batubara dan Panas Bumi di Jakarta;
13. Direktur Pembinaan Pengusahaan Mineral dan Batubara di Jakarta;
14. Direktur Pajak Bumi dan Bangunan, Departemen Keuangan di Jakarta;
15. Kepala Dinas Energi dan Sumber Daya Mineral, Prop. Sulawesi Tengah di Palu;
16. Kepala Dinas Energi dan Sumber Daya Mineral, Kab. Morowali di Bungku;
17. Direksi PT. ERABARU TIMUR LESTARI di Jakarta;

LAMPIRAN II :

Surat Keputusan (SK) Bupati Morowali
Nomor : 540.3 / Sk. 017 / DESDM / VI / 2011
Tanggal : 27 JUNI 2011

KOORDINAT WILAYAH IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI
PT. ERABARU TIMUR LESTARI

LOKASI
PROVINSI : SULAWESI TENGAH
KABUPATEN : MOROWALI
KECAMATAN : BAHODOPI
DESA : LELE, DAMPALA DAN SIUMBATU
KOMODITAS : NIKEL DMP
LUAS WILAYAH : 1.159 Ha
KODE WILAYAH : MW316

NO	GARIS BUJUR BUJUR TIMUR (BT)				GARIS LINTANG LINTANG UTARA (LU)/ LINTANG SELATAN (LS)			
	°	'	"	BT/E	°	'	"	LS/LU
1	121	50	27,95	BT	2	53	10,04	LS
2	121	50	4,05	BT	2	53	10,04	LS
3	121	50	4,05	BT	2	52	27,75	LS
4	121	49	49,04	BT	2	52	27,75	LS
5	121	49	49,04	BT	2	51	57,07	LS
6	121	47	45,94	BT	2	51	57,07	LS
7	121	47	45,94	BT	2	52	18,27	LS
8	121	48	13,64	BT	2	52	18,27	LS
9	121	48	13,64	BT	2	52	35,47	LS
10	121	48	55,98	BT	2	52	35,47	LS
11	121	48	55,98	BT	2	53	10,04	LS
12	121	46	3,92	BT	2	53	10,04	LS
13	121	46	3,92	BT	2	52	10,9	LS
14	121	46	19,09	BT	2	52	10,9	LS
15	121	46	19,09	BT	2	52	0	LS
16	121	47	44,46	BT	2	52	0	LS
17	121	47	44,46	BT	2	51	55,06	LS
18	121	49	50,66	BT	2	51	55,06	LS
19	121	49	50,66	BT	2	52	0	LS
20	121	50	27,95	BT	2	52	0	LS

BUPATI MOROWALI

ANWAR HAFID

LAMPIRAN III

Surat Keputusan (SK) Bupati Morowali :

Nomor : 540.3 /SK. 017 / DESDM / VI / 2011
Tanggal : 27 JUNI 2011

Hak dan Kewajiban :

A. Hak

1. Memasuki WIUP sesuai dengan peta dan daftar koordinat;
2. Melaksanakan kegiatan IUP Operasi Produksi (Konstruksi, Produksi, Pengolahan Pemurnian dan Pengangkutan Penjualan) sesuai dengan ketentuan peraturan perundang-undangan;
3. Membangun fasilitas penunjang kegiatan IUP Operasi Produksi (Konstruksi, Produksi, Pengolahan Pemurnian dan Pengangkutan Penjualan) di dalam maupun diluar WIUP;
4. Dapat menghentikan sewaktu-waktu menghentikan kegiatan IUP Operasi Produksi (Konstruksi, Produksi, Pengolahan Pemurnian dan Pengangkutan Penjualan) di setiap bagian atau beberapa bagian WIUP dengan alasan bahwa kelanjutan dari kegiatan IUP Operasi Produksi (Konstruksi, Produksi, Pengolahan Pemurnian dan Pengangkutan Penjualan), tersebut tidak layak atau praktis secara komersial maupun karena keadaan kahar, keadaan yang menghalangi sehingga menimbulkan penghentian sebagian atau seluruh kegiatan usaha pertambangan;
5. Mengajukan permohonan pengusahaan mineral lain yang bukan merupakan asosiasi mineral utama yang diketemukan dalam WIUP;
6. Mengajukan pernyataan tidak berminat terhadap pengusahaan mineral lain yang bukan merupakan asosiasi mineral utama yang diketemukan dalam WIUP;
7. Memanfaatkan sarana dan prasarana umum untuk keperluan kegiatan IUP Operasi Produksi (Konstruksi, Produksi, Pengolahan Pemurnian dan Pengangkutan Penjualan) setelah memenuhi ketentuan peraturan perundang-undangan;
8. Dapat melakukan kerjasama dengan perusahaan lain dalam rangka penggunaan setiap fasilitas yang dimiliki oleh perusahaan lain baik yang berafiliasi dengan perusahaan atau tidak sesuai dengan ketentuan peraturan perundang-undangan;
9. Dapat membangun sarana dan prasarana pada WIUP lain setelah mendapat izin dari pemegang IUP yang bersangkutan.

B. Kewajiban

1. Memilih yurisdiksi pada Pengadilan Negeri tempat dimana lokasi WIUP berada;
2. Selambat-lambatnya 6 bulan setelah ditetapkannya keputusan ini, pemegang IUP Operasi Produksi harus sudah melaksanakan dan menyampaikan laporan pematokan batas wilayah IUP Operasi Produksi kepada Bupati;
3. Hubungan antara pemegang IUP Operasi Produksi dengan pihak ketiga menjadi tanggung jawab pemegang IUP Sesuai ketentuan perundang-undangan;
4. Melaporkan Rencana Investasi;
5. Menyampaikan rencana reklamasi;
6. Menyampaikan rencana pasca tambang;
7. Menempatkan jaminan penutupan tambang (sesuai umur tambang);
8. Menyampaikan RKAB selambat-lambatnya pada bulan November yang meliputi rencana tahun depan dan realisasi kegiatan setiap tahun berjalan kepada Bupati dengan tembusan kepada Menteri dan Gubernur;
9. Menyampaikan Laporan Kegiatan Triwulanan yang harus diserahkan dalam jangka waktu 30 (tiga puluh) hari setelah akhir dari triwulan takwim secara berkala kepada Bupati dengan tembusan kepada Menteri dan Gubernur;
10. Apabila ketentuan batas waktu penyampaian RKAB dan pelaporan sebagaimana dimaksud pada angka 8 (delapan) dan 9 (sembilan) tersebut di atas terlampaui, maka kepada pemegang IUP Operasi Produksi akan diberikan peringatan tertulis;
11. Menyampaikan laporan produksi dan pemasaran sesuai dengan ketentuan peraturan perundang-undangan.
12. Menyampaikan Rencana Pengembangan dan Pemberdayaan Masyarakat sekitar

wilayah pertambangan kepada Bupati;

13. Menyampaikan RKTTL setiap tahun sebelum penyampaian RKAB kepada Bupati;
14. Memenuhi ketentuan perpajakan sesuai dengan ketentuan peraturan perundang-undangan;
15. Membayar Iuran Tetap setiap tahun dan membayar Royalty sesuai dengan ketentuan peraturan perundang-undangan;
16. Menempatkan jaminan reklamasi sebelum melakukan kegiatan produksi dan rencana penutupan tambang sesuai ketentuan peraturan perundang-undangan;
17. Menyampaikan RPT (Rencana Penutupan Tambang) 2 Tahun sebelum kegiatan produksi berakhir;
18. Mengangkat seorang Kepala Teknik Tambang yang bertanggung jawab atas Kegiatan IUP Operasi Produksi (Konstruksi, Produksi, Pengolahan Pemurnian dan Pengangkutan Penjualan), Keselamatan dan Kesehatan Kerja Pertambangan serta Pengelolaan Lingkungan Pertambangan;
19. Kegiatan produksi dimulai apabila kapasitas produksi terpasang sudah mencapai 70% yang direncanakan;
20. Permohonan Perpanjangan IUP untuk Kegiatan Produksi harus diajukan 2 (dua) tahun sebelum berakhirnya masa izin ini dengan disertai pemenuhan persyaratan;
21. Kelalaian atas ketentuan tersebut pada butir 20, mengakibatkan IUP Operasi Produksi berakhir menurut hukum dan segala usaha pertambangan dihentikan. Dalam jangka waktu paling lama 6 (enam) bulan sejak berakhirnya keputusan ini. Pemegang IUP Operasi Produksi harus mengangkat keluar segala sesuatu yang menjadi miliknya, kecuali benda-benda/bangunan-bangunan yang dipergunakan untuk kepentingan umum;
22. Apabila dalam jangka waktu sebagaimana dimaksud dalam butir 21, pemegang IUP Operasi Produksi tidak melaksanakan maka barang/aset pemegang IUP menjadi milik pemerintah;
23. Pemegang IUP Operasi Produksi harus menyediakan data dan keterangan sewaktu-waktu apabila dikehendaki oleh pemerintah;
24. Pemegang IUP Operasi Produksi membolehkan dan menerima apabila pemerintah sewaktu-waktu melakukan pemeriksaan;
25. Menerapkan kaidah pertambangan yang baik;
26. Mengelola keuangan sesuai dengan sistem akuntansi Indonesia;
27. Melaporkan pelaksanaan pengembangan dan pemberdayaan masyarakat setempat secara berkala;
28. Mengutamakan pemanfaatan tenaga kerja setempat, barang dan jasa dalam negeri sesuai dengan ketentuan peraturan perundang-undangan;
29. Mengutamakan pembelian dalam negeri dari pengusaha lokal yang ada di daerah tersebut sesuai dengan ketentuan peraturan perundang-undangan;
30. Mengutamakan seoptimal mungkin penggunaan perusahaan jasa pertambangan lokal dan/atau nasional;
31. Dilarang melibatkan anak perusahaan dan/atau afiliasinya dalam bidang usaha jasa pertambangan di WUP yang diusahakannya, kecuali dengan izin Menteri;
32. Melaporkan data dan pelaksanaan penggunaan usaha jasa penunjang;
33. Menyerahkan seluruh data yang diperoleh dari hasil kegiatan IUP Operasi Produksi kepada Bupati dengan tembusan Menteri dan Gubernur;
34. Menyampaikan proposal yang sekurang-kurangnya menggambarkan aspek teknis, keuangan, produksi dan pemasaran serta lingkungan sebagai persyaratan pengajuan permohonan perpanjangan IUP Operasi Produksi;
35. Memberikan ganti rugi kepada pemegang hak atas tanah dan tegakan yang terganggu akibat kegiatan IUP Operasi Produksi;
36. Mengutamakan pemenuhan kebutuhan dalam negeri (DMO) sesuai ketentuan perundang-undangan;
37. Penjualan produksi kepada afiliasi harus mengacu kepada harga pasar;
38. Kontrak penjualan jangka panjang (minimal 3 tahun) harus mendapat persetujuan terlebih dahulu dari Menteri;
39. Perusahaan wajib mengolah produksinya didalam negeri.
40. Pembangunan sarana dan prasarana pada kegiatan konstruksi antara lain meliputi :
    a. Fasilitas-fasilitas dan peralatan pertambangan;

b. Instalasi dan peralatan peningkatan mutu mineral/batubara;
c. Fasilitas-fasilitas Bandar yang dapat meliputi dok-dok, pelabuhan-pelabuhan, dermaga-dermaga, jembatan-jembatan, tongkang-tongkang, pemecah-pemecah air, fasilitas-fasilitas terminal, bengkel-bengkel, daerah-daerah penimbunan, gudang-gudang, dan peralatan bongkar muat;
d. Fasilitas-fasilitas transportasi dan komunikasi yang dapat meliputi jalan-jalan, jembatan-jembatan, kapal-kapal, feri-feri, pelabuhan-pelabuhan udara, rel-rel, tempat-tempat pendaratan pesawat, hanggar-hanggar, garasi-garasi, pompa-pompa BBM, fasilitas-fasilitas radio dan telekomunikasi, serta fasilitas-fasilitas jaringan telegraph dan telepon;
e. Perkotaan, yang dapat meliputi rumah-rumah tempat tinggal, toko-toko, sekolah-sekolah, rumah sakit, teater-teater dan bangunan lain, fasilitas-fasilitas dan peralatan pegawai kontraktor termasuk tanggungan pegawai tersebut;
f. Listrik, fasilitas-fasilitas air dan air buangan dan dapat meliputi pembangkit-pembangkit tenaga listrik (yang dapat berupa tenaga air, uap, gas atau diesel), jaringan-jaringan listrik, dam-dam, saluran-saluran air, sistem-sistem penyediaan air dan sistem-sistem pembuangan limbah (tailing), air buangan pabrik dan air buangan rumah tangga;
g. Fasilitas-fasilitas lain-lain yang dapat meliputi namum tidak terbatas, bengkel-bengkel mesin, bengkel-bengkel pengecoran dan reparasi;
h. Semua fasilitas tambahan atau fasilitas lain, pabrik dan peralatan yang dianggap perlu atau cocok untuk operasi pengusahaan yang berkaitan dengan WIUP atau untuk menyediakan pelayanan atau melaksanakan aktifitas-aktifitas pendukung atau aktifitas yang sifatnya insidentil.

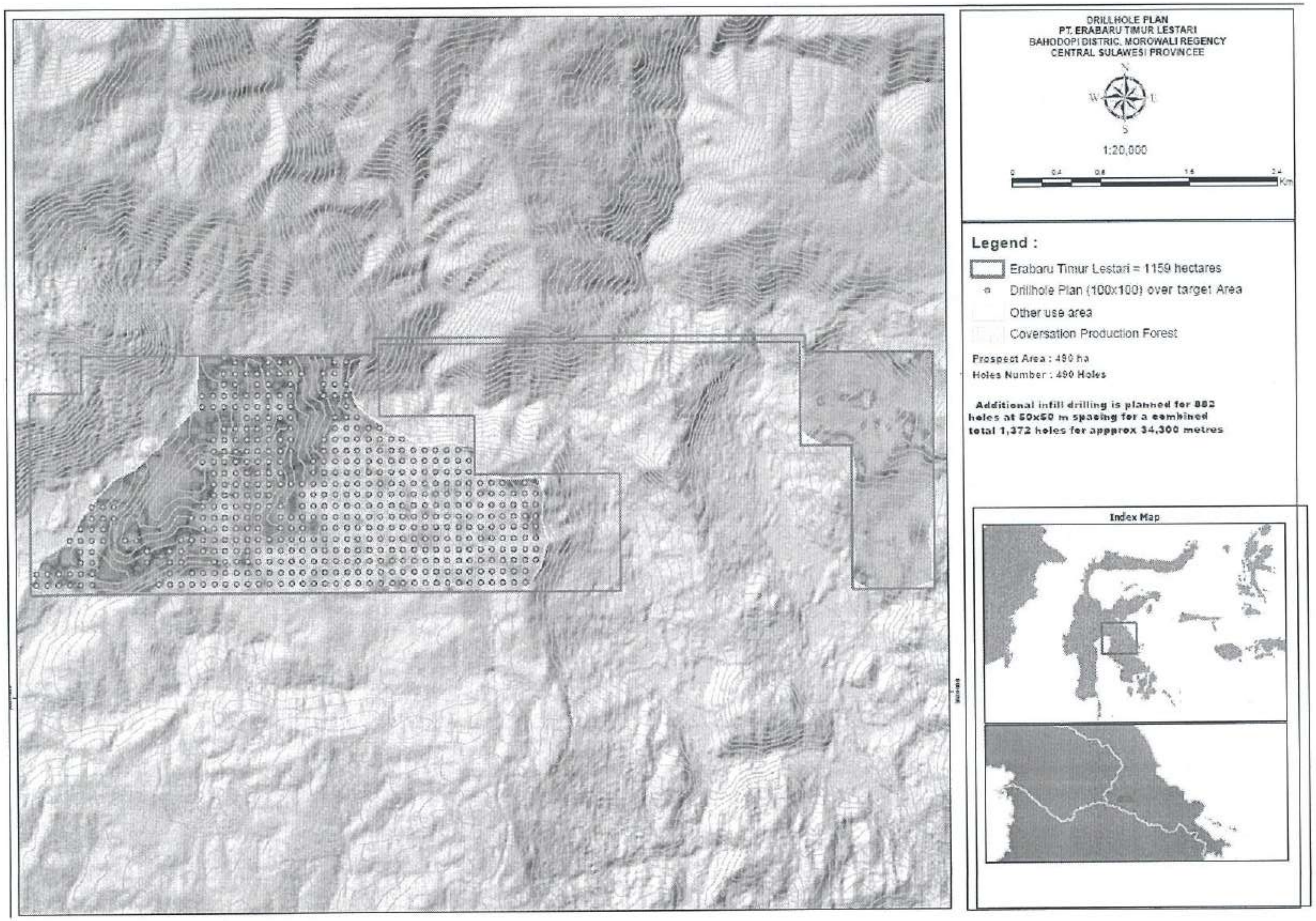
BUPATI MOROWALI

B U P A T I

ANWAR HAFID

APPENDIX B / *LAMPIRAN B*

INITIAL EXPLORATION PROGRAM / *PROGRAM EKSPLORASI AWAL*



COMMERCIAL TERMS OF THE ACQUISITION

MJN and ETL IUPs

- Nickel Industries to acquire 60% of the control and economic rights in each of MJN and ETL.
- Refundable commitment fee of US$3.0 million for each of MJN and ETL (US$5.9 million in total) (**Commitment Fee**), payable upon completion of the due diligence period, which is up to 90 days.
- Following the issuance of a positive due diligence notice, Nickel Industries will carry out an agreed Initial Exploration Program (**IEP**) within 18 months and for the purpose of determining the purchase consideration payable to the vendor at completion.
- After the IEP, Nickel Industries shall pay to the Vendor the purchase consideration, calculated as:

60% * the JORC Resource[1] * US$2.50 per dmt above 1.70% nickel.

- Nickel Industries will provide an Exclusive Financing Commitment (**EFC**) in the form of interest-bearing loans, repayable prior to any dividend distributions.
- Nickel Industries shall receive an agency fee from the first production from the IUPs, as compensation for the Commitment Fee.

GF IUP

- Nickel Industries to acquire 60% of the control and economic rights in GF for a total consideration of US$7 million, payable as follows:
    - an advance payment of US$2 million (already paid);
    - a first milestone payment of US$3 million (already paid); and
    - a final payment of US$2 million upon the transfer of 60% of GF to Nickel Industries.
- Nickel Industries will provide an EFC in the form of interest-bearing loans, repayable prior to any dividend distributions.
- **An application has been submitted to extend GF by an area of 491ha of prospective laterite**. Should this application be successful, Nickel Industries is to pay the vendor an additional US$4 million.

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[1] Measured, indicated and inferred in dmt

APPENDIX 3

PT HENGJAYA MINERALINDO
LABORATORY QAQC REPORT

PT. Hengjaya Mineralindo

PT HENGJAYA MINERALINDO
NICKEL MINES LIMITED
JOB SITE MOROWALI SULAWESI TENGAH INDONESIA

DEPARTMENT
QUALITY CONTROL
DIVISI
LABORATORIUM

STANDAR OPERASIONAL PROSEDUR IMPLEMENTASI QUALITY CONTROL/QUALITY ASSURANCE DI LABORATORIUM

<table>
<tr><td colspan="2">DEPARTMENT</td><td colspan="4">OTORISASI/AUTHORIZATION</td></tr>
<tr><td colspan="2"><i>Quality Control</i></td><td>DISIAPKAN/PREPARED</td><td>DIPERIKSA/CHECKED</td><td>DISETUJUI/APPROVED</td><td>DIKETAHUI/
ACKNOWLEDGE</td></tr>
<tr><td colspan="2">DOCUMENT NO
<i>023/SOP-QAQC/HM-QC/LAB/VII/2020</i>
EFFECTIFE DATE
<i>Sept 25th, 2020</i>
DISTRIBUTED</td><td></td><td>25/09/20</td><td></td><td></td></tr>
<tr><td colspan="2"><i>Quality Control</i></td><td>LILIK KRISMAWANTO</td><td>WILLEM DIQUE</td><td>MUHAMMAD ILHAM</td><td>TONY LEE GREEN</td></tr>
<tr><td>REVISION
<i>00</i></td><td>PAGE
<i>01 - 07</i></td><td>HEAD OF DEPT.
QUALITY CONTROL</td><td>OPERATIONS MANAGER</td><td>CHIEF TECHNICAL OF MINE</td><td>CHIEF OPERATION OFFICER</td></tr>
</table>

1. TUJUAN

Tujuan dari *Quality Assurance* (QA) adalah menjamin kualitas produk yang dihasilkan dan memastikan proses pembuatan produk tersebut sesuai dengan standar dan persyaratan yang telah ditentukan. Kegiatan Quality Assurance diantaranya memastikan Presisi dan akurasi pengerjaan.

Tujuan utama *Quality Control* (QC) adalah memastikan bahwa produk yang akan dikirimkan ke pelanggan adalah sesuai dengan spesifikasi dan kualitas yang telah disepakati dan dapat diterima sesuai dengan persyaratan kualitas yang ditentukan. Jika ditemukan produk yang tidak sesuai dengan spesifikasi dan kualitas yang telah ditentukan maka diperlukan tindakan perbaikan yang sesuai.

2. RUANG LINGKUP

SOP ini berlaku untuk seluruh area PT Hengjaya Mineralindo, terutama di QA/QC Departement.

3. PENANGGUNG JAWAB

Supervisor/Pengawas memastikan bahwa seluruh area kerja, dan timnya sudah siap untuk melakukan pekerjaan dengan baik, sudah memahami alur kerja yang benar sesuai dengan metode standar yang akan dilakukan.
Foreman memastikan seluruh peralatan kerja dalam kondisi baik, crew yang bekerja sudah dilengkapi dengan APD yang sesuai, dan lingkungan tempat bekerja sudah bersih untuk menghindari kontaminasi saat proses berlangsung.
Crew memastikan sudah siap dengan APD yang sesuai, dan sudah memahami tugas yang diberikan oleh foreman.

PURPOSE

Quality Assurance (QA) is a proactive approach to ensure that the chemical analyses of samples are correct and accurate. It involves the addition of check samples such as blanks, duplicates, replicates and standards. Quality Assurance activities ensure work precision and accuracy.

Quality Control (QC) is a reactive process analysing the data collected from the lab to ensure that the information given to customers are in accordance with agreed specifications and quality. It occurs through controlling sub-sampling precision and contamination during sample preparation and controlling analytical precision and analytical precision during the sample assaying process. If a product is not in accordance with the specified specifications and quality, then appropriate corrective action is required.

SCOPE

This SOP describes the activities specifically undertaken at the PT Hengjaya Mineralindo QA/ QC Department.

RESPONSIBILITY

Supervisor *ensures that the entire work area, and his team, are ready to do the job properly, have understood the correct flowsheet as described in the SOP. Is responsible for ensuring all analyses are accurate and correct and remedying any errors before the final results are entered onto the database and circulated to internal, and especially, external recipients.*
Foreman *ensures that all work equipment is in good condition, the working crew is equipped with appropriate PPE, and the workplace environment is clean to avoid contamination during the process.*
Crew *ensures that they are ready with the appropriate PPE, and that they understand the assignment given by the foreman.*

4. DEFINISI

Akurasi adalah tingkat ketidakadaan "bias" (kekeliruan) dalam sampel. Dengan kata lain makin sedikit tingkat kekeliruan yang ada dalam sampel, makin akurat sampel tersebut. Tolak ukur adanya "bias" atau kekeliruan adalah populasi. Biasanya akurasi menyatakan seberapa dekat nilai hasil pengukuran dengan nilai sebenarnya *(true value)* atau nilai yang dianggap benar *(accepted value)*. Jika tidak ada data sebenarnya atau nilai yang dianggap benar tersebut maka tidak mungkin untuk menentukan beberapa akurasi pengukuran tersebut.

Presisi adalah mengacu pada persoalan sedekat mana estimasi kita dengan karakteristik populasi. Presisi diukur oleh simpangan baku *(standart error)*. Makin kecil perbedaan diantara simpangan baku yang diperoleh dari sampel (S) dengan simpangan baku dari populasi (S), makin tinggi pula tingkat presisinya. Biasanya presisi menyatakan seberapa dekat nilai hasil dua kali atau lebih pengulangan pengukuran. Semakin dekat nilai – nilai hasil pengulangan pengukuran maka semakin presisi pengukuran tersebut.

DR Sample adalah control sample pada proses penghancuran sample menjadi ukuran 2mm (10mesh) menggunakan *double roll crusher* dan dibagi menjadi dua bagian yang sama (homogen) menggunakan splitter.

DA Sample adalah control sample pada proses penghalusan sample menjadi ukuran 0.07mm (200mesh) menggunakan *pulverizer* dan dibagi menjadi dua bagian yang sama (homogen) dengan matrix 4x5 skop 0.25D.

Blank Sample berupa control sample tanpa kandungan elemen Nikel, Besi dan Kobalt seperti batu kapur atau pasir kuarsa, dan biasanya digunakan untuk mengecek ada atau tidaknya kontaminasi saat proses pengerjaan sample.

Sieving Test adalah control yang dilakukan pada proses pengayakan sample untuk pengecekan kehalusan sample (-200 mesh). Standard yang kami tetapkan yaitu 95% sample yang lolos dari ayakan, apabila kurang dari 95% ini akan menjadi control pada tingkat kehalusan sample dan efeknya akan berpengaruh kepada homogenitas sample.

DEFINITION

Accuracy *is the degree of absence of "bias" (error) in the sample. In other words, the less errors there are in the sample, the more accurate the sample. The benchmark of "bias" or error is the population. Usually accuracy states how close the value of the measurement results to the true value (true value) or the value that is considered true (accepted value). If no actual data or values are considered correct then it is not possible to determine some of the accuracy of these measurements.*

Precision *is referring to the problem as close as our estimation to the characteristics of the population. Precision is measured by the standard deviation (standard error). The smaller the difference between the standard deviation obtained from sample (S) and the standard deviation from population (S), the higher the precision level. Usually precision states how close the result is to two or more measurements. The closer the values of the measurement results are, the more precise the measurement is.*

DR sample *is a control sample collected from the double roll crusher product where two splits are taken from the same sample to test the homogeneity and precision of the splitting and crushing process.*

DA Sample *is a control sample collected from the final 200# (75 micron) fines product where two splits are taken from the same sample to test the analytical precision of the pulverizing and incremental splitting process using a matrix of 4 x 5 and a 0.25D scoop.*

Blank Sample *is a control sample barren in the elements being analysed, eg Ni, Fe and Co, such as limestone or quartz sand, and are used to test for contamination during the sample preparation and assay stages.*

Sieving Test *is a particle sizing test exercise to test the fineness of the sample crushing and pulverizing stages. A standard of 95% of the 200# screened product is required to pass the 200# screen to ensure adequate homogeneity of the sample to be assayed.*

Replicate Sample adalah sample control dimana satu bagian dari sample pulp digunakan untuk menghasilkan dua sample pellet yang diberi nomor sample berbeda dan dimasukkan kedalam batch atau lembar kerja yang sama. Replikat sample dilakukan untuk menghetahui keakuratan hasi Analisa sampel.

Certified Reference Material (CRM) Sample adalah sample yang disiapkan secara khusus dengan nilai rata-rata yang tersertifikasi dari element misalnya Ni, Fe, dan Co dalam standar dengan batas kepercayaan dan toleransi yang terkait. CRM digunakan untuk memantau nilai sample yang sedang diuji, unutk memungkinkan kami memantau keakuratan proses pengujian.

Cross Check Sample adalah hasil split dari sample yang diuji pertama kali di PT HM dan kemudian dikirim ke laboratorium komersial atau independen untuk membandingkan keakuratan Lab HM terhadap laboratorium yang lain.

***Replicate Sample** is a control sample where one portions of the same pulp sample are used to produce two separate pressed powder pellets that are given different sample numbers and inserted into the same batch, or Job Sheet. Replicate samples are carried out to determine the accuracy of the results of sample analysis.*

Certified Reference Materials (CRMs) are especially prepared samples with certified mean values of elements eg Ni, Fe and Co, in the standard, with associated confidence and tolerance limits. They are used to monitor the values of the standard against the values of the unknown samples being assayed, to allow us to monitor the accuracy of the assay process.

***Check Sample / Interlaboratory Check** are second splits of samples assayed first at the PT HM and sent to commercial or independent laboratories to compare the accuracy of the HM lab relative to the another laboratory.*

5. PROSEDUR

1. DR Sample :

1.1. Sample dihancurkan menggunakan Double Roll Crusher.

1.2. Membagi sample menjadi dua bagian yang sama menggunakan Splitter (Bagian A dan Bagian B).

1.3. Bagian A sebagai sample original dan Bagian B sebagai sample DR.

1.4. Sample DR dianalisa bersama dengan sample Original.

1.5. Untuk sample Explorasi pengambilan sample DR dilakukan dua kali setiap satu Batch sample (jumlah 100sample/job) secara sistematis. Dan untuk sample mining dan sample produksi, pengambilan sample secara acak.

PROCEDURE

1. DR Sample :

1.1. The sample is crushed using a Double Roll Crusher.

1.2. Divide the sample into two equal parts using a Jones Riffle Splitter (Part A and Part B).

1.3. Part A is the original sample and Part B is the DR sample.

1.4. DR samples are analyzed in the same batch together with the original sample.

1.5. For exploration samples, DR samples are taken twice per batch of samples (total 100 samples), and systematically. For mining samples and production samples are taken with random sampling.

2. DA Sample :

2.1. Sample yang berukuran ± 2mm (Bagian A) Dihaluskan menggunakan Pulverizer hingga berukuran 200mesh.

2.2. Membagi sample menjadi dua bagian yang sama (Bagian A1 dan Bagian A2) dengan menggunakan Martix 4x5 skop 0.25D.

2.3. Bagian A1 sebagai sample original dan Bagian A2 sebagai sample DA.

2.4. Sample DA dianalisa bersama dengan sample Original.

2.5. Untuk sample Explorasi pengambilan sample DA dilakukan dua kali setiap satu Batch sample (jumlah 100sample/job) secara sistematis. Dan untuk sample mining dan sample produksi, pengambilan sample secara acak.

3. Blank Sample :

3.1. Sample Batuan (batu gamping) yang tidak mengandung Unsur Ni Dan Fe kemudian di hancurkan dengan menggunakan Jaw Crusher hingga berukuran ± 5mm.

3.2. Sampel tersebut kemudian di hancurkan kembali menggunakan Double Roll Crusher hingga berukuran 2mm.

3.3. Dihaluskan menggunakan Pulverizer hingga menghasilkan partikel yang berukuran 200mesh (0.07mm).

3.4. Sample kemudian di press menggunakan press cup.

3.5. Dianalisa menggunakan ED-XRF.

4. Sieving Test :

4.1. Sample pulp yang berukuran 200mesh kemudian ditimbang sebanyak ±50gr, dan dicatat sebagai W_1.

4.2. Diayak menggunakan ayakan dengan ukuran partikel 200mesh.

4.3. Sample yang lolos dari ayakan kemudian ditimbang, dan dicatat sebagai W_2.

4.4. Perhitungan : (W_2/ W_1) x 100.

4.5. Sieving yang bagus diatas 95%.

2. DA Sample :

2.1. Samples of ± 2mm material (Part A) were pulverised using a Pulverizer to 200mesh, -75 micron size.

2.2. Incremental splitting of the sample into two equal parts (Part A1 and Part A2) using a 4x5 Matrix and 0.25D scoop.

2.3. Part A1 is the original sample and Part A2 is the DA sample.

2.4. The DA sample is analyzed in the same batch as the original sample.

2.5. For exploration samples, DA sample is taken twice in every one Batch of samples (total 100 samples / job) systematically. And for mining sample and production sample is taken in random sequence.

3. Blank Sample :

3.1. Rock samples (limestone) that do not contain Ni and Fe elements are crushed using a Jaw Crusher to a size of ± 5mm.

3.2. The sample is then crushed again using Double Roll Crusher to +/- 2mm in size.

3.3. Pulverised using a Pulverizer to produce particles passing 200mesh screen (75 micron).

3.4. The sample is then pressed into a pressed powder pellet using a press cup.

3.5. Analyzed using ED-XRF.

4. Sieving Test :

4.1. Pulp samples passing 200mesh screen are weighed ± 50g, and are referred to as W1.

4.2. Screened using a sieve with a particle size of 200mesh.

4.3. The samples that passed the sieve were weighed and recorded as W2.

4.4. Calculation: (W2 / W1) x 100.

4.5. Test is positive test when >95% sample passes the 200# screen.

5. *Replicate Sample :*

5.1. Sample pulp yang berukuran 200mesh kemudian di press sebagai original sampel.
5.2. Sample yang sama kemudian di press kembali seperti proses awal sebagai Replicate Sample.
5.3. Dianalisa menggunakan ED-XRF.

6. **Certified Reference Material (CRM)** ***Sample :***

6.1. 10 gram CRM sample (Oreas) di press menggunakan alat pres cup.
6.2. Dianalisa menggunakan ED-XRF dengan mengikutkan sample original yang lain.

7. Cross Check Assay Sample :

7.1. Mengambil arsip sample Explorasi sebanyak empat sample setiap batch secara sistematis .
7.2. Mengambil arsip sample Mining dan sample produksi sebanyak satu sample setiap batch secara Random.
7.3. Total jumlah sample Cross Check sebanyak 4% dari jumlah total sample setiap bulannya.
7.4. Sample siap dikirim ke LAB Independen.

8. AKURASI :

8.1 Mengumpulkan semua data CRM Sample (OREAS) hasil pembacaan WD-XRF.
8.2. Menghitung standar deviasi dari data yang telah dikumpulkan.
8.3 Standar deviasi tersebut sebagai acuan untuk Upper dan lower garis batas toleransi ukuran (dua dan tiga kali dari nilai standar deviasi).
8.4. Nilai acuan akurasi diambil dari nilai CRM yang bersertifikat.
8.5. Dibuat Grafik (XY Scatter) berdasarkan data yang didapatkan.
8.6. Akurasi yang bagus menunjukkan nilai original dan sampel adalah sama.

5. *Replicate Sample :*

5.1. Approx. 10 gr of 200# pulp sample is used to make a pressed powder pellet, the original sample.
5.2. A further split of the same sample is also processed into a Replicate Sample.
5.3. Analyzed using ED-XRF.

6. *Certified Reference Material (CRM) Sample :*

6.1. A 10 gr sample of the OREAS standard sample (OREAS) is pressed into a powdered pellet.
6.2. This pellet analyzed using ED-XRF along with original samples in that particular batch.

7. *Cross Check Assay Sample :*

7.1. Four exploration samples systematically taken from each batch (from stored sample archive).
7.2. With mining and production samples, one sample taken randomly from each batch.
7.3. The total number of Cross Check Assay samples is 4% of the total number of samples assayed each month.
7.4. Samples are sent to the Independent LAB (Geoservices, Intertek, Other) for independent assay.

8. *ACCURACY*

8.1. Collect all CRM Sample (OREAS) data from WD-XRF readings.
8.2. Calculate the standard deviation of the data that has been collected.
8.3 The standard deviation is a reference for the upper and lower limits of the tolerance (twice and three times the standard deviation value) and confidence limits.
8.4. The accuracy reference value is taken from the certified CRM value.
8.5. Produce scatterplots (XY Scatter) for the data obtained.
8.6. Good accuracy shows that the original and sample values are the same.

9. PRESISI :

9.1 Mengumpulkan semua data dari sample DA, DR, Duplikat, Cross check assay dan data original dari berbagai jenis sampel tersebut.

9.2. Menghitung koefisien determinasi (R^2) dari perbandingan data originalnya.

9.3. Dibuat Grafik (XY Scatter) berdasarkan data yang didapatkan.

9.4. Presisi yang bagus menunjukkan nilai R^2 sama dengan 1.

6. REFERENSI

9. PRECISION

9.1 Collect all data from DA, DR, Replicate, Cross check assay and original data from different sample types.

9.2. Calculate the correlation coefficient (R^2) for the data set for the original data.

9.3. Produce scatterplot (XY Scatter) based on the data obtained.

9.4. Excellent precision shows R^2 is equal to 1.

References

7. Lampiran *Attachment*

SOP LOG SHEET SOCIALIZATION

No	Name	Position	Department	Signature	
1				1	
2					2
3				3	
4					4
5				5	
6					6
7				7	
8					8
9				9	
10					10
11				11	
12					12
13				13	
14					14
15				15	
16					16
17				17	
18					18
19				19	
20					20
21				21	
22					22
23				23	
24					24

Coarse Duplicate Samples

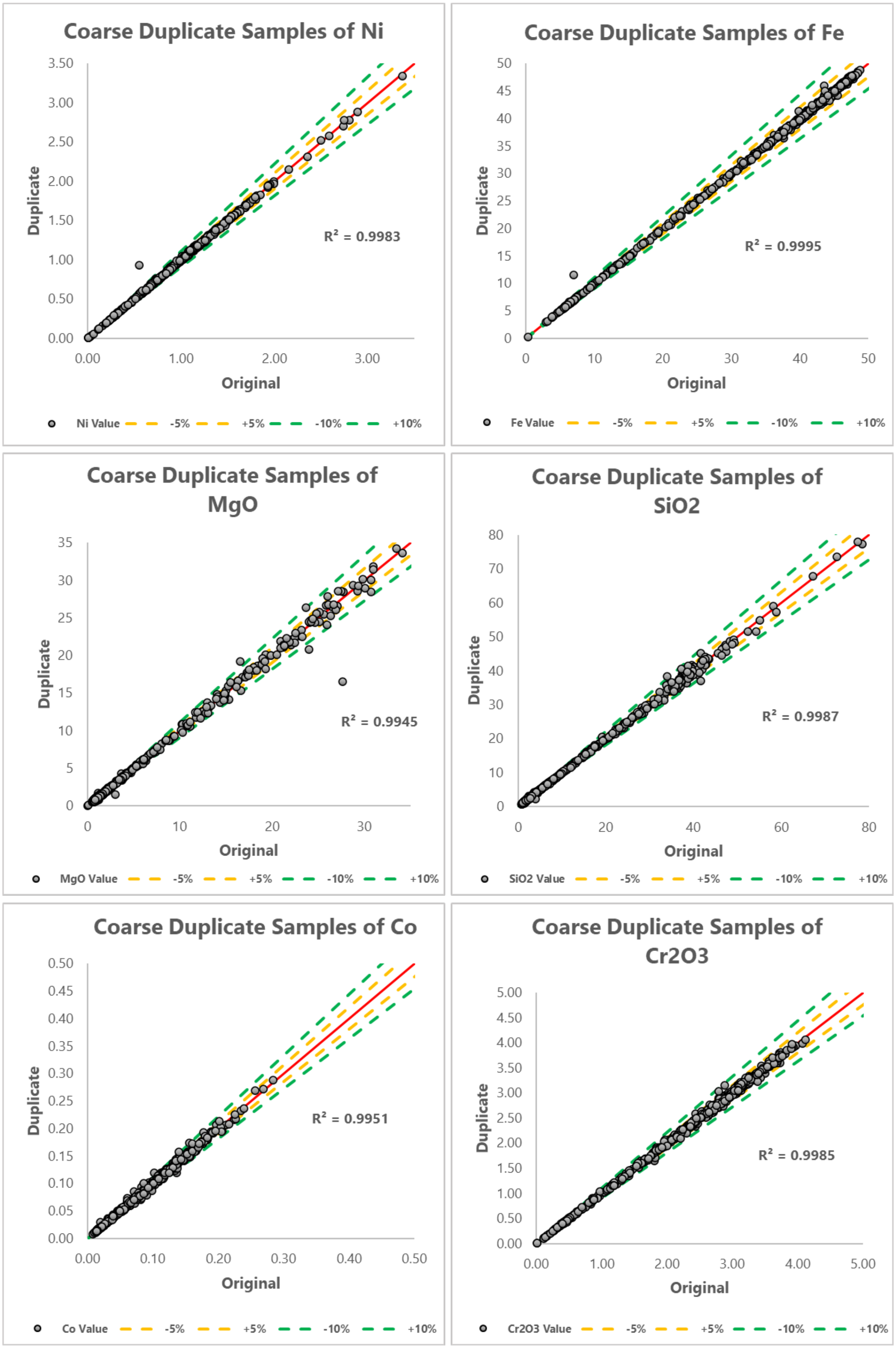


Figure 1 QAQC of Coarse duplicate samples

Pulverize Duplicate Samples

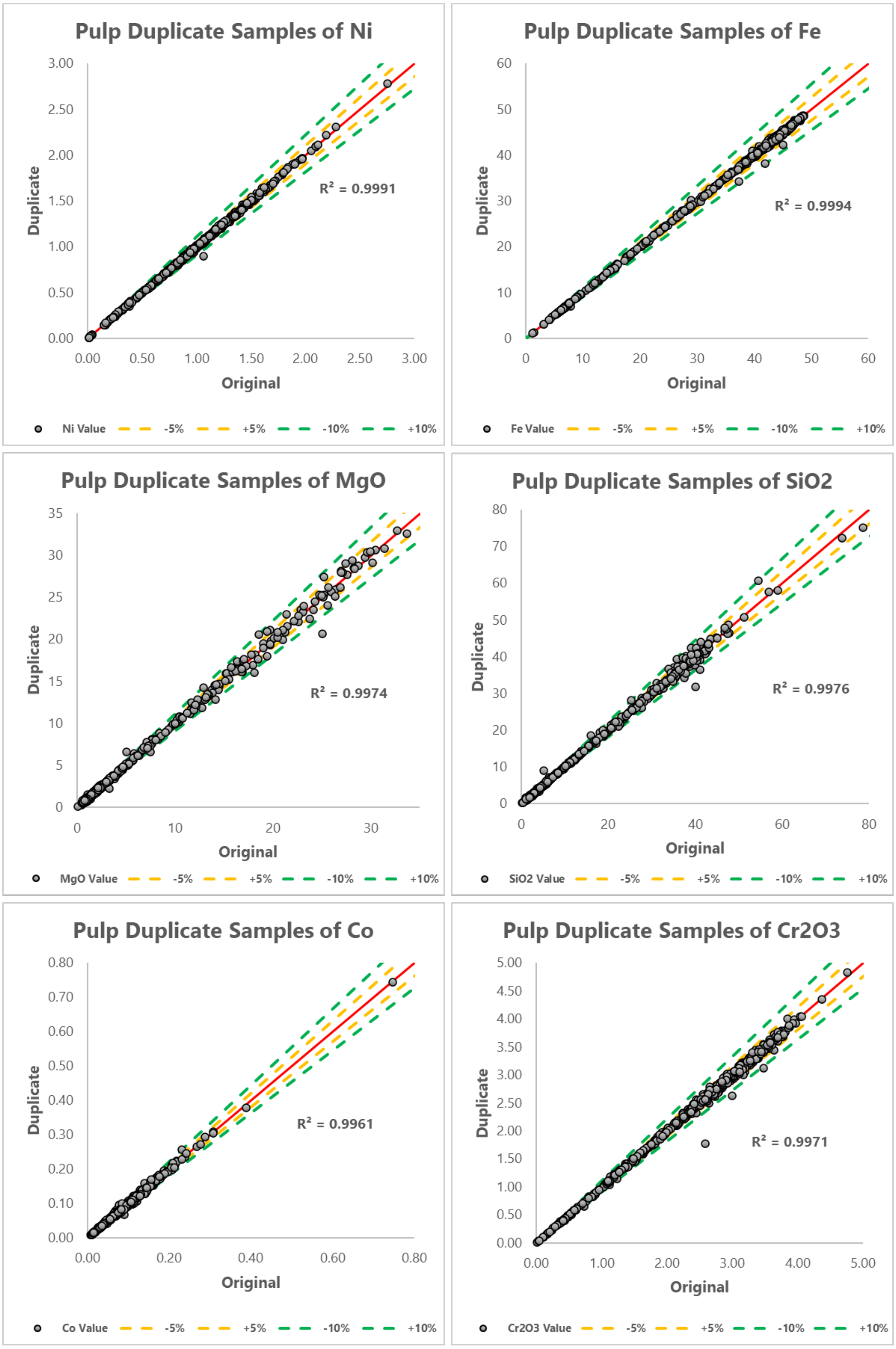
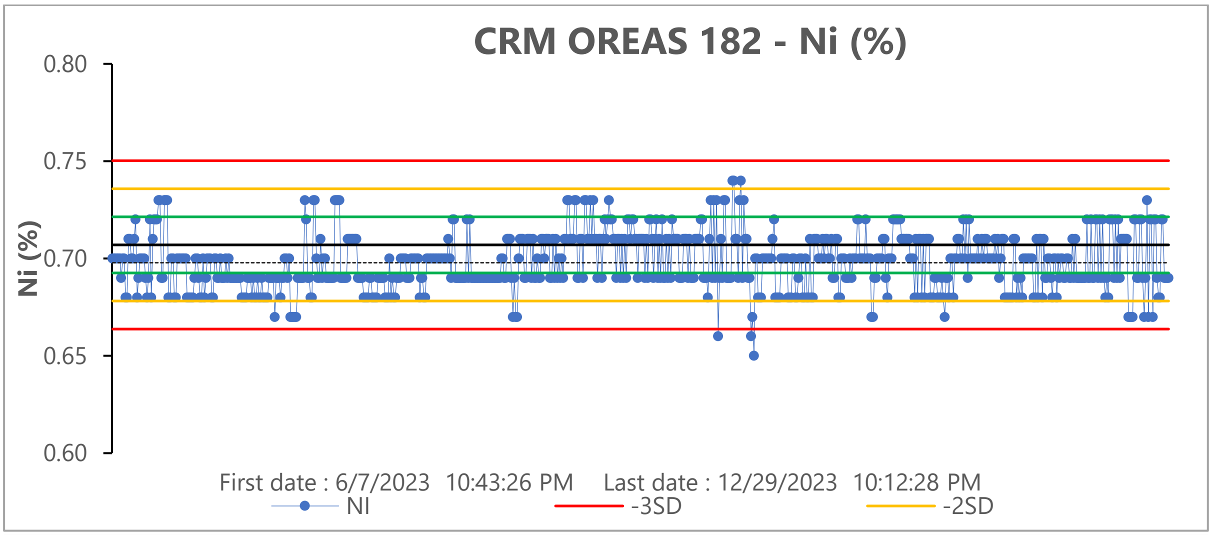
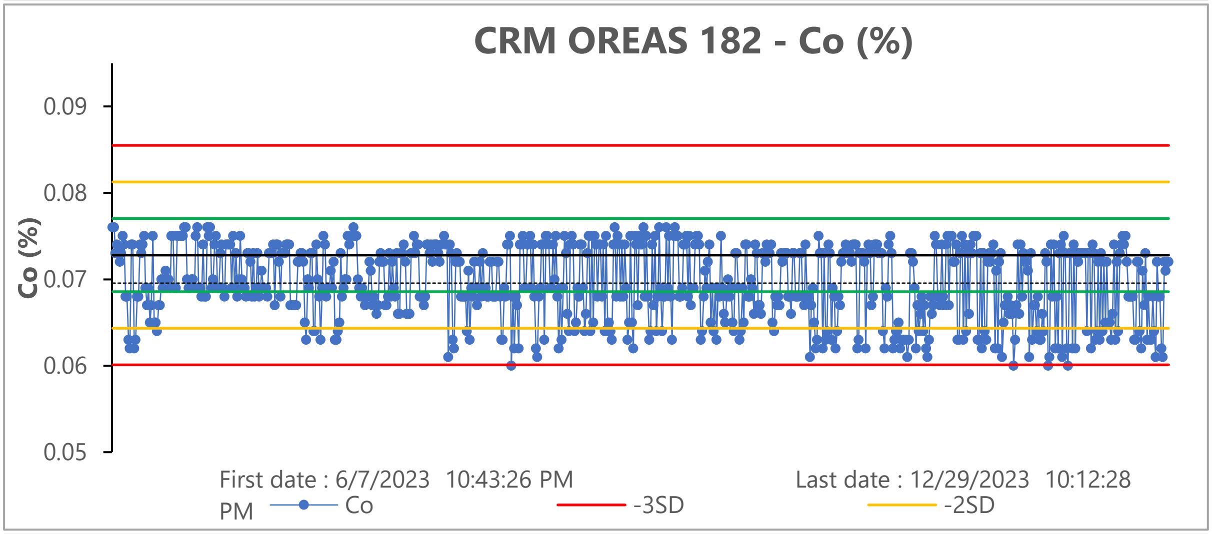


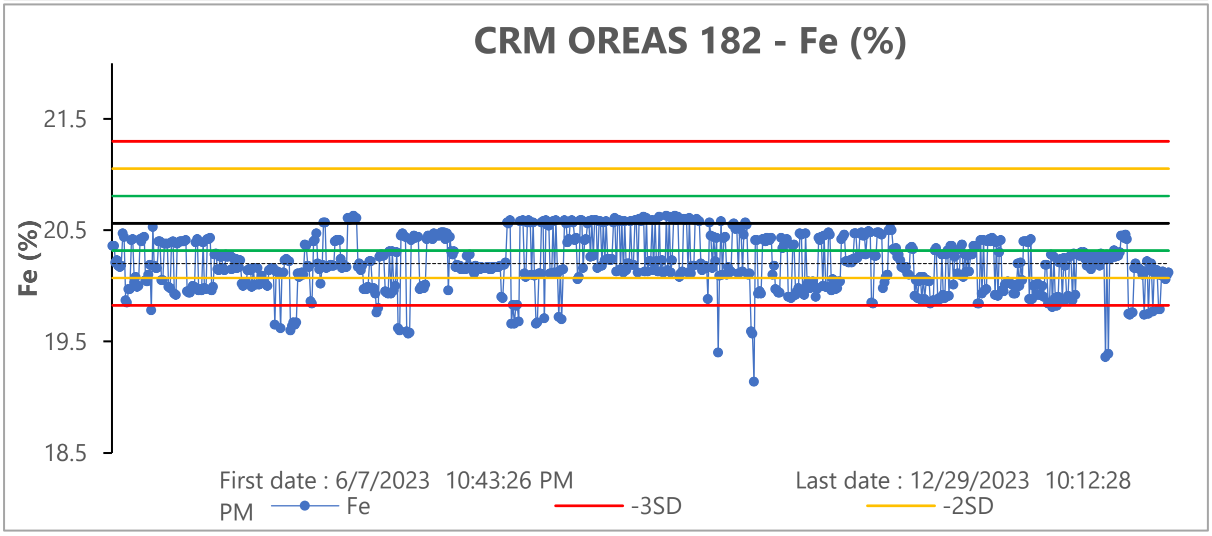
Figure 2 QAQC of pulverize duplicate samples

Certified Reference Materials

OREAS182







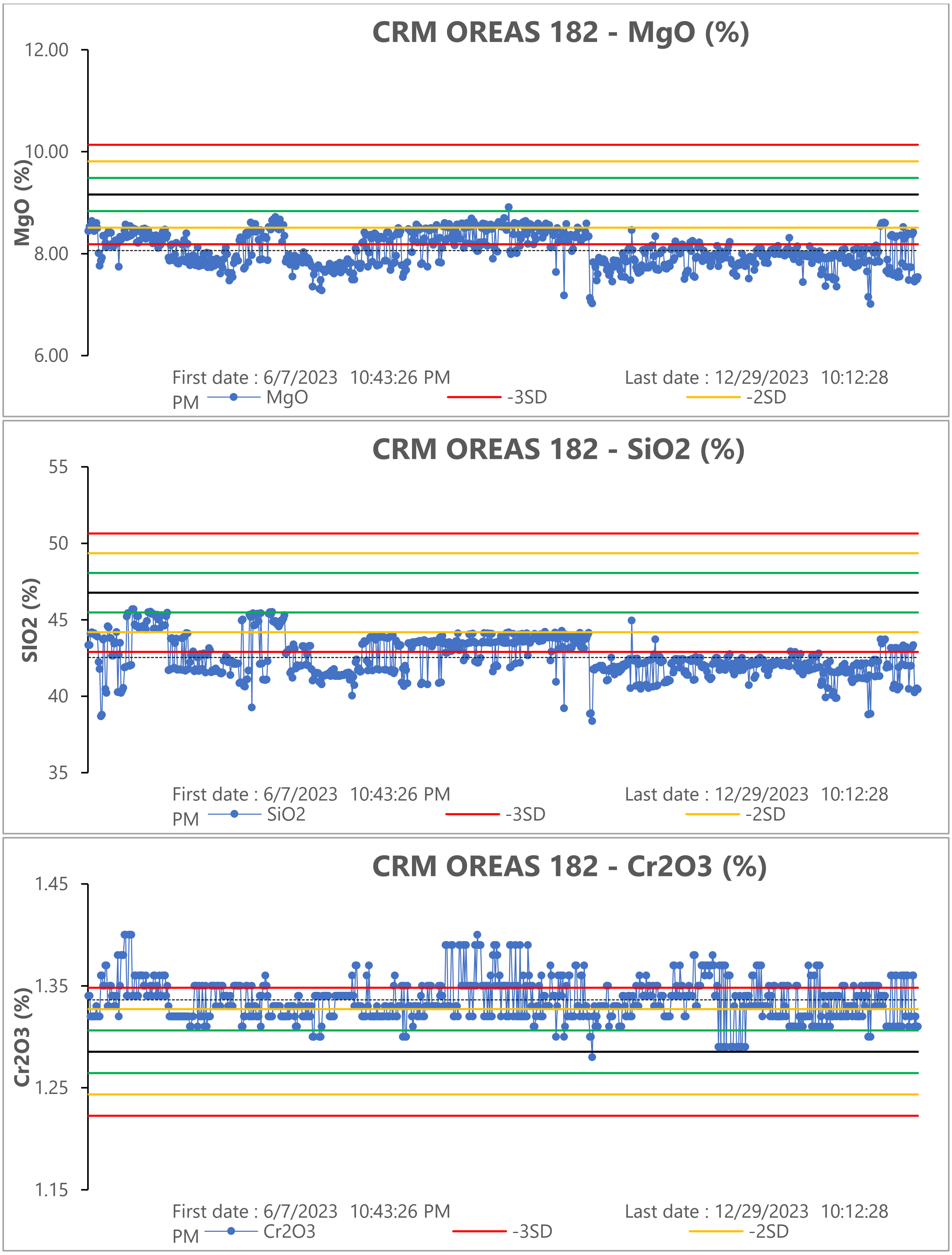
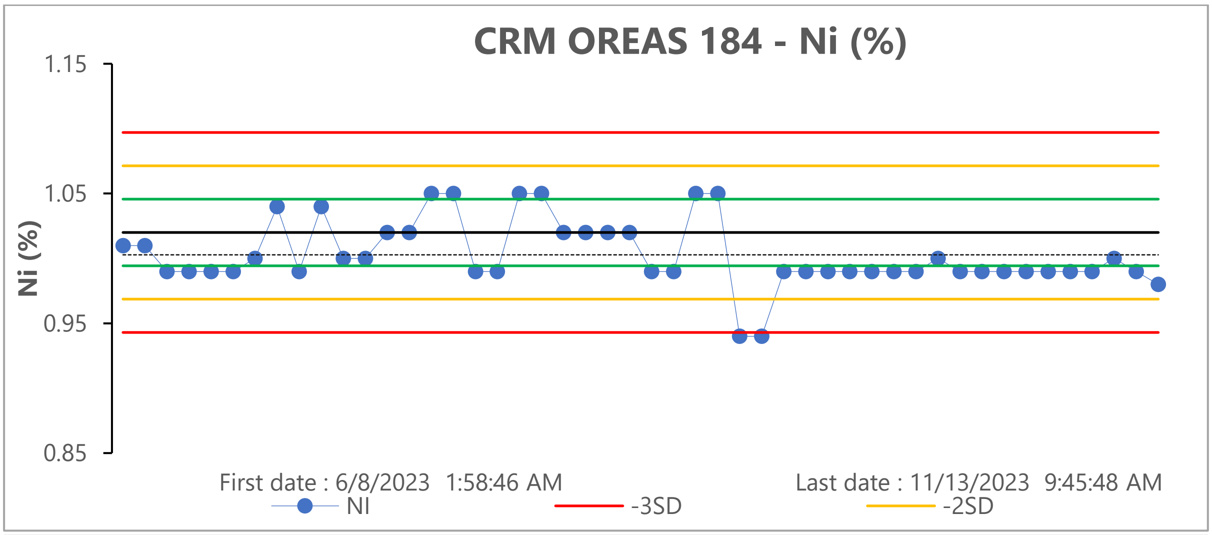
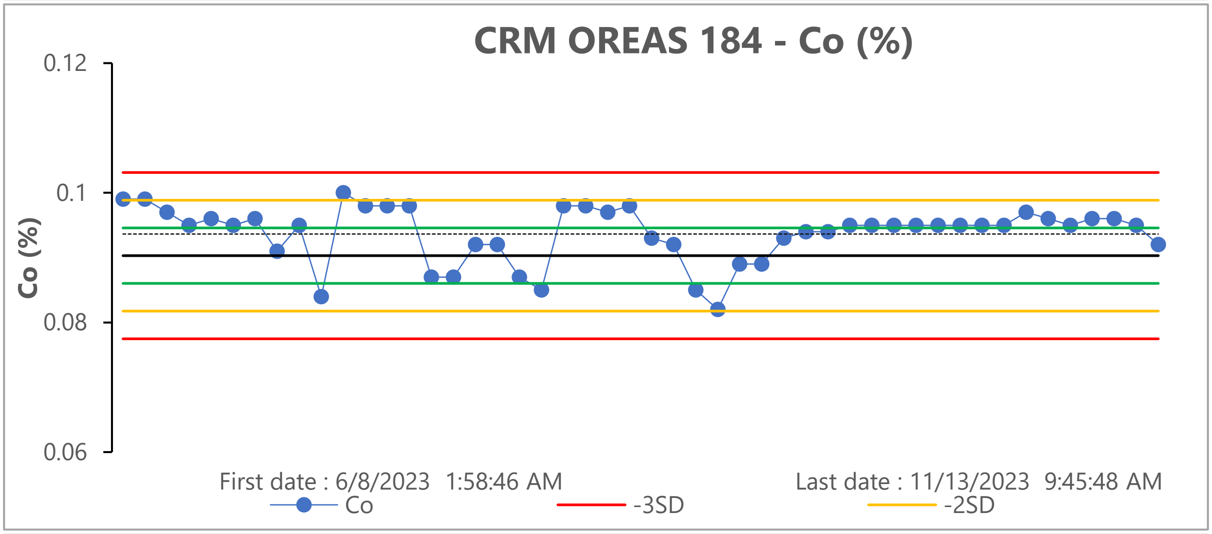
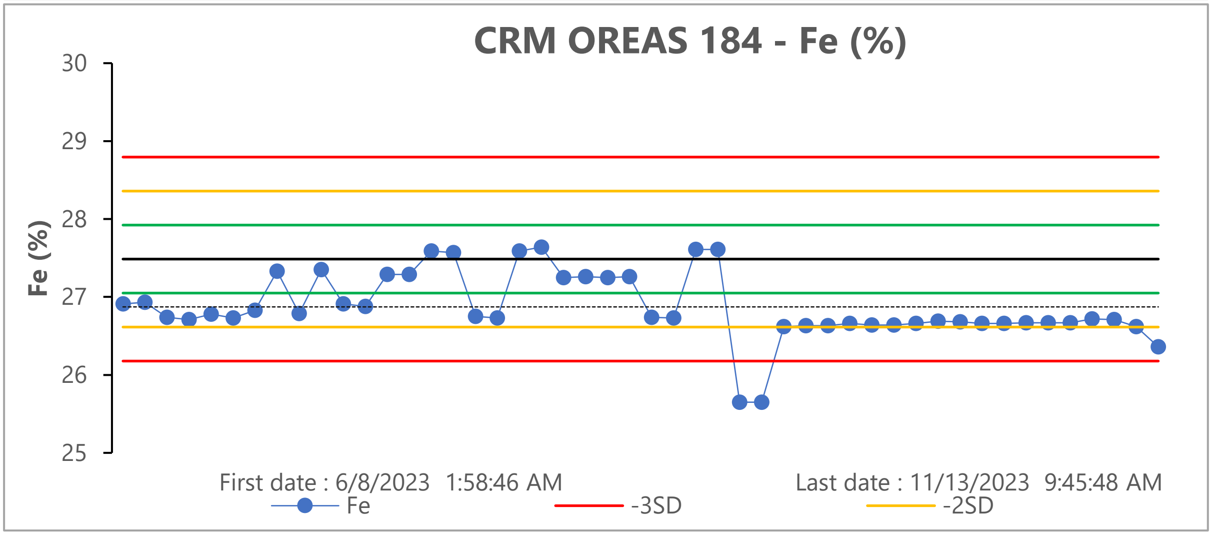


Figure 3 QAQC of CRM, OREAS182

OREAS184


CRM OREAS 184 - Ni (%)
Ni (%)
1.15
1.05
0.95
0.85
First date : 6/8/2023 1:58:46 AM
Last date : 11/13/2023 9:45:48 AM
NI
-3SD
-2SD


CRM OREAS 184 - Co (%)
Co (%)
0.12
0.1
0.08
0.06
First date : 6/8/2023 1:58:46 AM
Last date : 11/13/2023 9:45:48 AM
Co
-3SD
-2SD


CRM OREAS 184 - Fe (%)
Fe (%)
30
29
28
27
26
25
First date : 6/8/2023 1:58:46 AM
Last date : 11/13/2023 9:45:48 AM
Fe
-3SD
-2SD

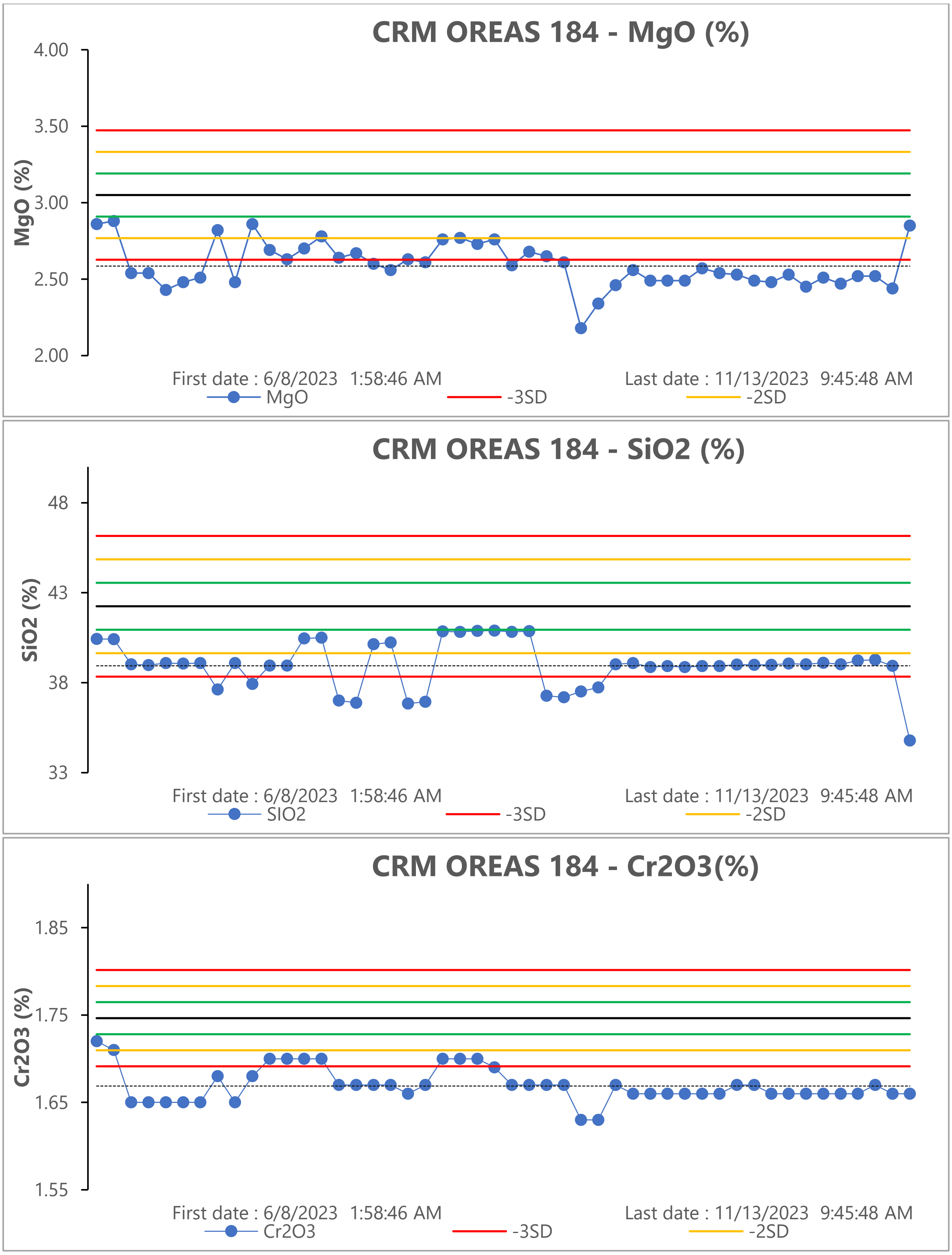
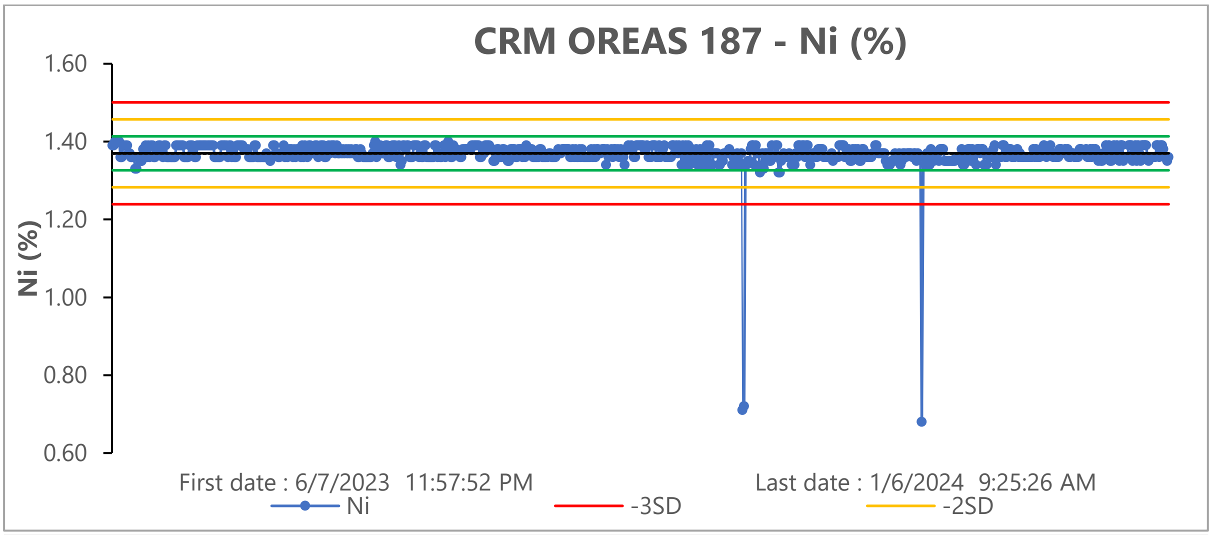
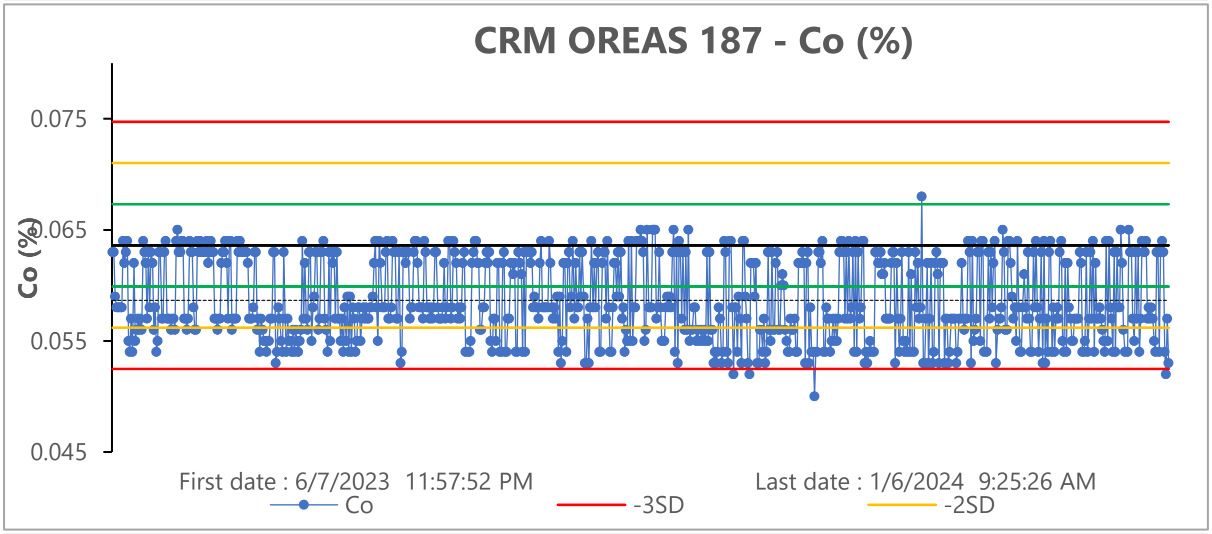
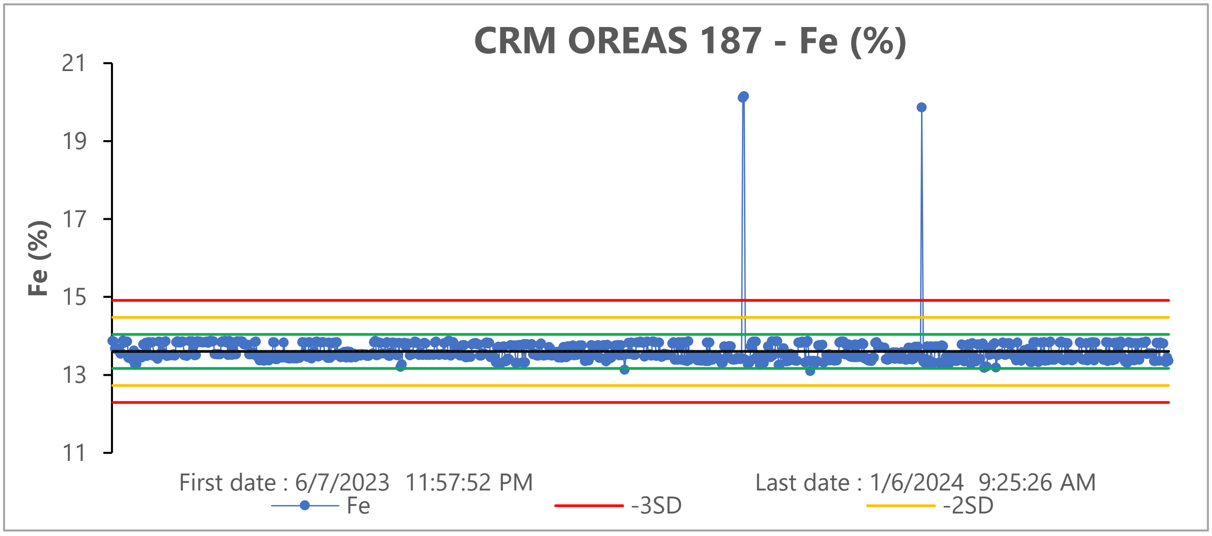


Figure 4 QAQC of CRM, OREAS184

OREAS187


CRM OREAS 187 - Ni (%)
Ni (%)
1.60
1.40
1.20
1.00
0.80
0.60
First date : 6/7/2023 11:57:52 PM
Last date : 1/6/2024 9:25:26 AM
Ni
-3SD
-2SD


CRM OREAS 187 - Co (%)
Co (%)
0.075
0.065
0.055
0.045
First date : 6/7/2023 11:57:52 PM
Last date : 1/6/2024 9:25:26 AM
Co
-3SD
-2SD


CRM OREAS 187 - Fe (%)
Fe (%)
21
19
17
15
13
11
First date : 6/7/2023 11:57:52 PM
Last date : 1/6/2024 9:25:26 AM
Fe
-3SD
-2SD

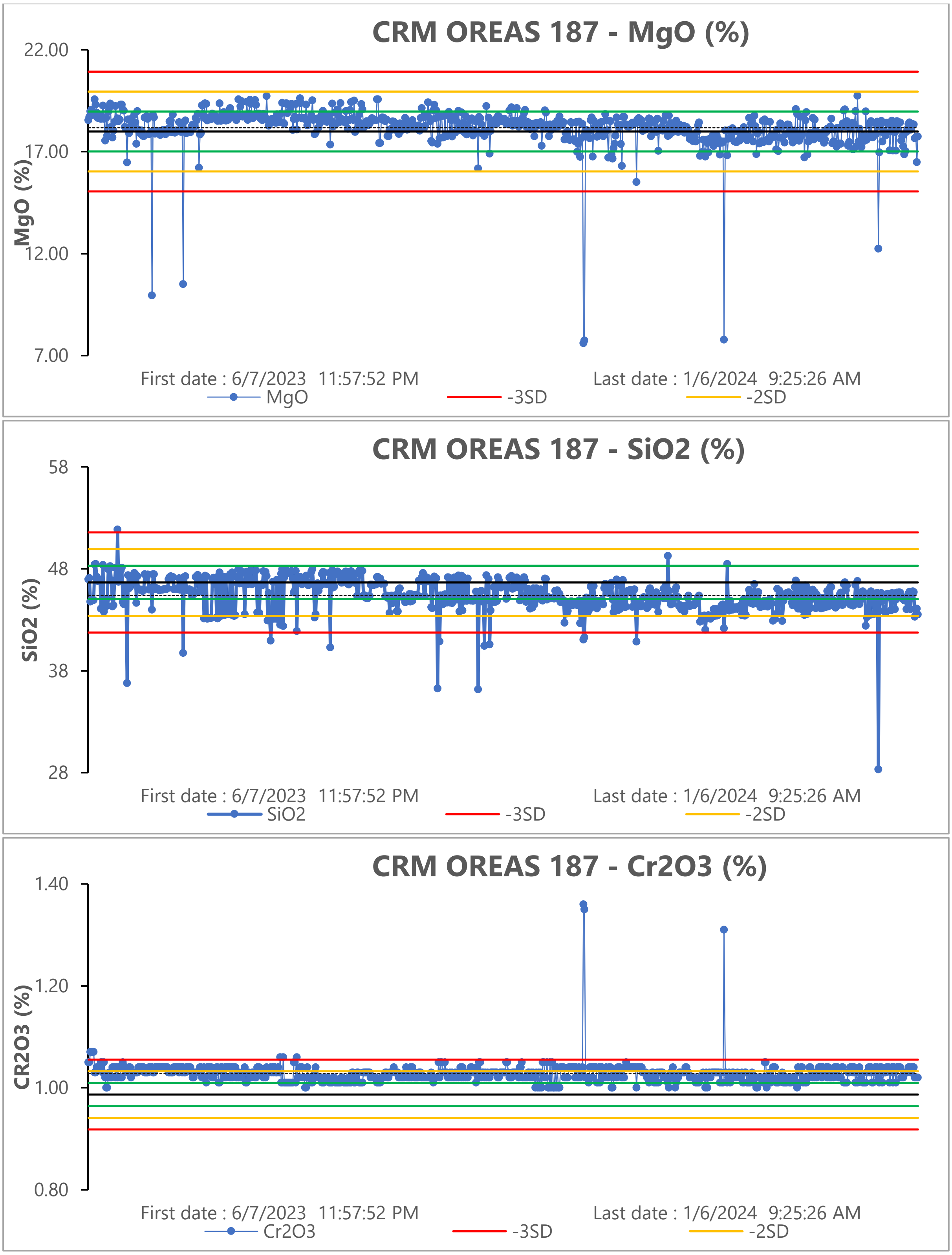
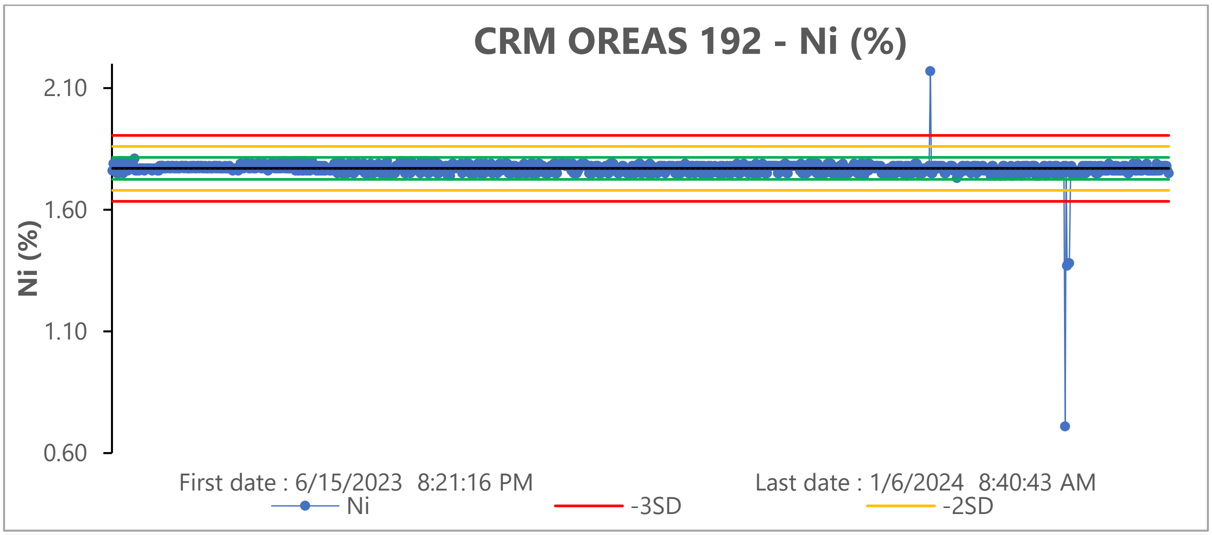
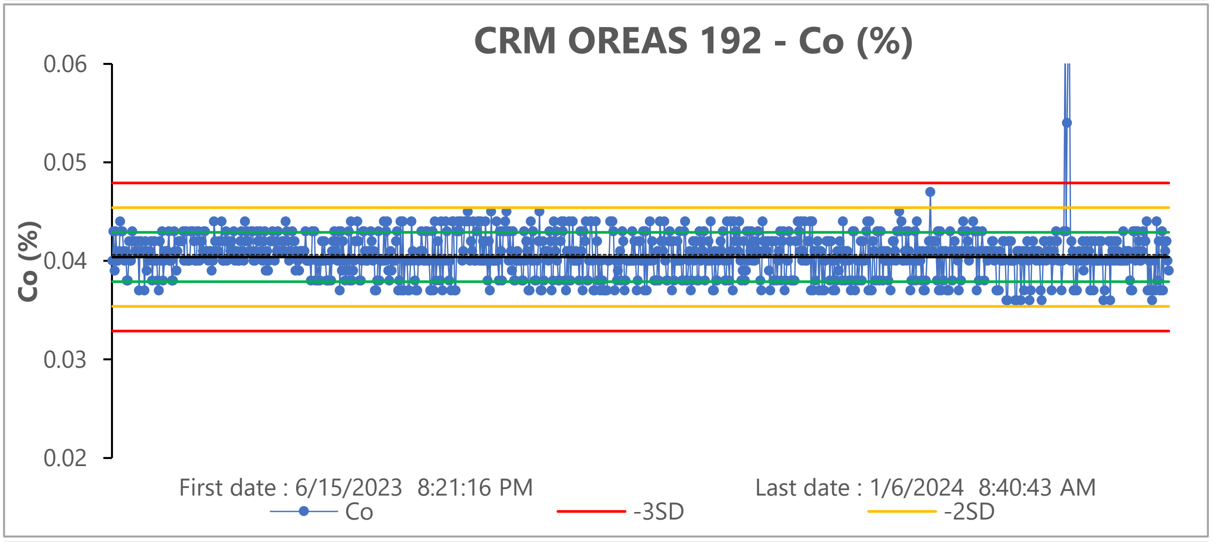
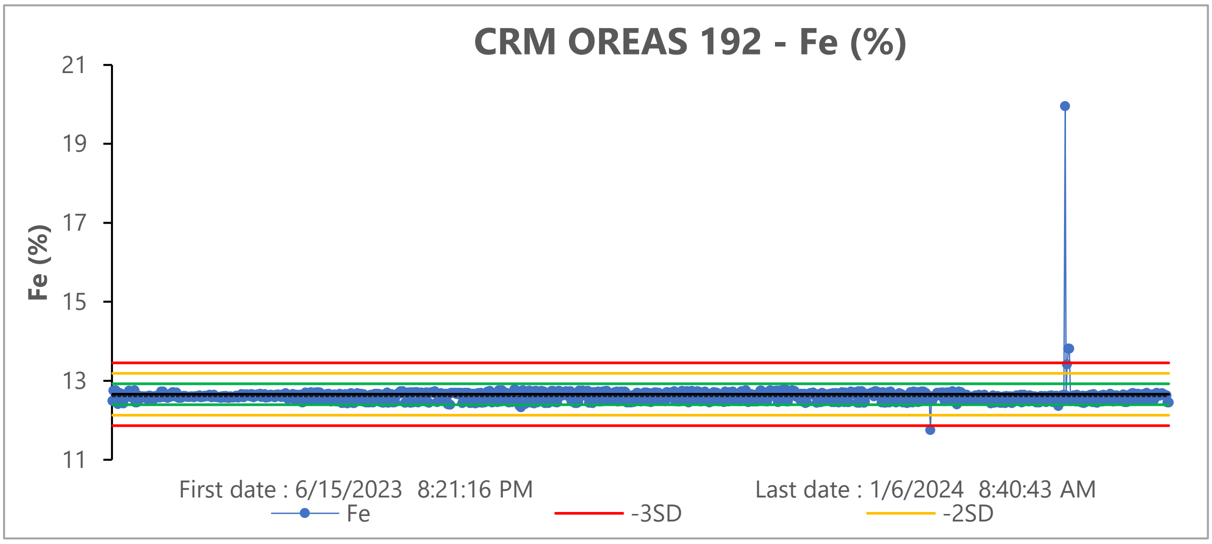


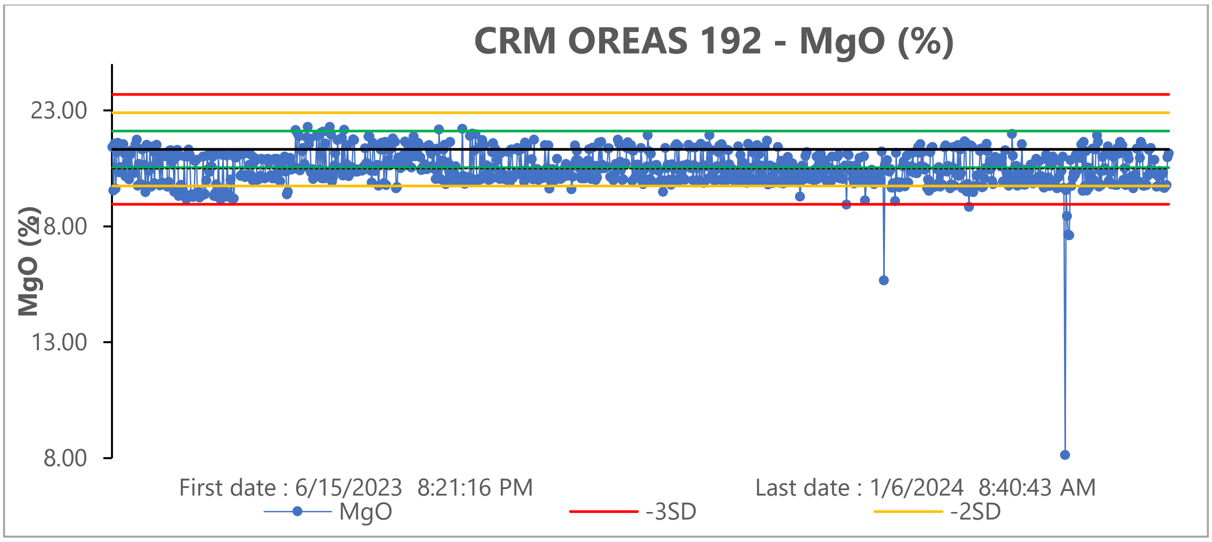
Figure 5 QAQC of CRM, OREAS187

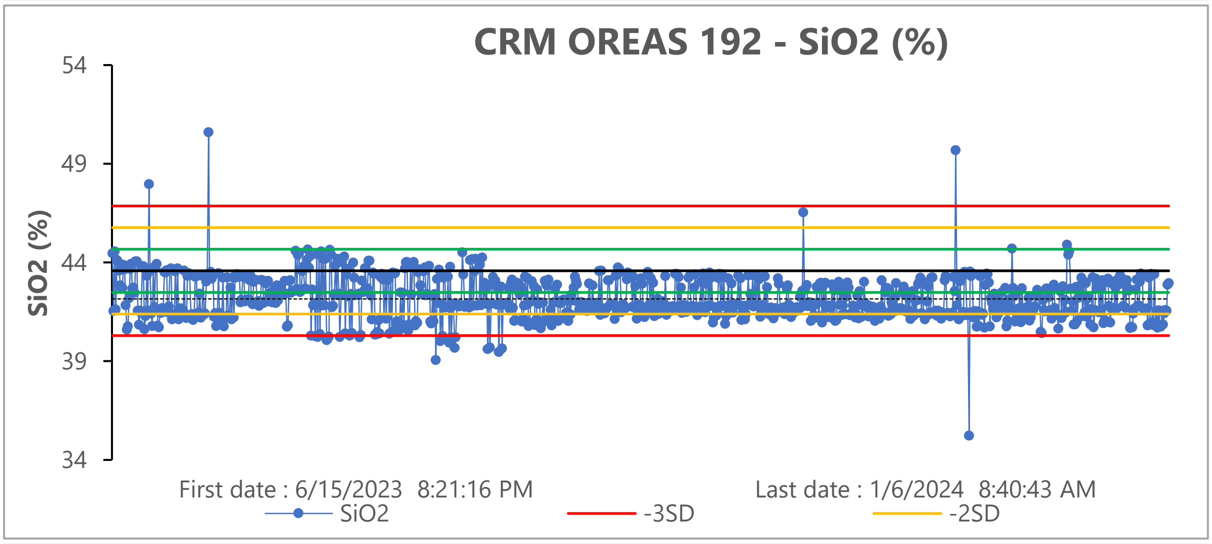
OREAS192


CRM OREAS 192 - Ni (%)
2.10
1.60
1.10
0.60
Ni (%)
First date : 6/15/2023 8:21:16 PM
Last date : 1/6/2024 8:40:43 AM
Ni
-3SD
-2SD


CRM OREAS 192 - Co (%)
0.06
0.05
0.04
0.03
0.02
Co (%)
First date : 6/15/2023 8:21:16 PM
Last date : 1/6/2024 8:40:43 AM
Co
-3SD
-2SD


CRM OREAS 192 - Fe (%)
21
19
17
15
13
11
Fe (%)
First date : 6/15/2023 8:21:16 PM
Last date : 1/6/2024 8:40:43 AM
Fe
-3SD
-2SD





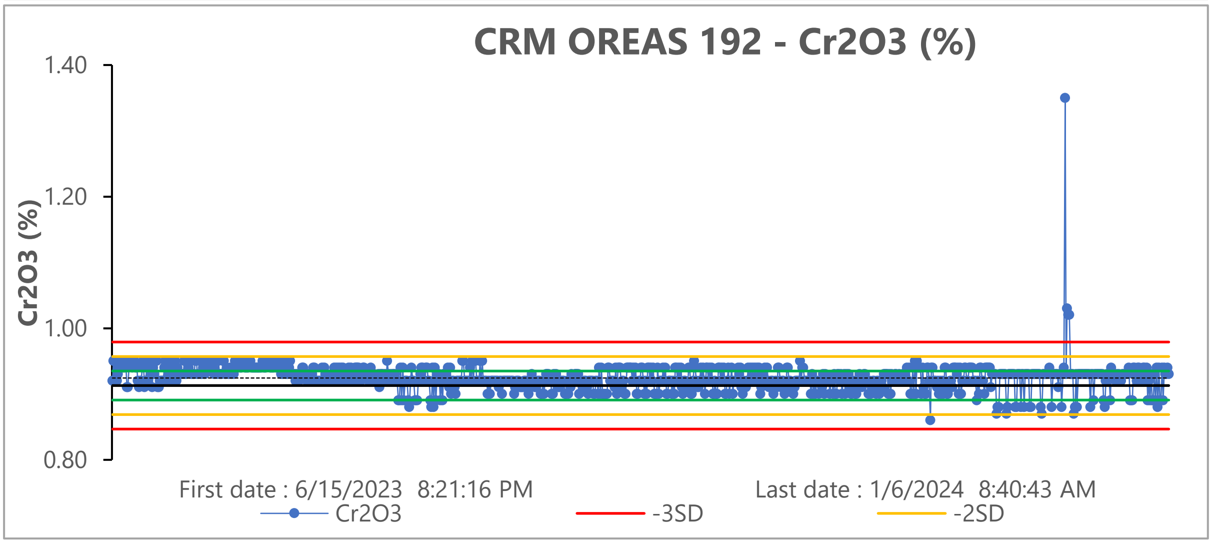
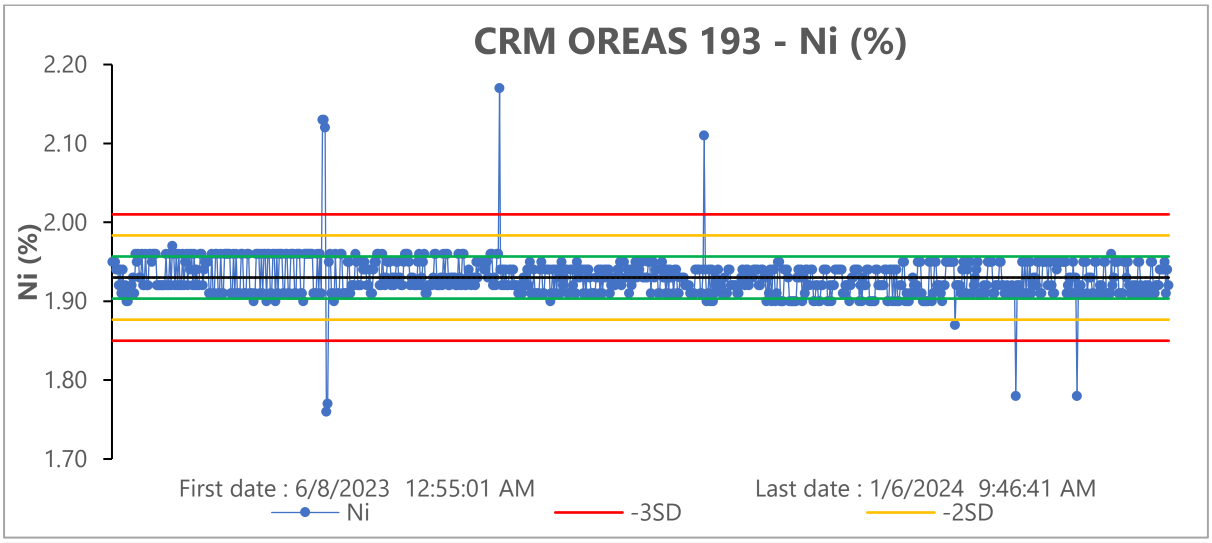
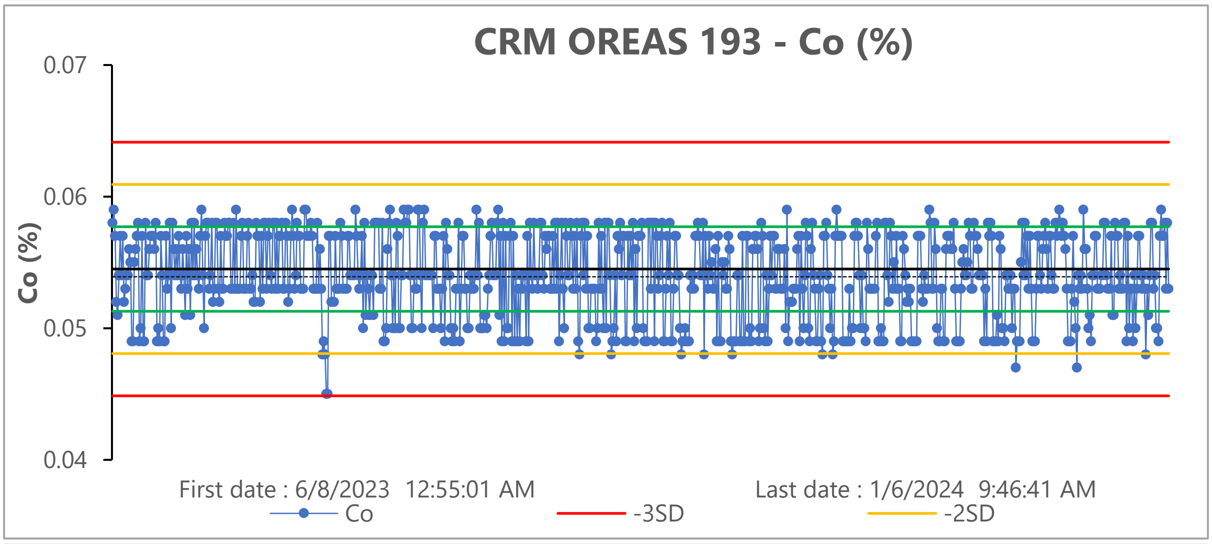
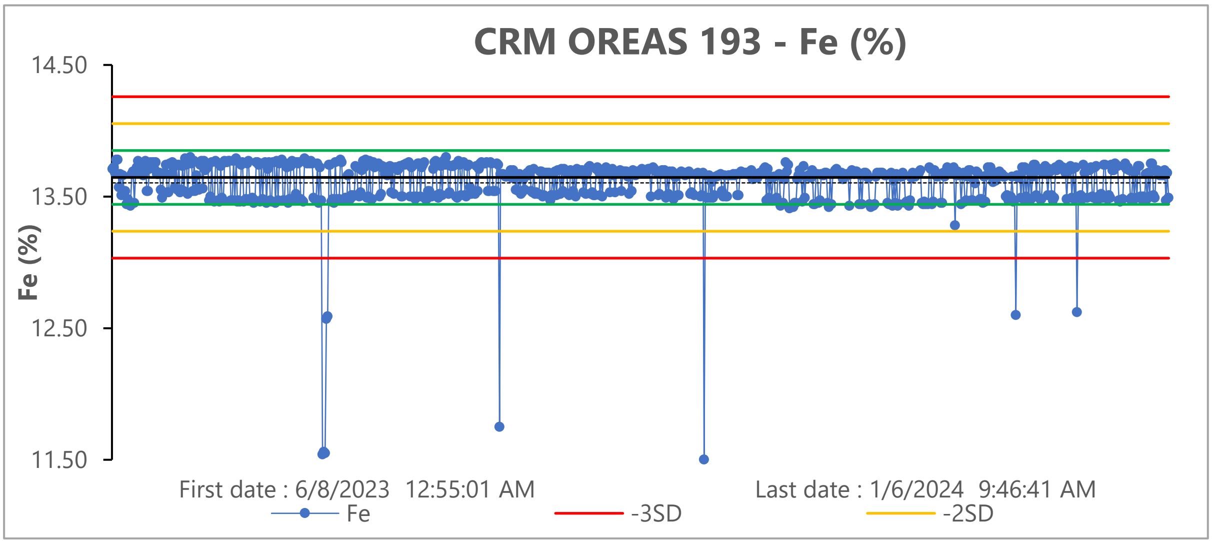


Figure 6 QAQC of CRM, OREAS192

OREAS193


CRM OREAS 193 - Ni (%)
2.20
2.10
2.00
1.90
1.80
1.70
Ni (%)
First date : 6/8/2023 12:55:01 AM
Last date : 1/6/2024 9:46:41 AM
Ni
-3SD
-2SD


CRM OREAS 193 - Co (%)
0.07
0.06
0.05
0.04
Co (%)
First date : 6/8/2023 12:55:01 AM
Last date : 1/6/2024 9:46:41 AM
Co
-3SD
-2SD


CRM OREAS 193 - Fe (%)
14.50
13.50
12.50
11.50
Fe (%)
First date : 6/8/2023 12:55:01 AM
Last date : 1/6/2024 9:46:41 AM
Fe
-3SD
-2SD

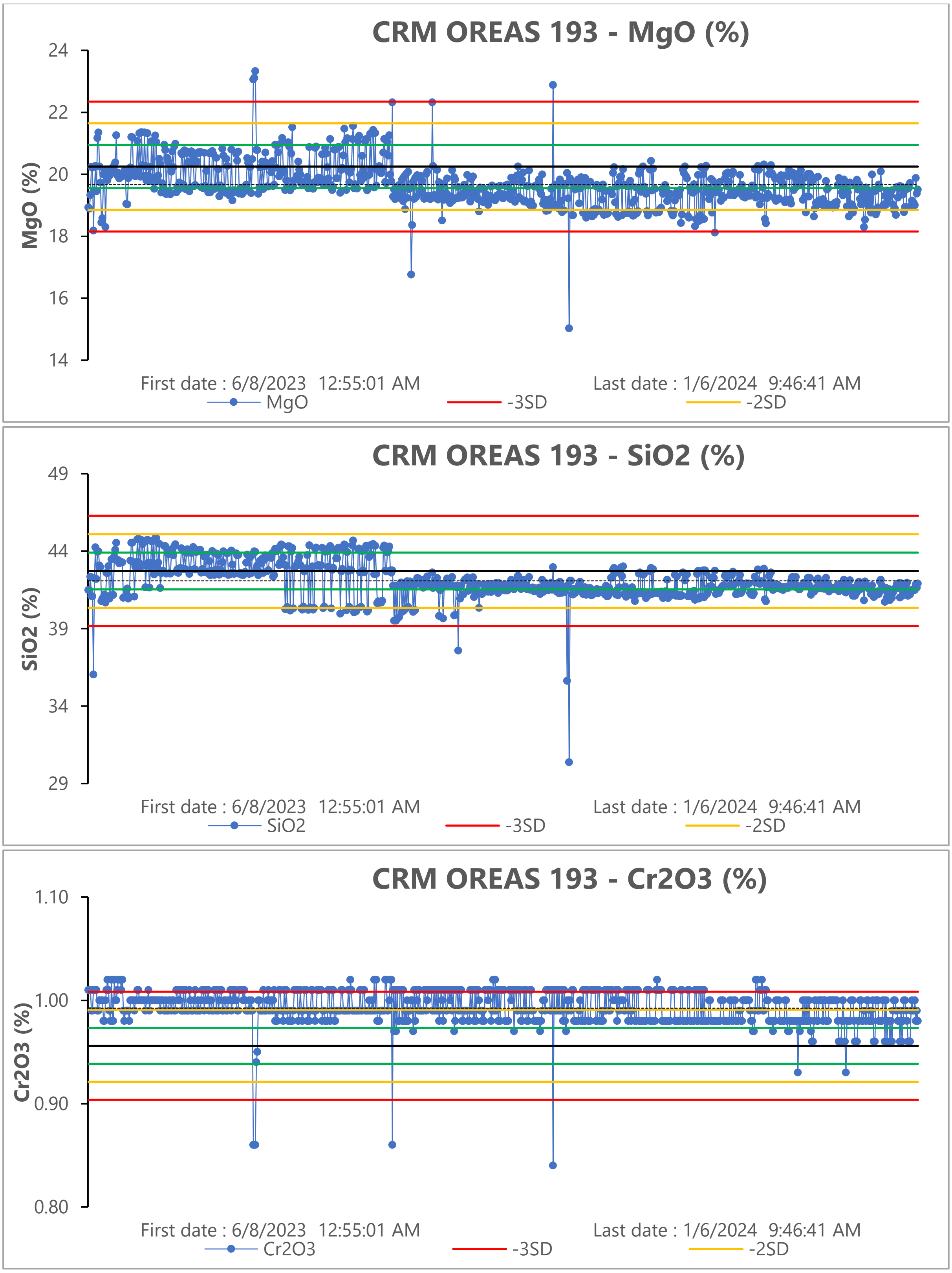
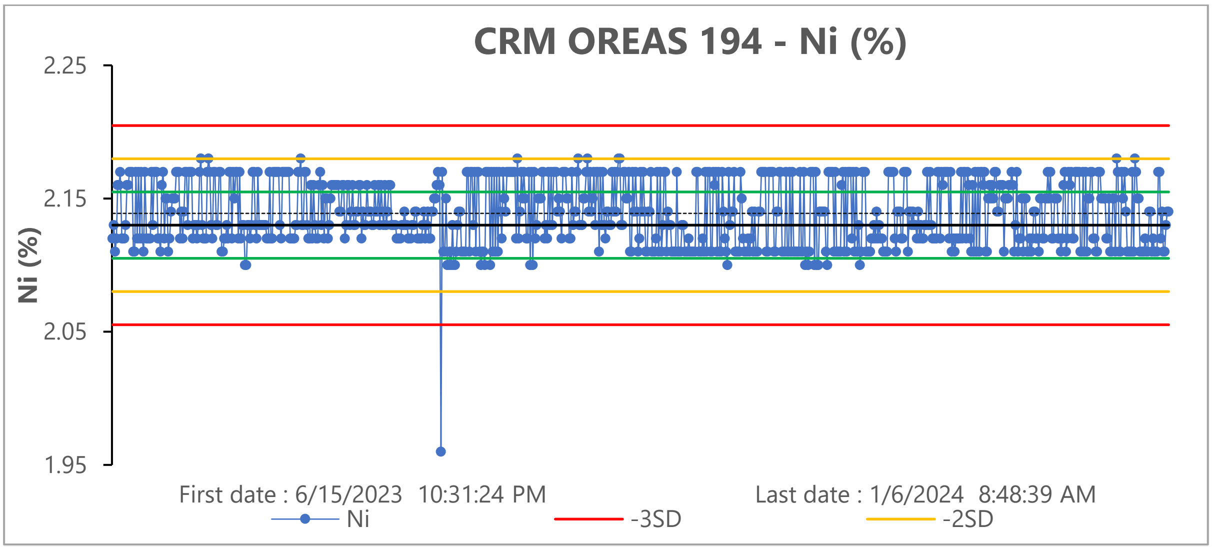
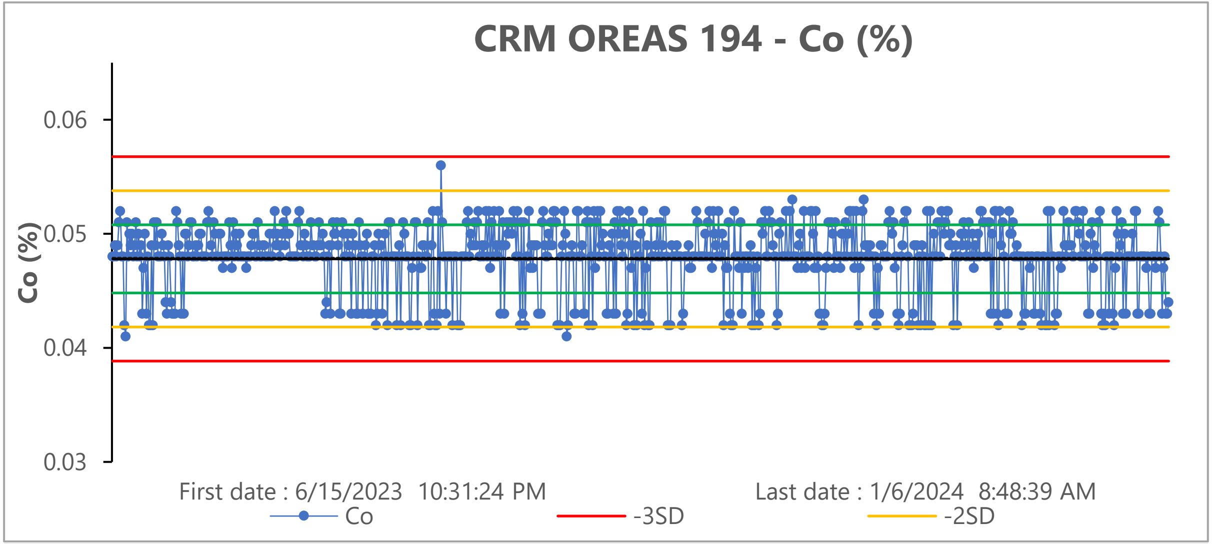
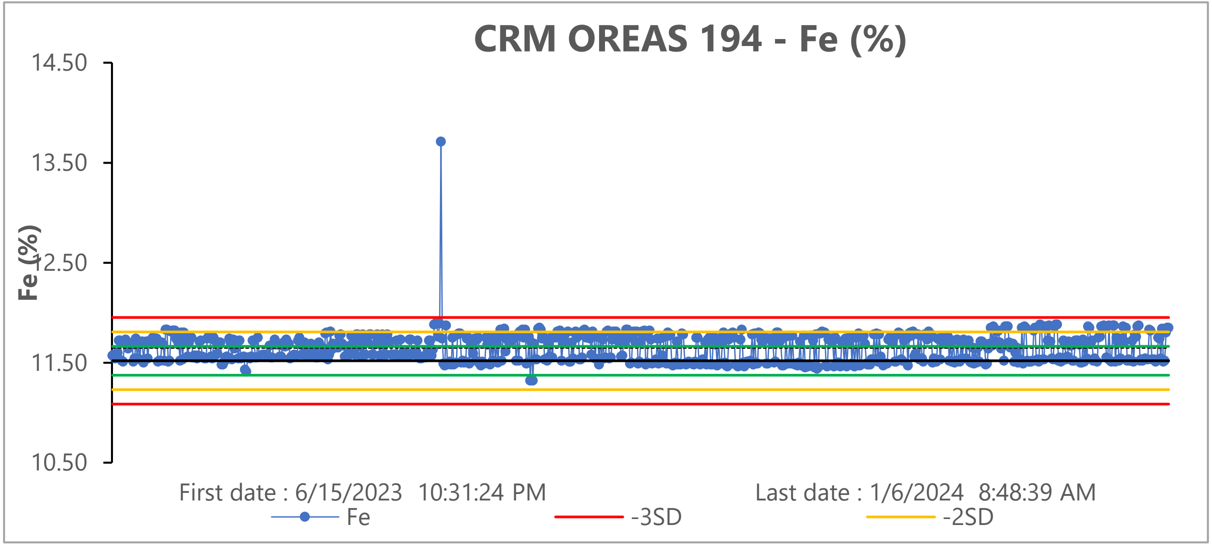


Figure 7 QAQC of CRM, OREAS193

OREAS194


CRM OREAS 194 - Ni (%)
2.25
2.15
2.05
1.95
Ni (%)
First date : 6/15/2023 10:31:24 PM
Last date : 1/6/2024 8:48:39 AM
Ni
-3SD
-2SD


CRM OREAS 194 - Co (%)
0.06
0.05
0.04
0.03
Co (%)
First date : 6/15/2023 10:31:24 PM
Last date : 1/6/2024 8:48:39 AM
Co
-3SD
-2SD


CRM OREAS 194 - Fe (%)
14.50
13.50
12.50
11.50
10.50
Fe (%)
First date : 6/15/2023 10:31:24 PM
Last date : 1/6/2024 8:48:39 AM
Fe
-3SD
-2SD

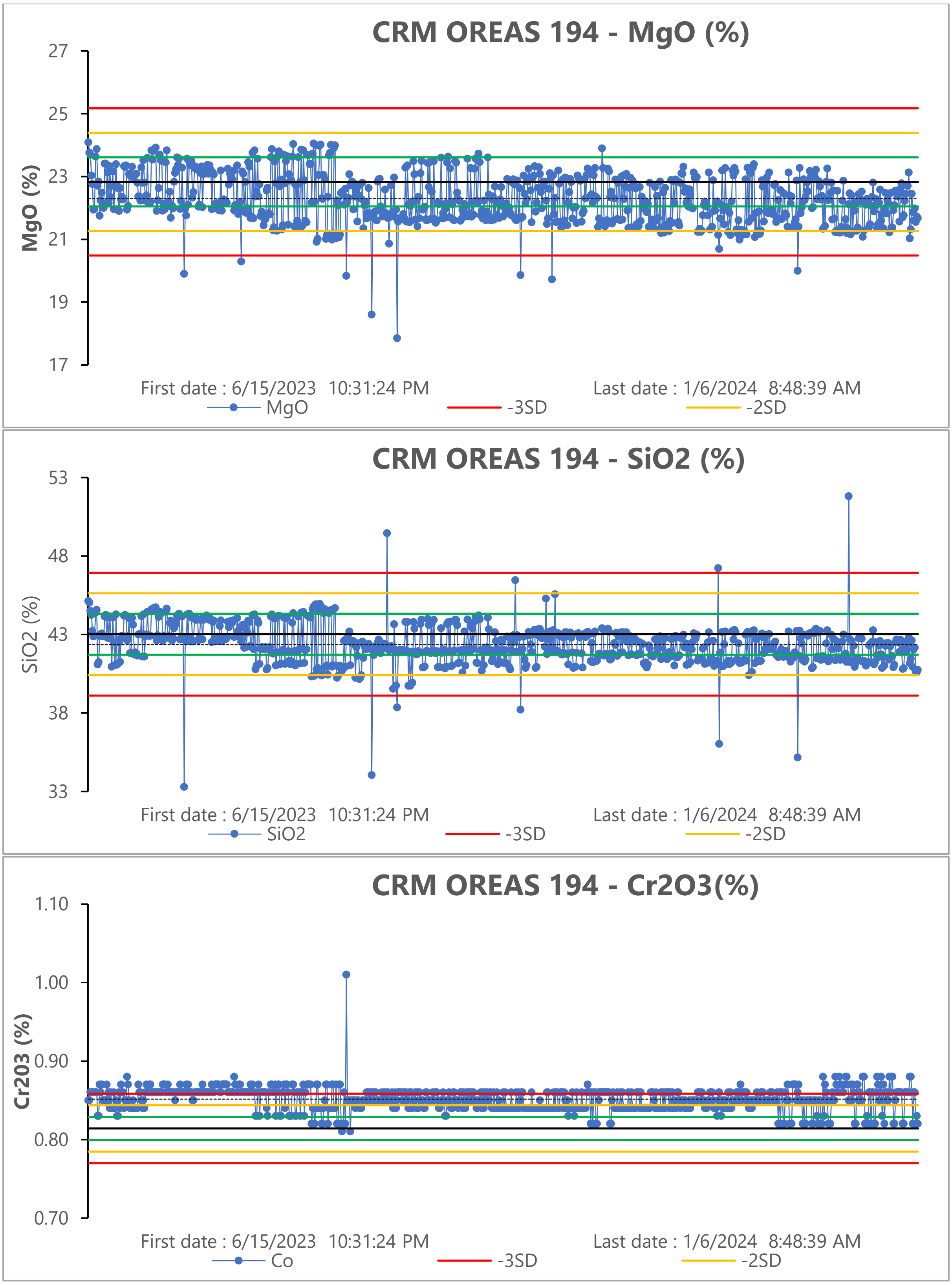


Figure 8 QAQC of CRM, OREAS194

Replicate Samples

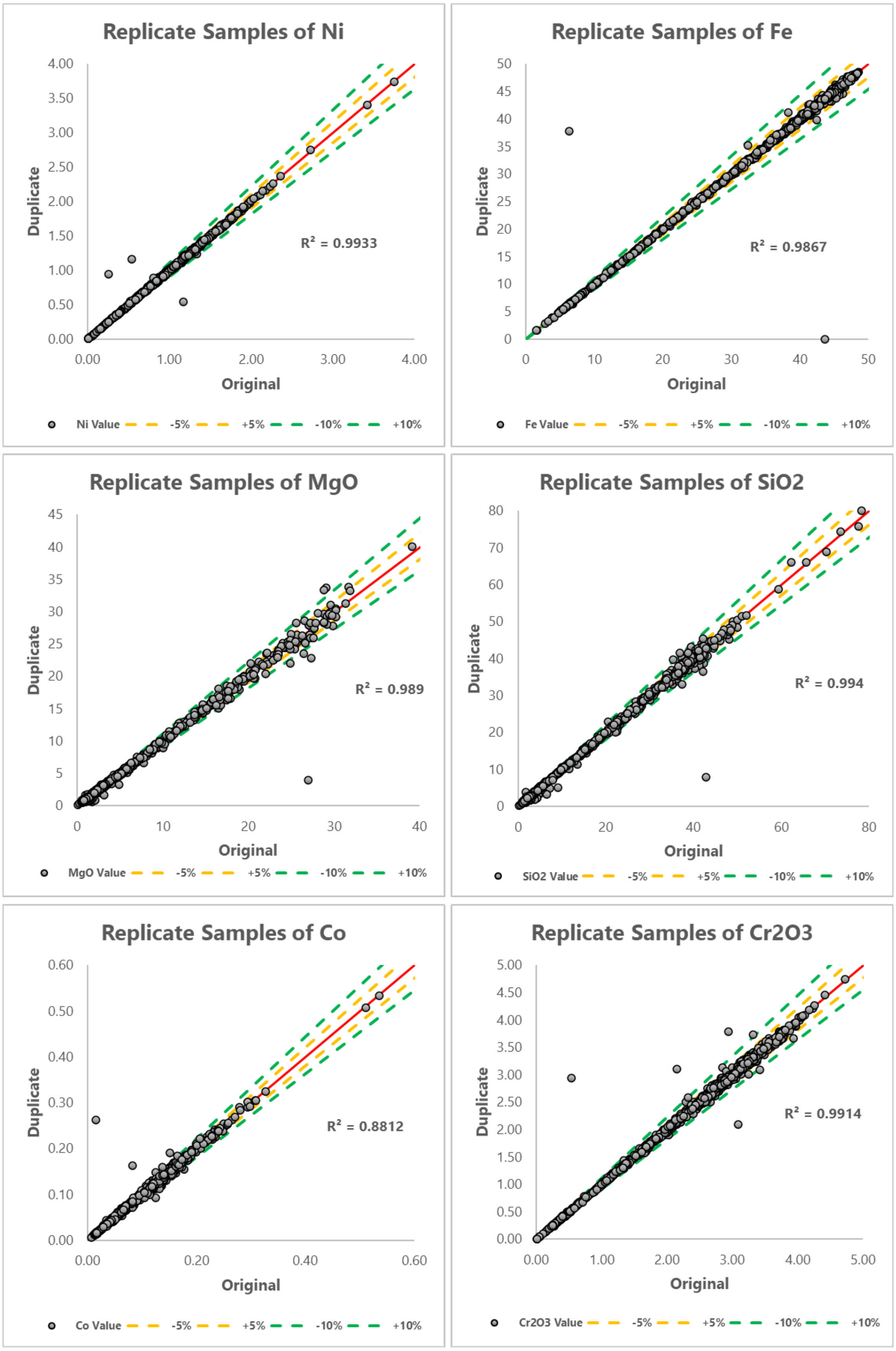


Figure 9 QAQC of replicate sample

Check Samples PT HM vs PT Tribhakti Inspektama

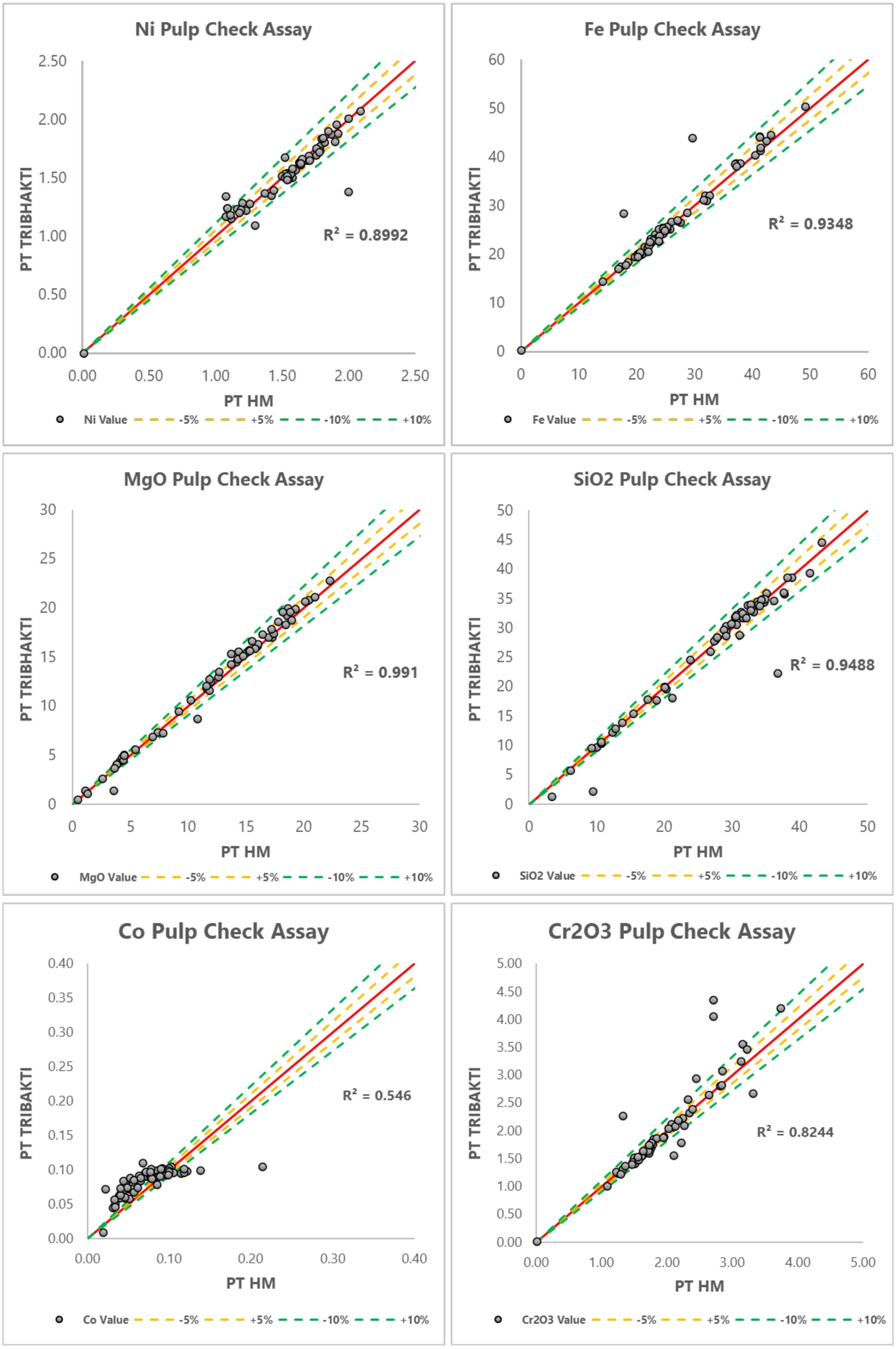


Figure 10 QAQC of check samples PT HM vs PT Tribhakti Inspektama

Check Samples PT HM vs PT Geoservices

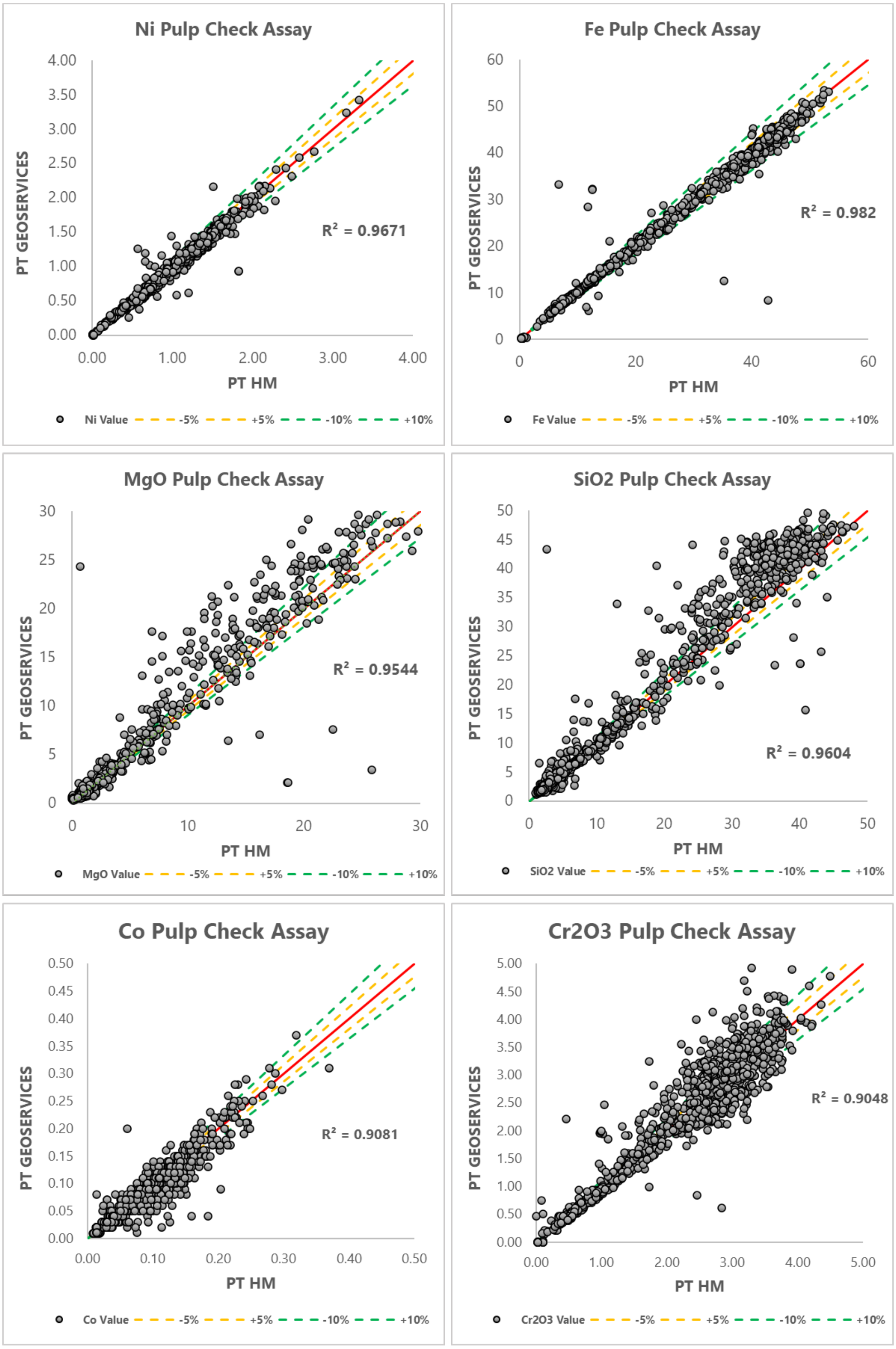


Figure 11 QAQC of check samples PT HM vs PT Geoservices

APPENDIX 4

PT ERABARU TIMUR LESTARI
BLOCKMODEL DOCUMENTATION

PT DANMAR EXPLORINDO

BLOCK MODEL DOCUMENTATION

FOR

PT ERABARU TIMUR LESTARI

18 JANUARI 2023

AUTHOR:

1. Adi Yogi Sugama
2. Agus Sutrisno
3. Harman Adhittyo
4. Yorris Wibriana

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1. BLOCKMODEL DOCUMENTATION

1.1. Block Model Geometry

Table 1 Block model size and geometry

Type	Y	X	Z
Minimum Coordinates	9680837.833	363039.909	302.322
Maximum Coordinates	9683087.833	367714.909	672.322
User Block Size	25	25	1
Min. Block Size	25	25	1
Rotation	0	0	0

1.2. Extrapolatory Data Analysis

PT ETL only has one domain based on topography and drill point distribution with a majority of 50 meters spacing and some drill holes have 100 meters spacing.

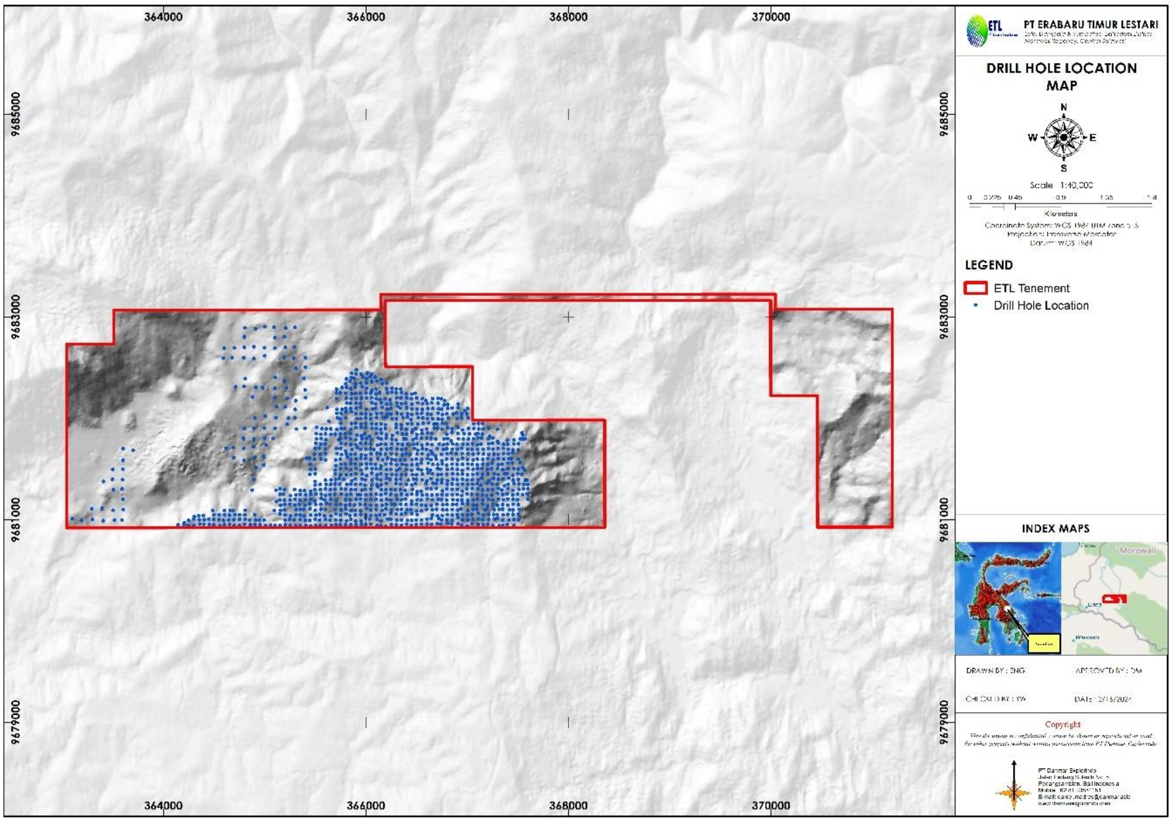


Figure 1 Drilling location Map

1.2.1. Descriptive Statistics

Table 2 Descriptive Statistics of Limonite

Variable	Ni	Fe	Co	MgO	SiO2	Cr2O3
No. of Sample	25,113	25,113	25,113	25,113	25,113	25,113
Length	25,101.32	25,101.32	25,101.32	25,101.32	25,101.32	25,101.32
Mean	1.05	41.06	0.11	1.74	6.33	2.88
SD	0.30	5.42	0.05	1.55	6.94	0.57
CV	0.29	0.13	0.49	0.89	1.10	0.20
Variance	0.09	29.42	0.00	2.40	48.15	0.32
Minimum	0.08	5.02	0.001	0.01	0.01	0.01
Q1	0.83	38.63	0.075	0.83	1.95	2.57
Q2	1.04	42.76	0.102	1.14	2.96	2.94
Q3	1.25	44.92	0.134	2.03	7.92	3.25
Maximum	3.49	52.05	0.892	23.49	59.83	6.16

Table 3 Descriptive Statistics of Saprolite

Variable	Ni	Fe	Co	MgO	SiO2	Cr2O3
No. of Sample	4,688	4,688	4,688	4,688	4,688	4,688
Length	4,626.42	4,626.42	4,626.42	4,626.42	4,626.42	4,626.42
Mean	1.32	17.62	0.04	12.33	35.15	1.38
SD	0.57	6.26	0.02	5.77	7.16	0.49
CV	0.43	0.36	0.44	0.47	0.20	0.35
Variance	0.32	39.13	0.00	33.28	51.24	0.24
Minimum	0.1	4.78	0.012	0.11	11.48	0.01
Q1	0.93	12.91	0.028	7.76	30.38	1.03
Q2	1.24	17.01	0.037	11.87	35.27	1.36
Q3	1.62	22.07	0.05	16.18	39.29	1.71
Maximum	7.41	40.61	0.248	39.1	77.16	3.91

1.2.2. Histogram

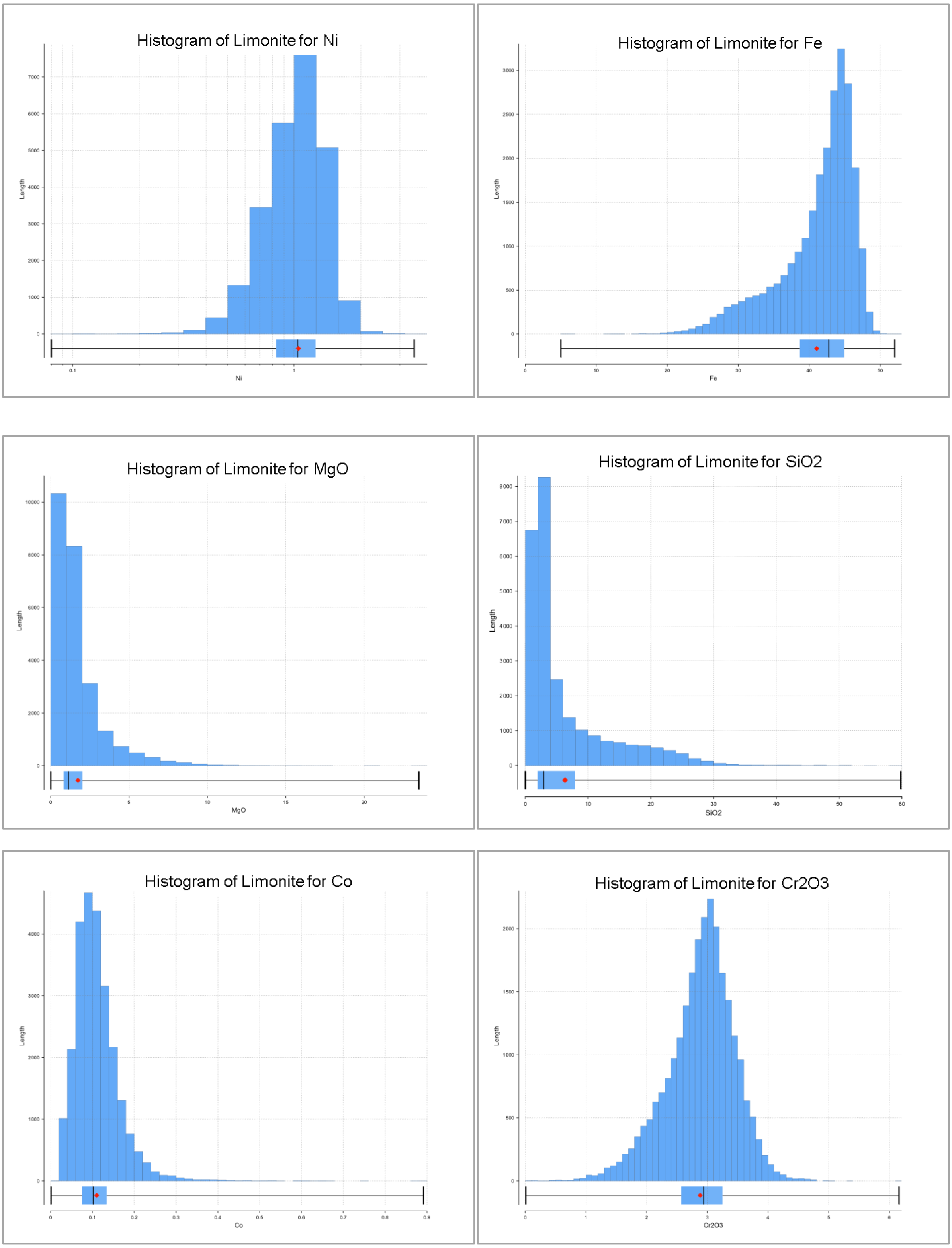


Figure 2 Histogram of Limonite

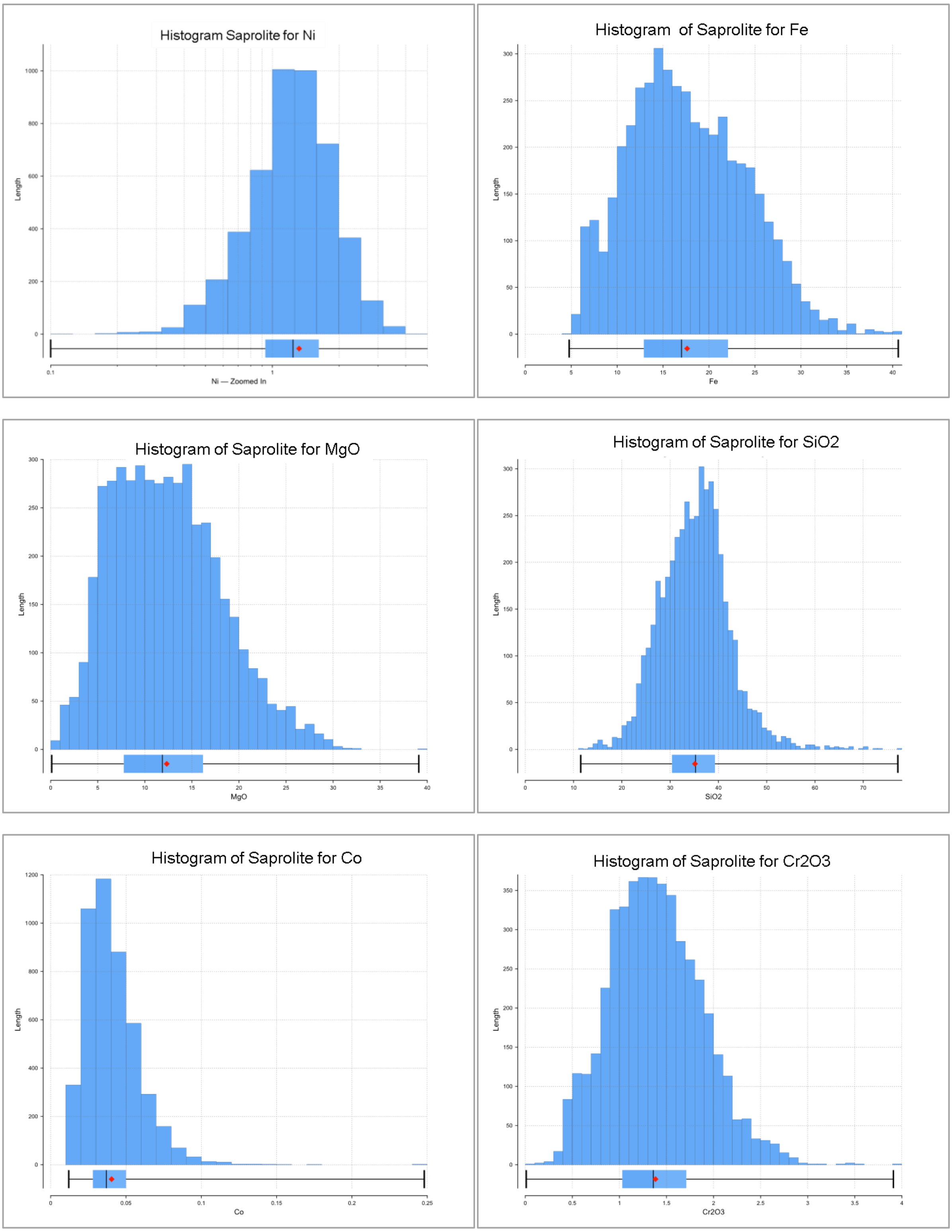
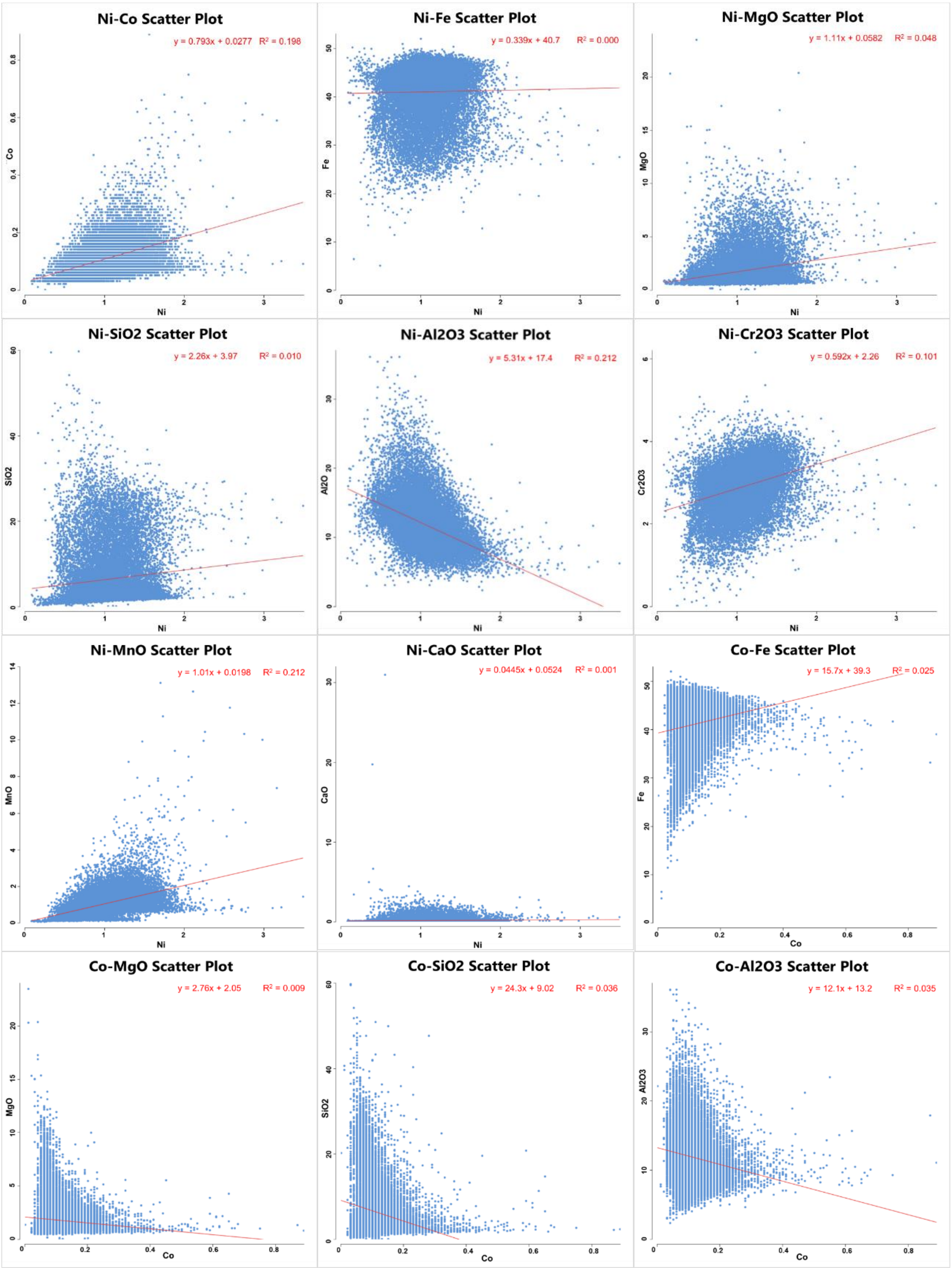


Figure 3 Histogram of Saprolite

Mineral Correlation



Ni-Co Scatter Plot

Ni-Fe Scatter Plot

Ni-MgO Scatter Plot

Ni-SiO2 Scatter Plot

Ni-Al2O3 Scatter Plot

Ni-Cr2O3 Scatter Plot

Ni-MnO Scatter Plot

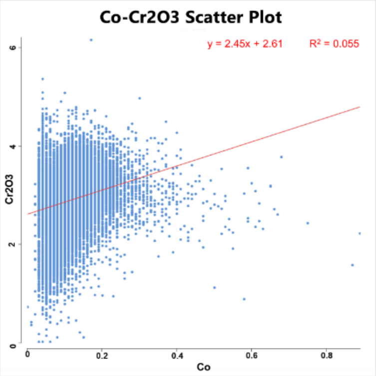
Ni-CaO Scatter Plot

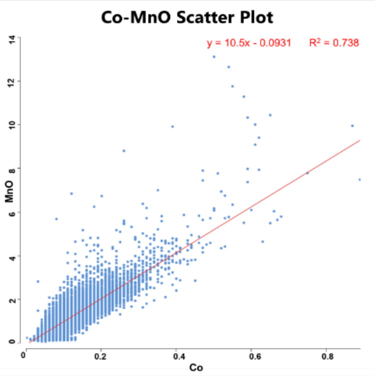
Co-Fe Scatter Plot

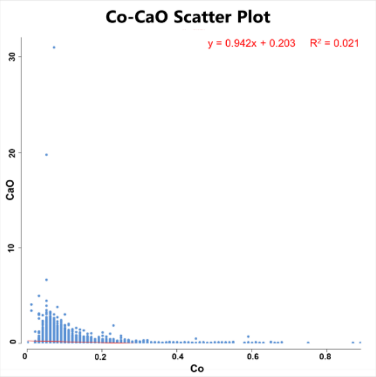
Co-MgO Scatter Plot

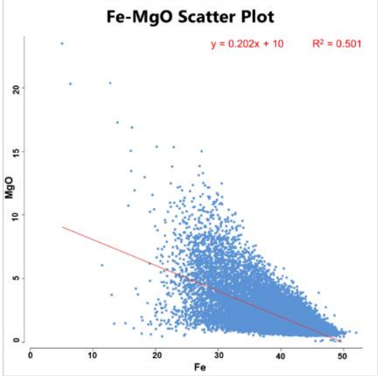
Co-SiO2 Scatter Plot

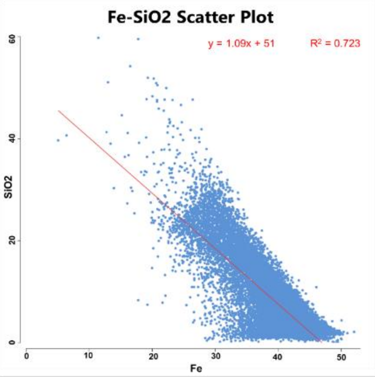
Co-Al2O3 Scatter Plot

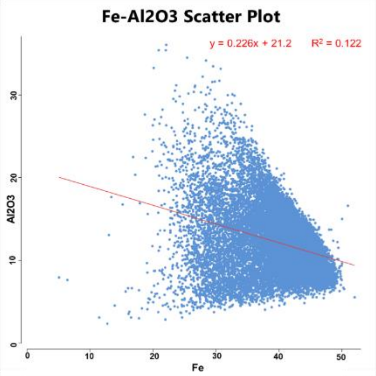

Co-Cr2O3 Scatter Plot

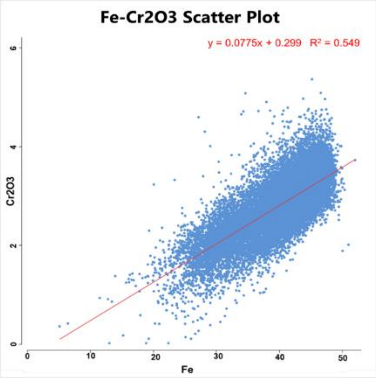

Co-MnO Scatter Plot

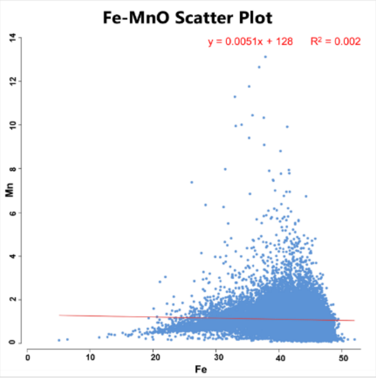

Co-CaO Scatter Plot

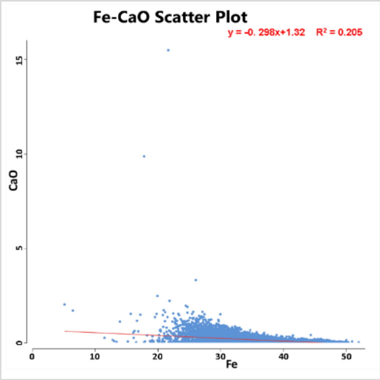

Fe-MgO Scatter Plot

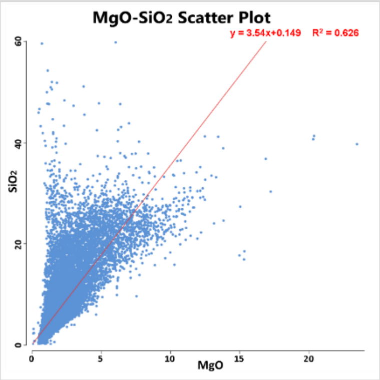

Fe-SiO2 Scatter Plot

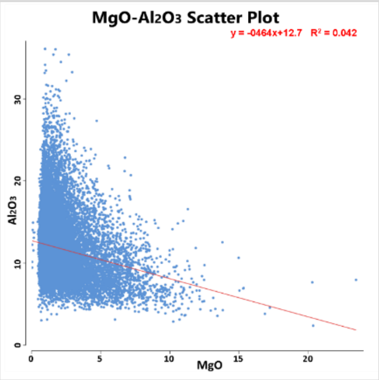

Fe-Al2O3 Scatter Plot

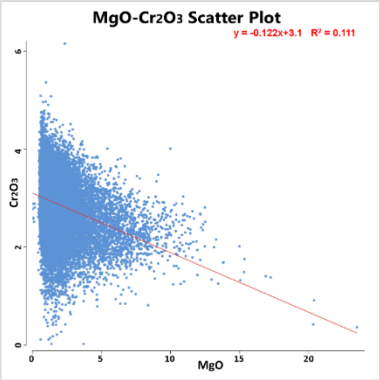

Fe-Cr2O3 Scatter Plot


Fe-MnO Scatter Plot


Fe-CaO Scatter Plot


MgO-SiO2 Scatter Plot


MgO-Al2O3 Scatter Plot


MgO-Cr2O3 Scatter Plot

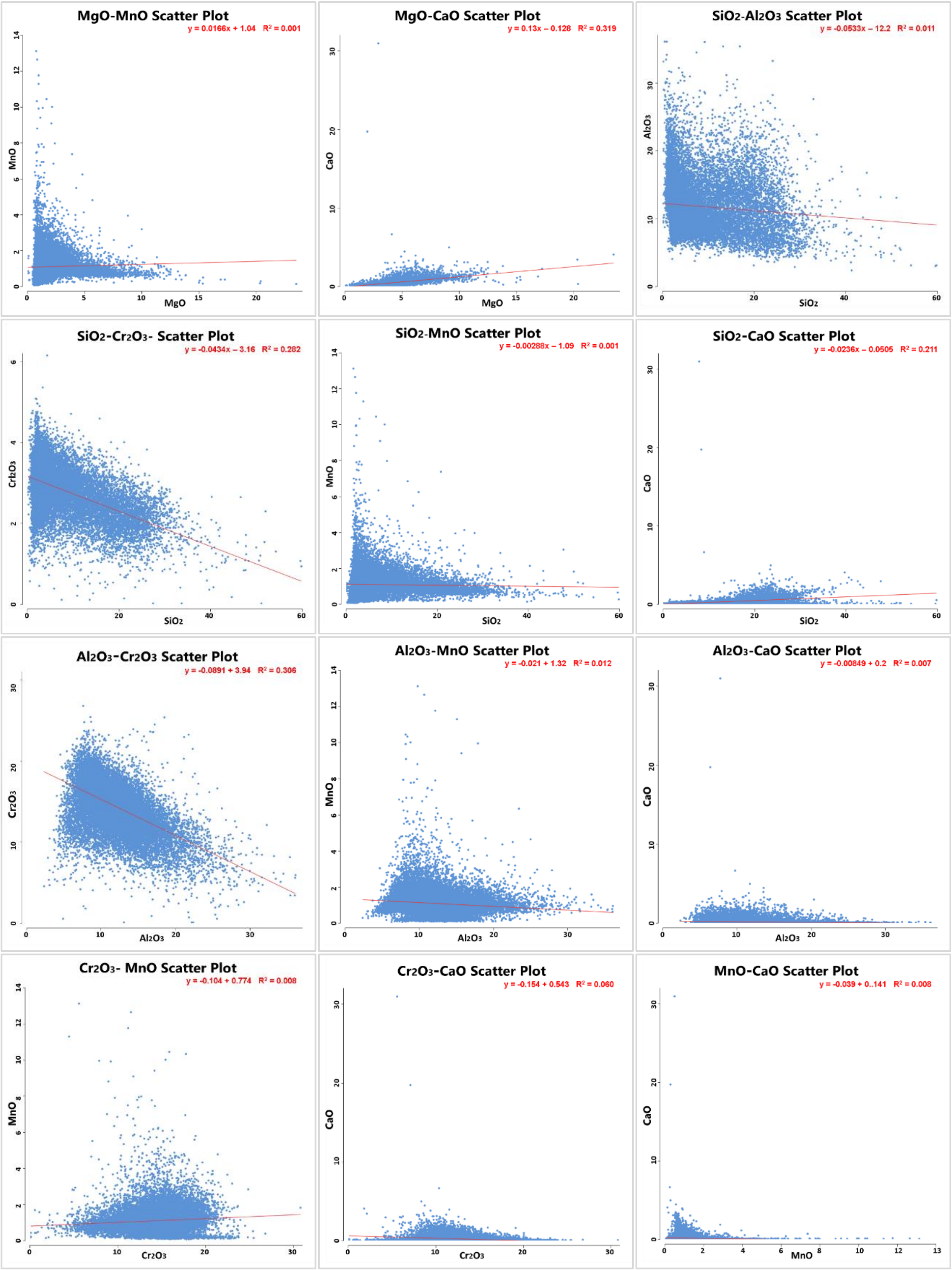
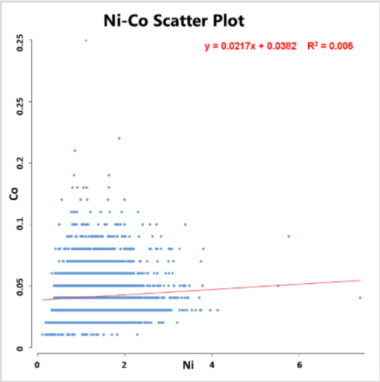
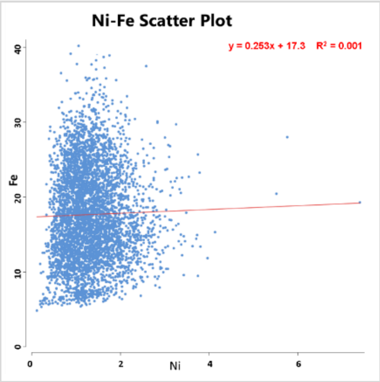
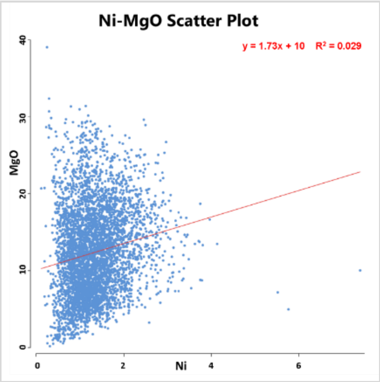
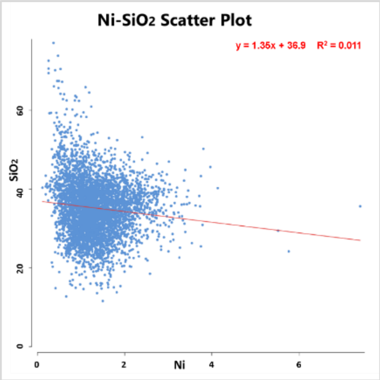


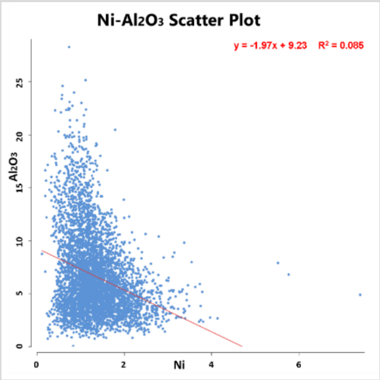
Figure 4 Mineral correlation scatter plot for Limonite

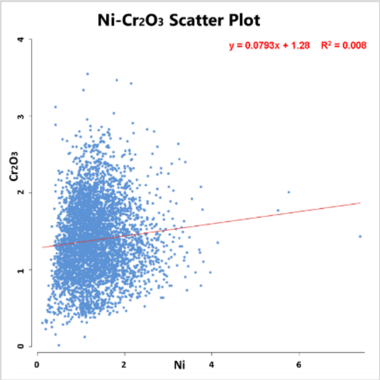

Ni-Co Scatter Plot

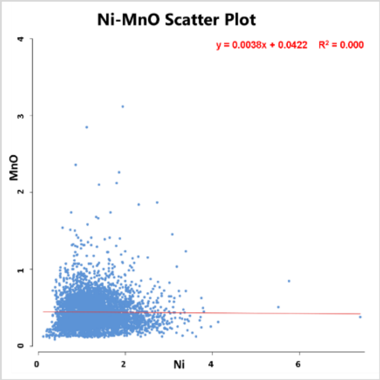

Ni-Fe Scatter Plot

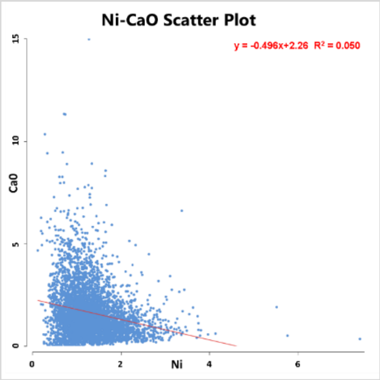

Ni-MgO Scatter Plot

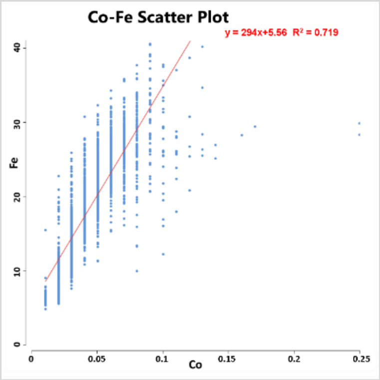

Ni-SiO2 Scatter Plot

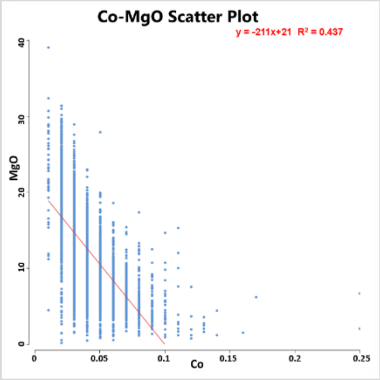

Ni-Al2O3 Scatter Plot

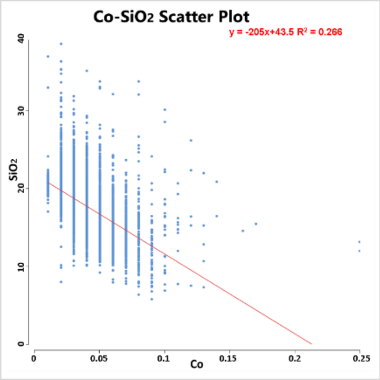

Ni-Cr2O3 Scatter Plot

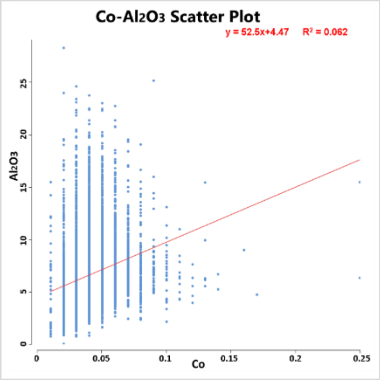

Ni-MnO Scatter Plot

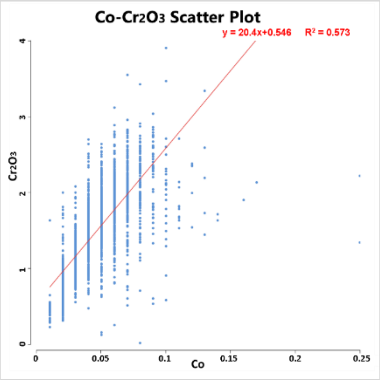

Ni-CaO Scatter Plot

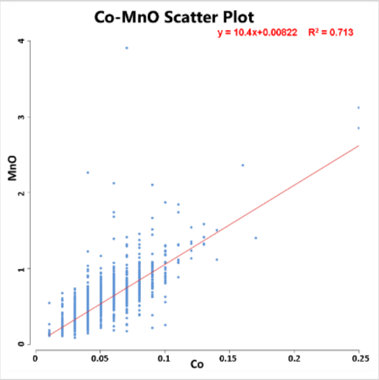

Co-Fe Scatter Plot

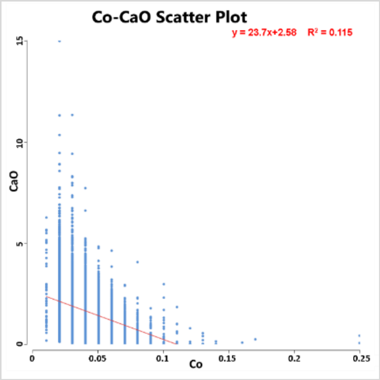

Co-MgO Scatter Plot

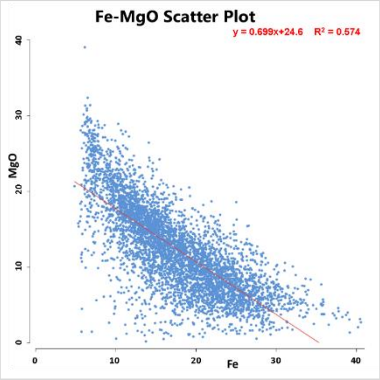

Co-SiO2 Scatter Plot

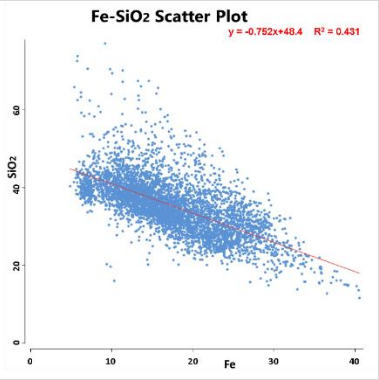

Co-Al2O3 Scatter Plot

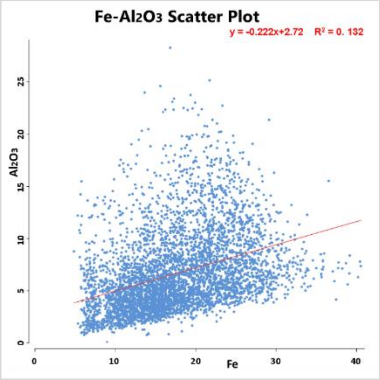

Co-Cr2O3 Scatter Plot
y = 20.4x+0.546 R² = 0.573
Cr2O3
0
1
2
3
4
Co
0
0.05
0.1
0.15
0.2
0.25

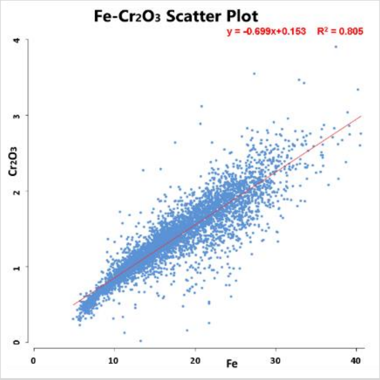

Co-MnO Scatter Plot
y = 10.4x+0.00822 R² = 0.713
MnO
0
1
2
3
4
Co
0
0.05
0.1
0.15
0.2
0.25

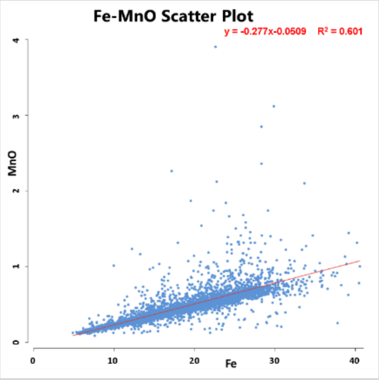

Co-CaO Scatter Plot
y = 23.7x+2.58 R² = 0.115
CaO
0
5
10
15
Co
0
0.05
0.1
0.15
0.2
0.25

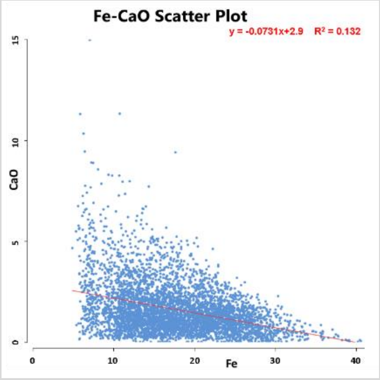

Fe-MgO Scatter Plot
y = 0.699x+24.6 R² = 0.574
MgO
0
10
20
30
40
Fe
0
10
20
30
40

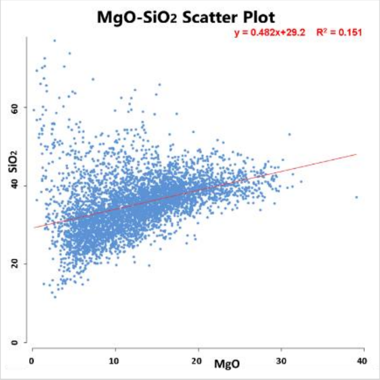

Fe-SiO2 Scatter Plot
y = -0.752x+48.4 R² = 0.431
SiO2
0
20
40
60
Fe
0
10
20
30
40

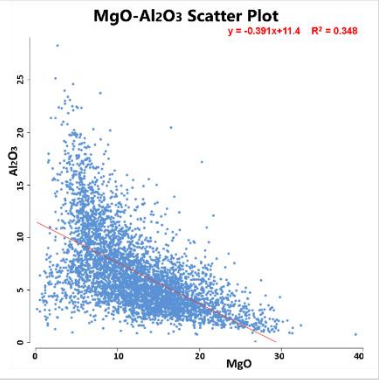

Fe-Al2O3 Scatter Plot
y = -0.222x+2.72 R² = 0. 132
Al2O3
0
5
10
15
20
25
Fe
0
10
20
30
40

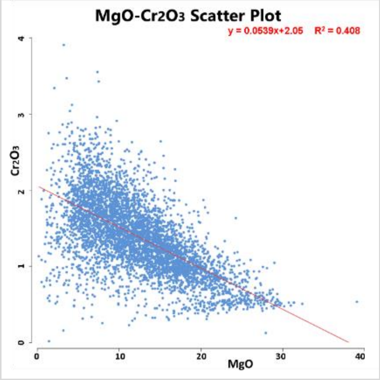

Fe-Cr2O3 Scatter Plot
y = -0.699x+0.153 R² = 0.805
Cr2O3
0
1
2
3
4
Fe
0
10
20
30
40


Fe-MnO Scatter Plot
y = -0.277x-0.0509 R² = 0.601
MnO
0
1
2
3
4
Fe
0
10
20
30
40


Fe-CaO Scatter Plot
y = -0.0731x+2.9 R² = 0.132
CaO
0
5
10
15
Fe
0
10
20
30
40


MgO-SiO2 Scatter Plot
y = 0.482x+29.2 R² = 0.151
SiO2
0
20
40
60
MgO
0
10
20
30
40


MgO-Al2O3 Scatter Plot
y = -0.391x+11.4 R² = 0.348
Al2O3
0
5
10
15
20
25
MgO
0
10
20
30
40


MgO-Cr2O3 Scatter Plot
y = 0.0539x+2.05 R² = 0.408
Cr2O3
0
1
2
3
4
MgO
0
10
20
30
40

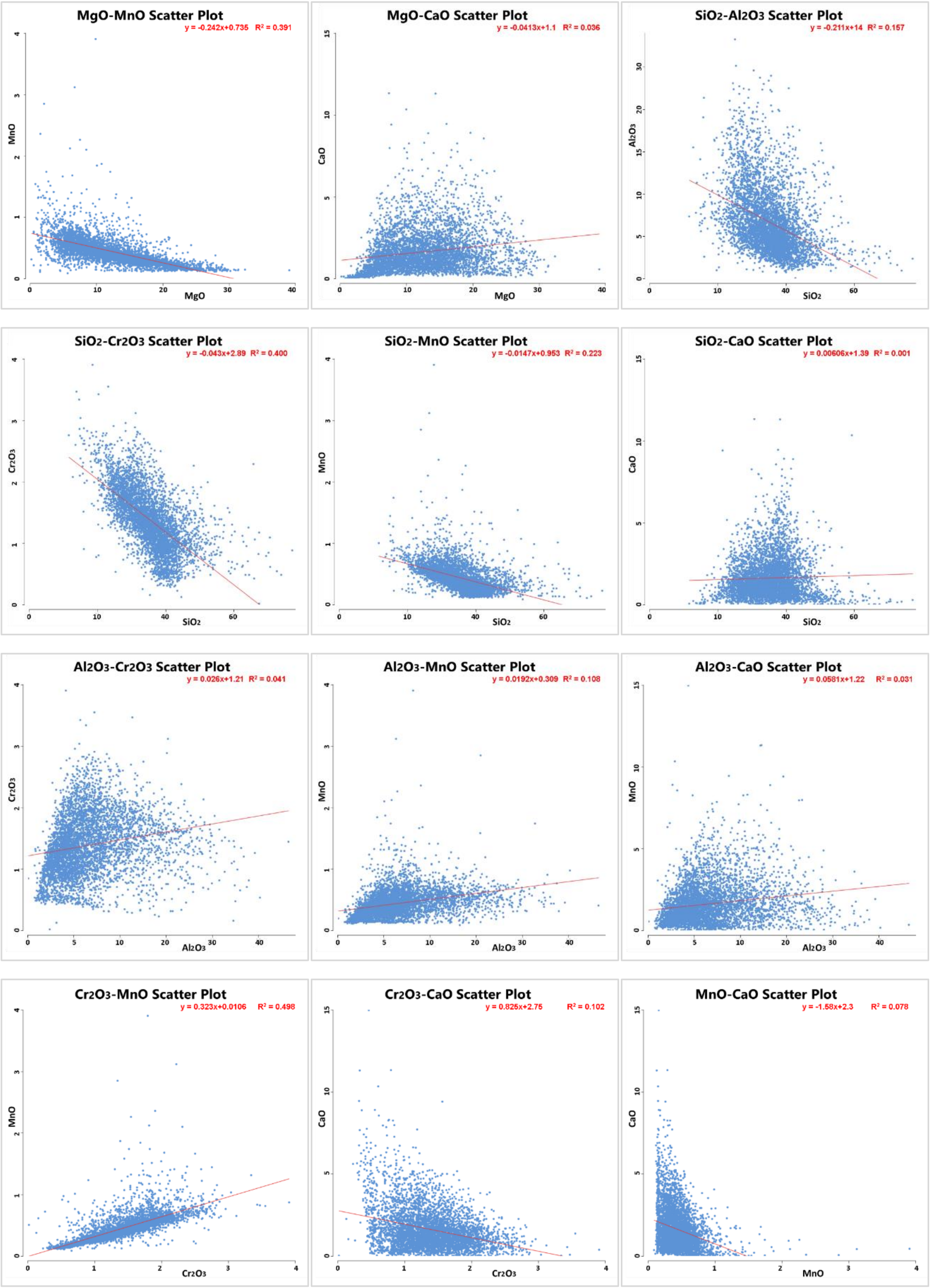


Figure 5 Mineral correlation scatter plot for Saprolite

Table 4 Summary of mineral correlation for Limonite

Limonite	**Ni**	**Co**	**Fe**	**MgO**	**SiO_2**	**Al_2O_3**	**Cr_2O_3**	**MnO**	**CaO**
Ni	1.000								
Co	0.198	1.000							
Fe	0.000	0.025	1.000						
MgO	0.048	-0.009	**-0.501**	1.000					
SiO_2	0.010	-0.036	**-0.723**	**0.626**	1.000				
Al_2O_3	-0.212	-0.035	-0.122	-0.042	-0.011	1.000			
Cr_2O_3	0.101	0.055	**0.549**	-0.111	-0.282	-0.306	1.000		
MnO	0.212	**0.738**	-0.002	0.001	-0.001	-0.012	0.008	1.000	
CaO	0.001	-0.021	-0.205	0.319	0.211	-0.007	-0.060	-0.005	1.000

Table 5 Summary of mineral correlation for Saprolite

Saprolite	**Ni**	**Co**	**Fe**	**MgO**	**SiO_2**	**Al_2O_3**	**Cr_2O_3**	**MnO**	**CaO**
Ni	1.000								
Co	0.005	1.000							
Fe	0.001	**0.719**	1.000						
MgO	0.029	-0.437	**-0.574**	1.000					
SiO_2	-0.011	-0.266	-0.431	0.151	1.000				
Al_2O_3	-0.085	0.062	0.132	-0.348	-0.157	1.000			
Cr_2O_3	0.008	**0.573**	**0.805**	-0.408	-0.400	0.041	1.000		
MnO	0.000	**0.713**	**0.601**	-0.391	-0.223	0.108	0.498	1.000	
CaO	-0.050	-0.115	-0.132	0.036	0.001	0.031	-0.102	-0.078	1.000

1.4. Variography

1.4.1. Variogram of Limonite

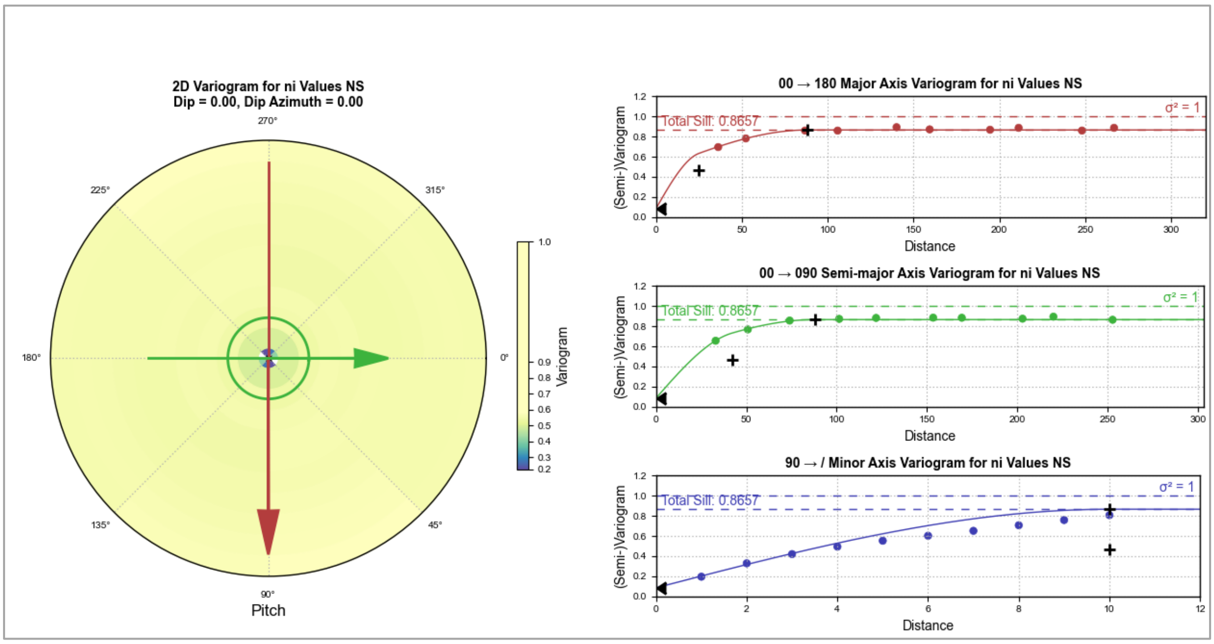


Figure 6 Variogram of Limonite Ni

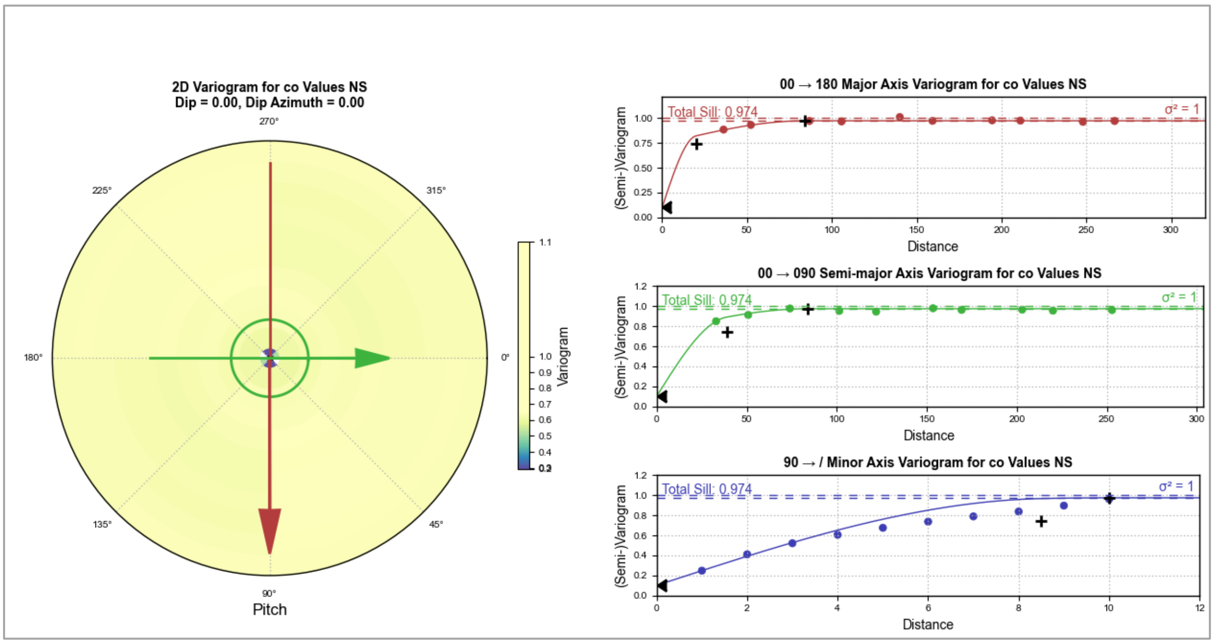


Figure 7 Variogram of Limonite Co

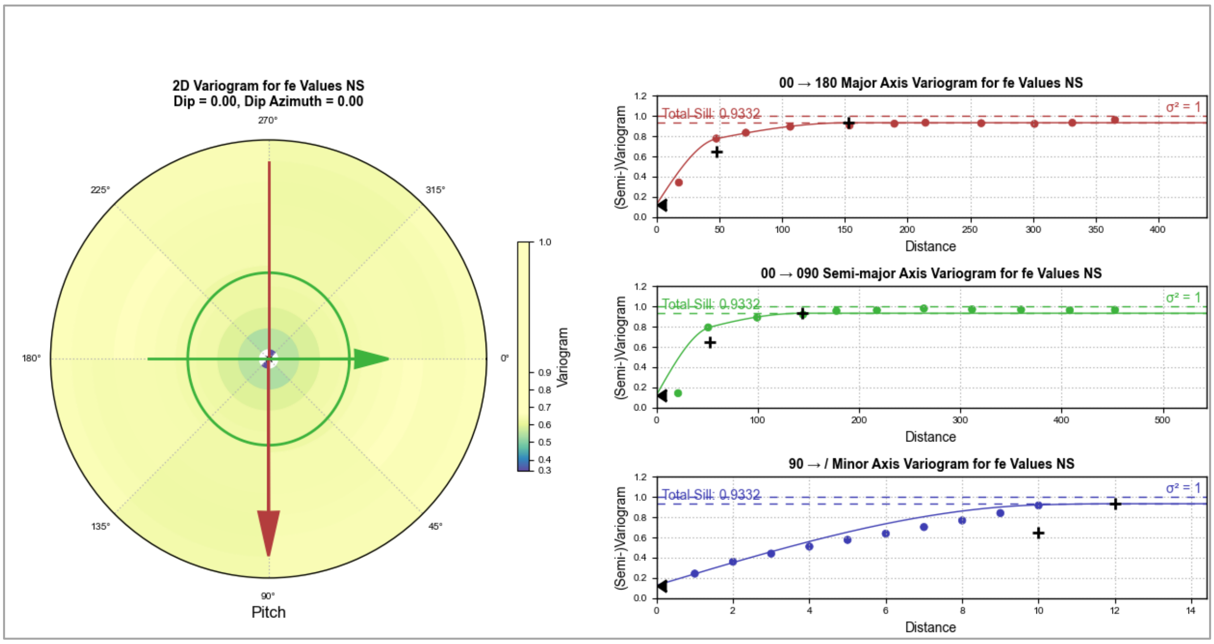


Figure 8 Variogram of Limonite Fe

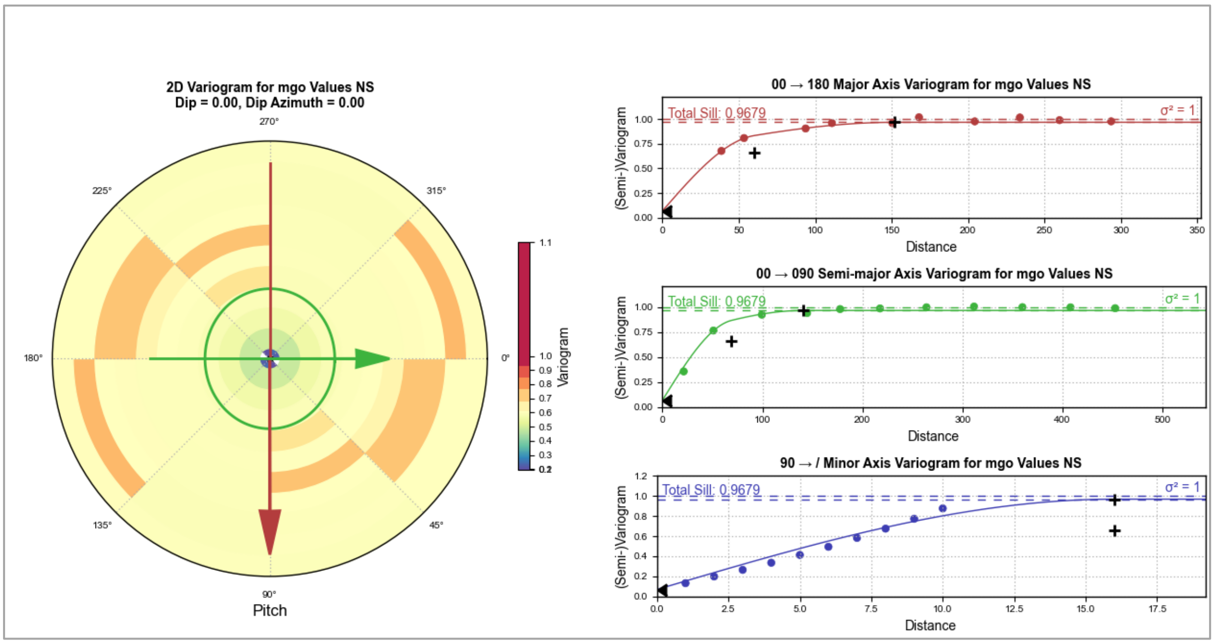


Figure 9 Variogram of Limonite MgO

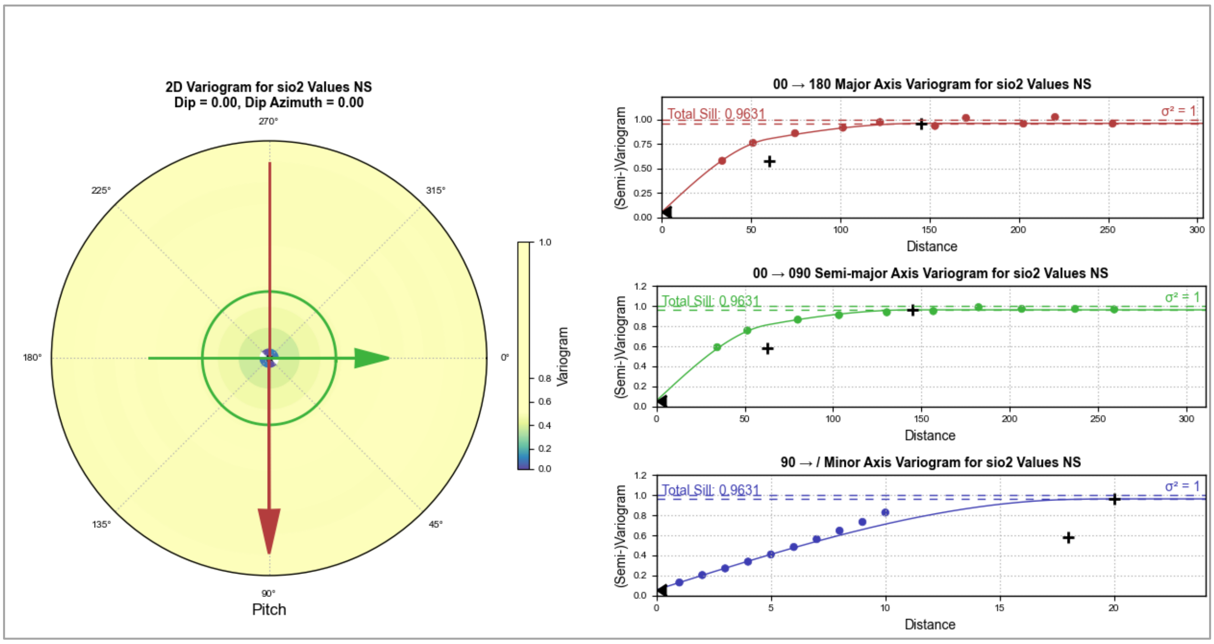


Figure 10 Variogram of Limonite SiO_2

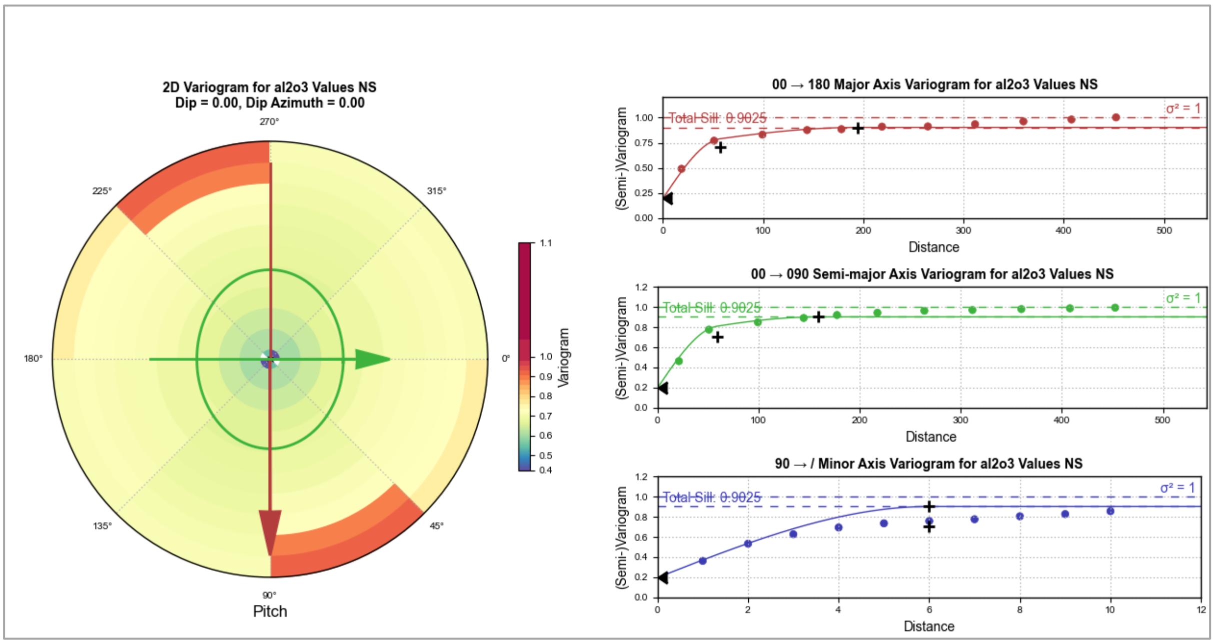


Figure 11 Variogram of Limonite Al_2O_3

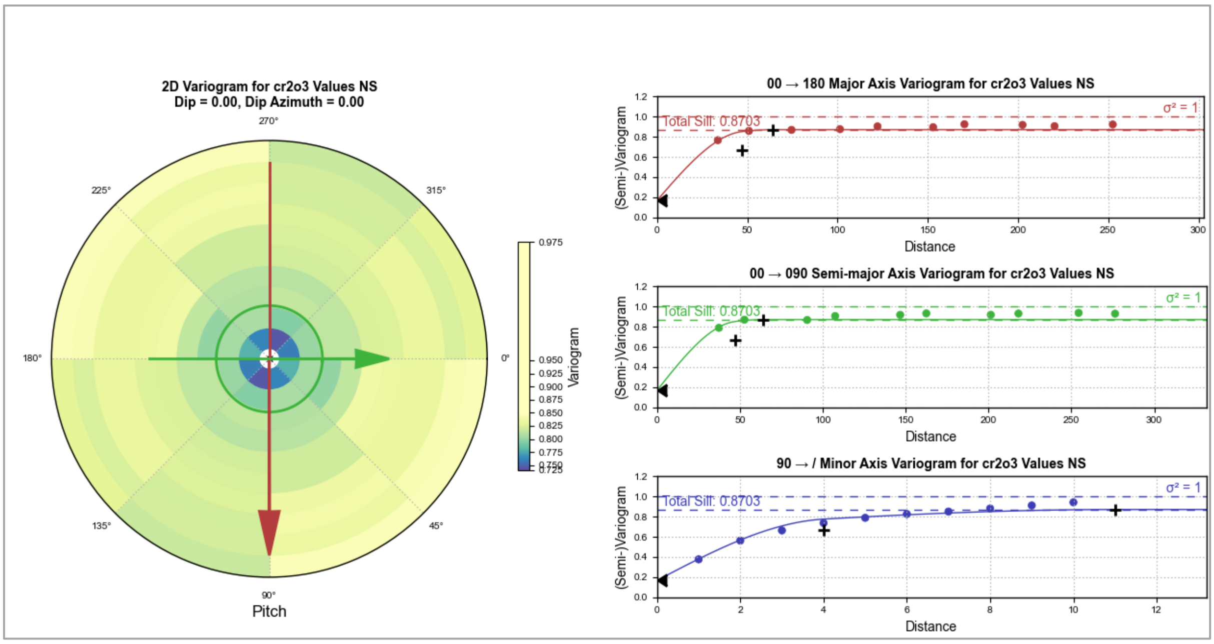


Figure 12 Variogram of Limonite Cr_2O_3

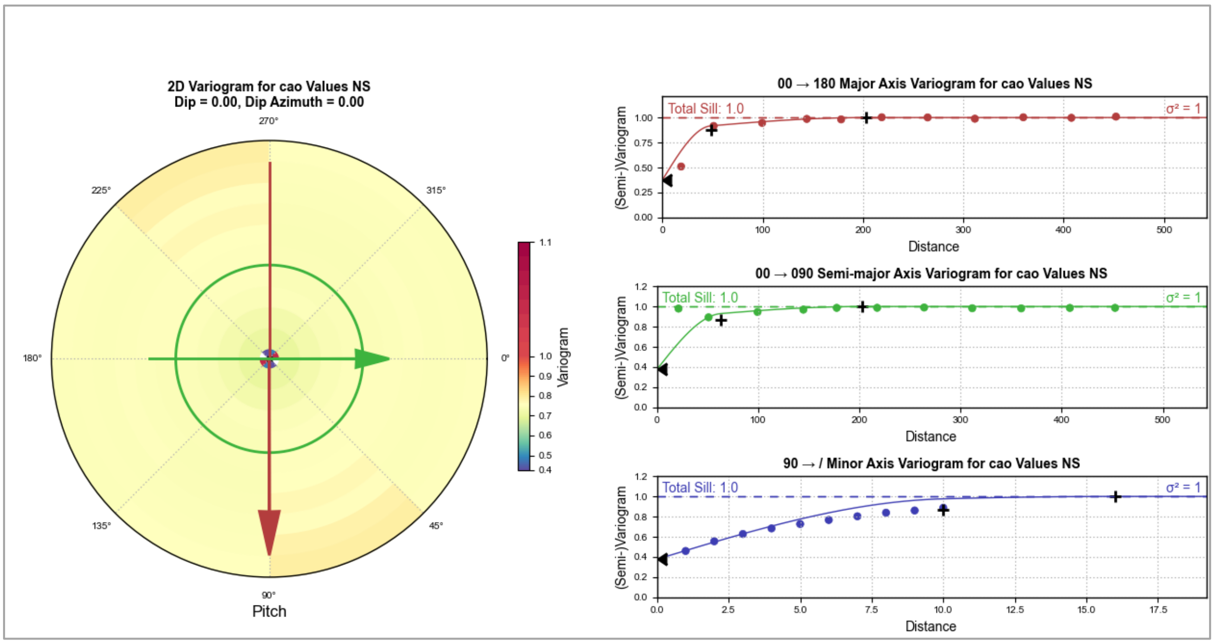


Figure 13 Variogram of Limonite CaO

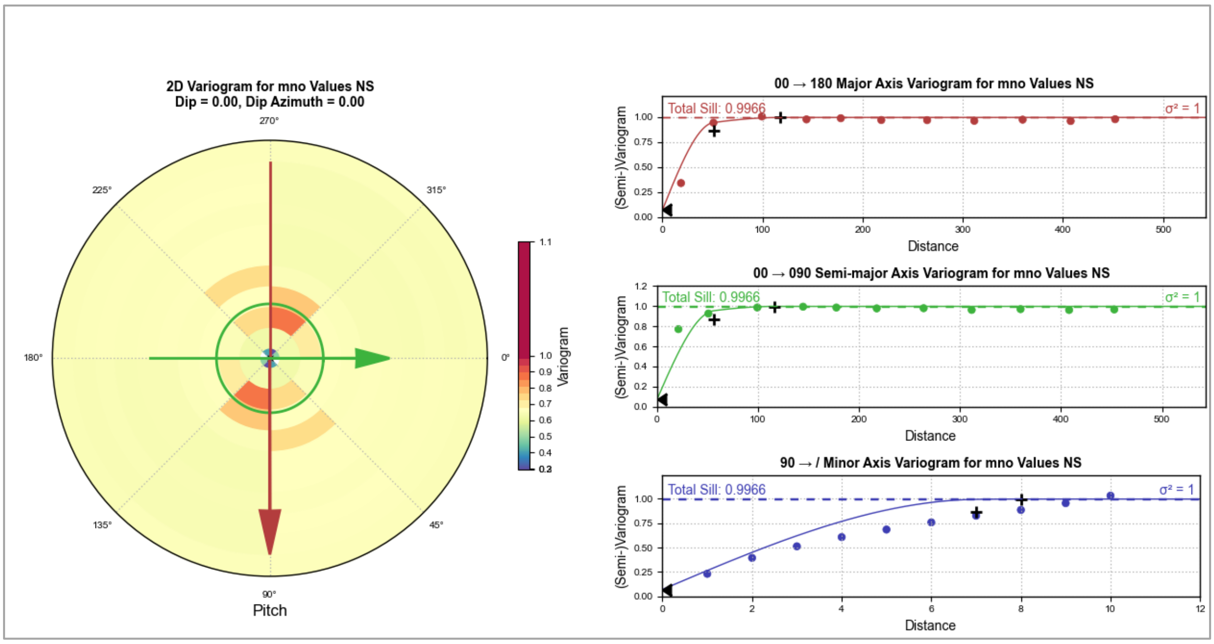


Figure 14 Variogram of Limonite MnO

1.4.2 Variogram of Saprolite

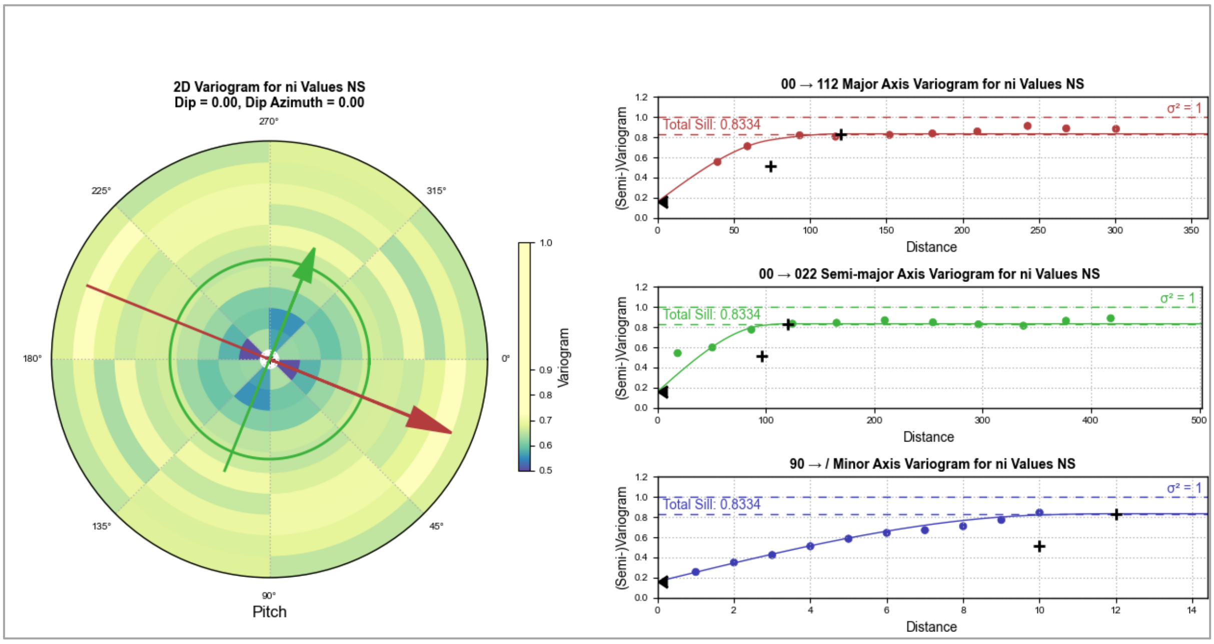


Figure 15 Variogram of Saprolite Ni

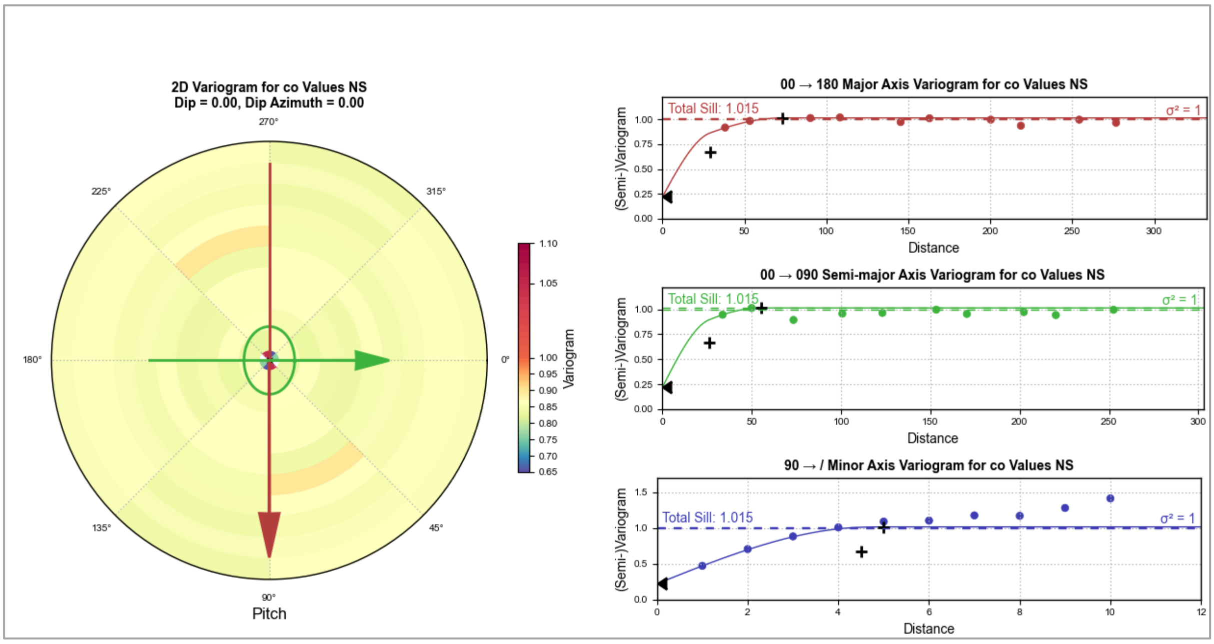


Figure 16 Variogram of Saprolite Co

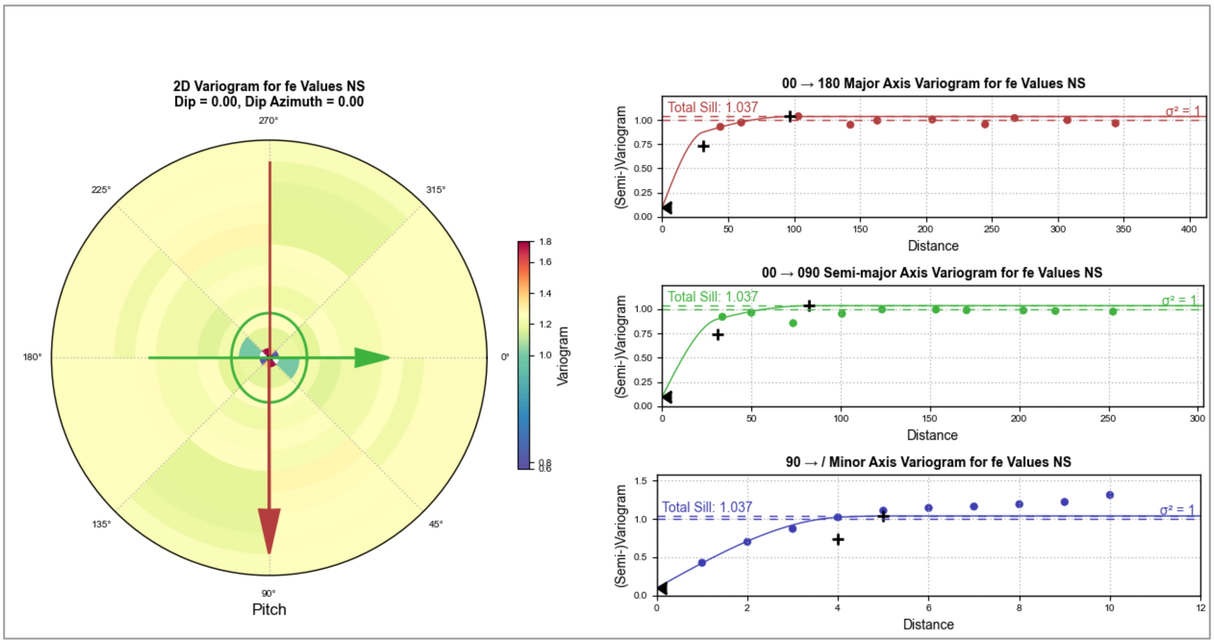


Figure 17 Variogram of Saprolite Fe

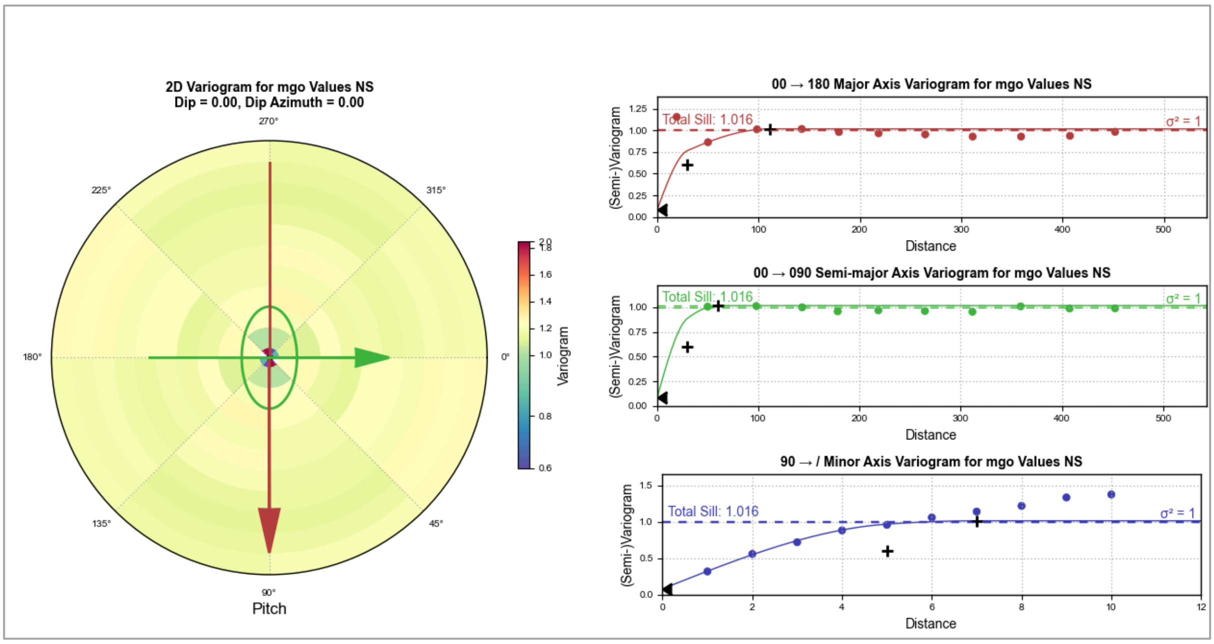


Figure 18 Variogram of Saprolite MgO

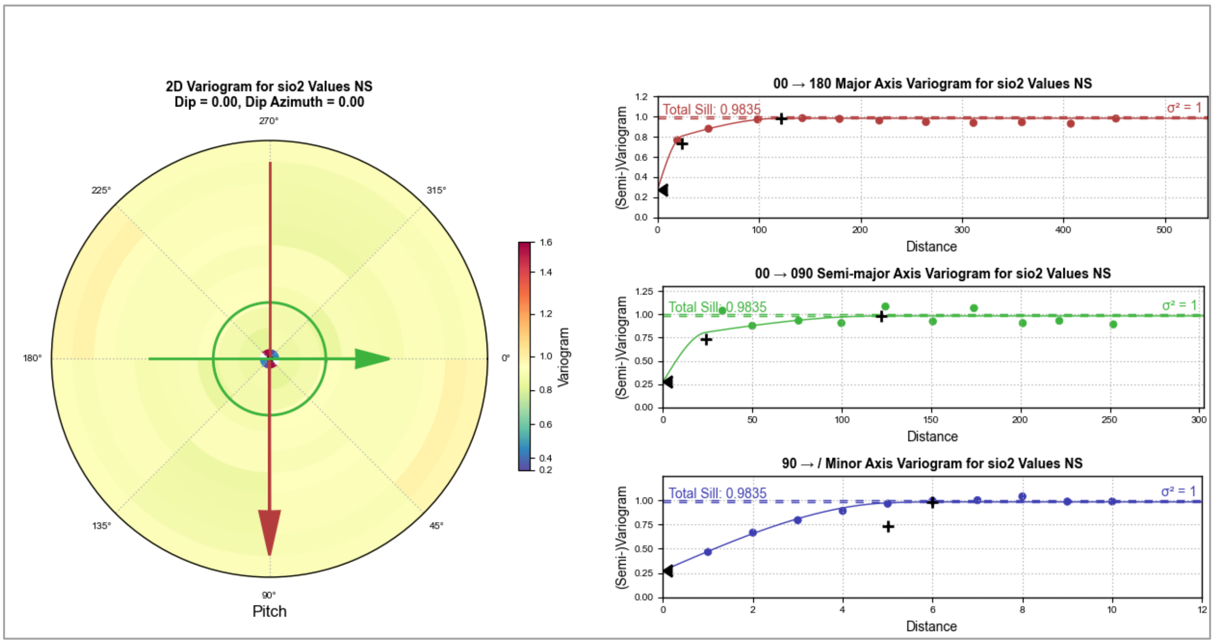


Figure 19 Variogram of Saprolite SiO_2

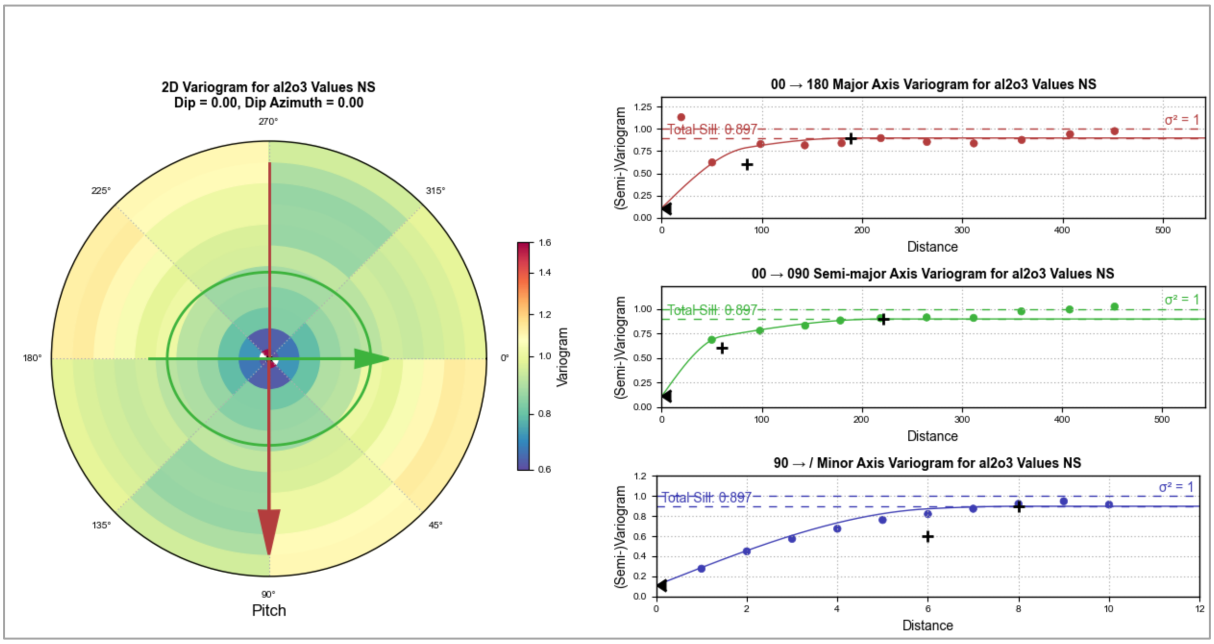


Figure 20 Variogram of Saprolite Al_2O_3

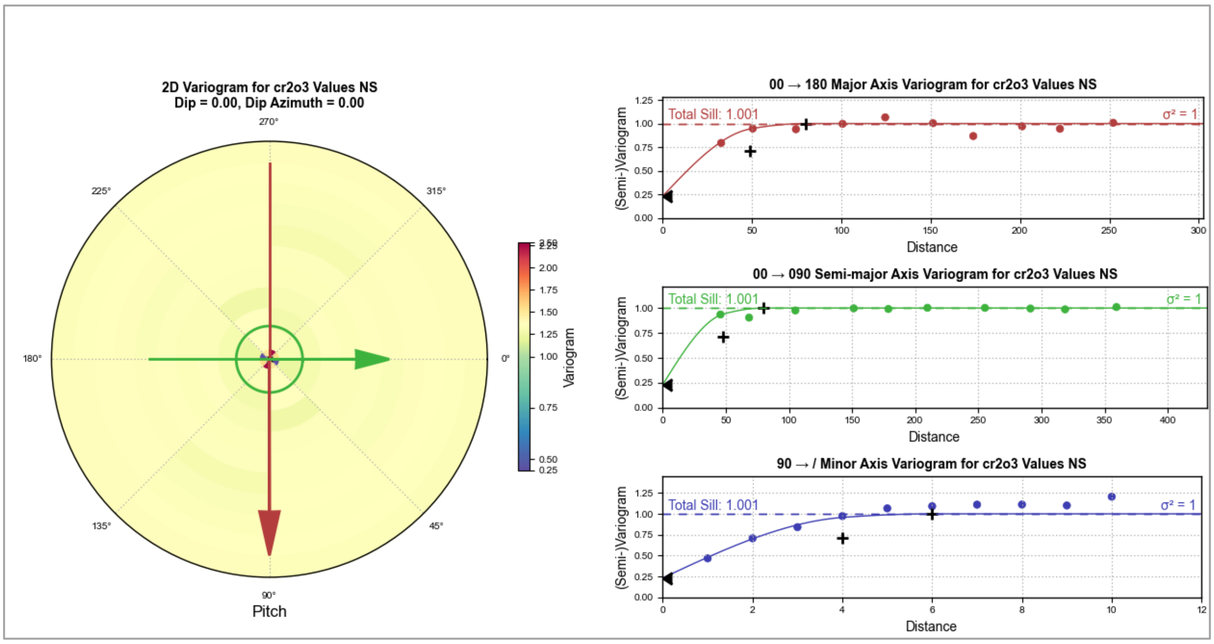


Figure 21 Variogram of Saprolite Cr_2O_3

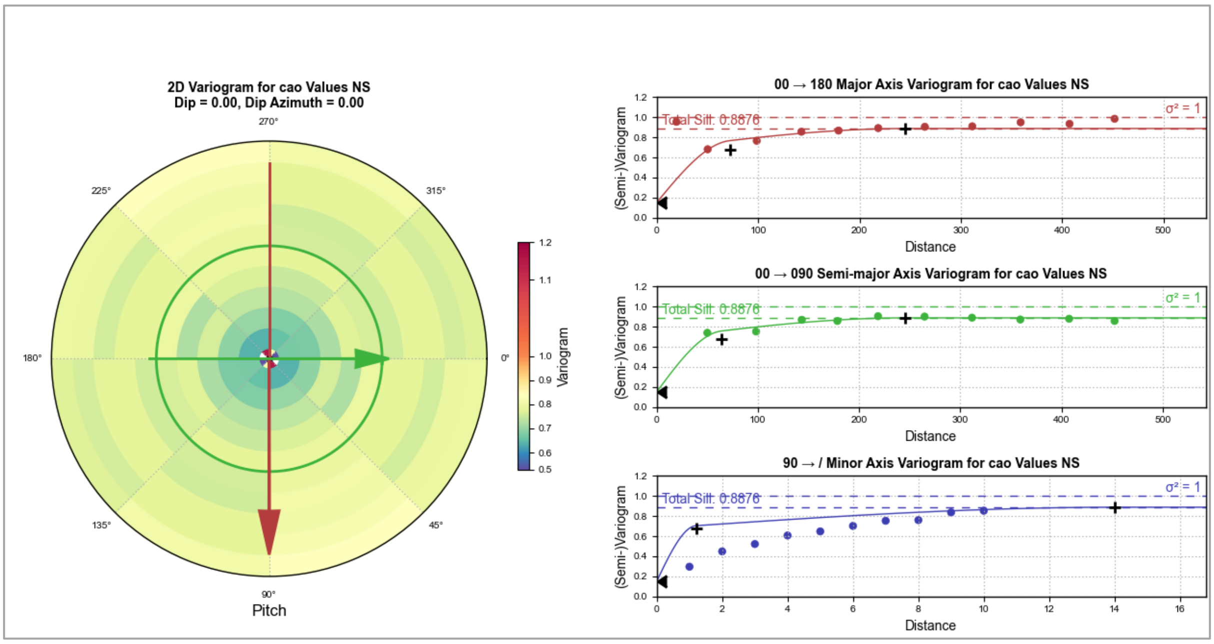


Figure 22 Variogram of Saprolite CaO

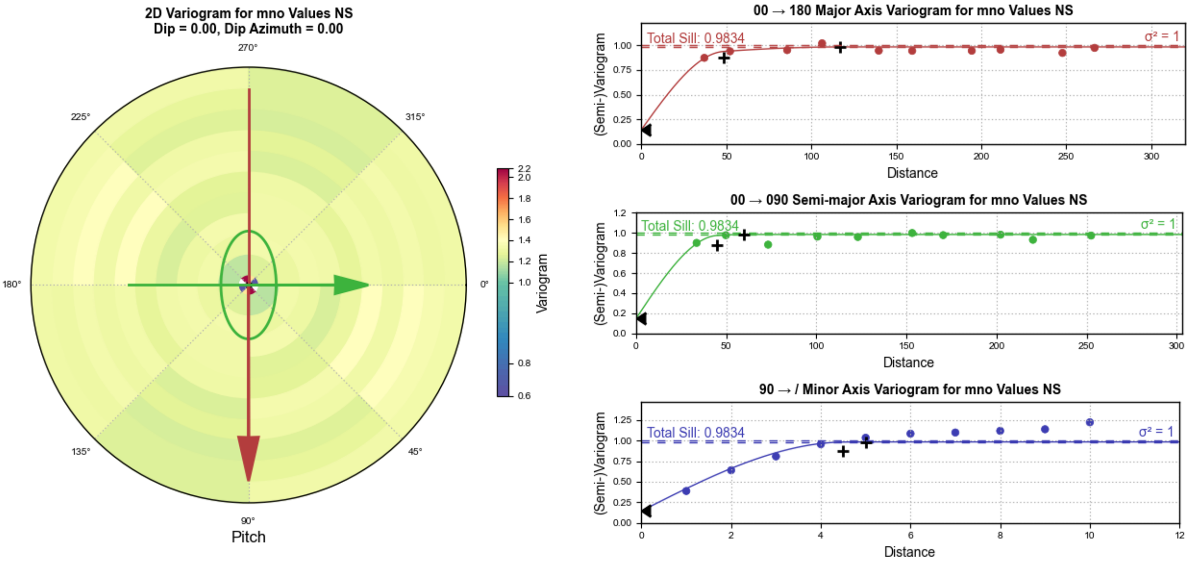
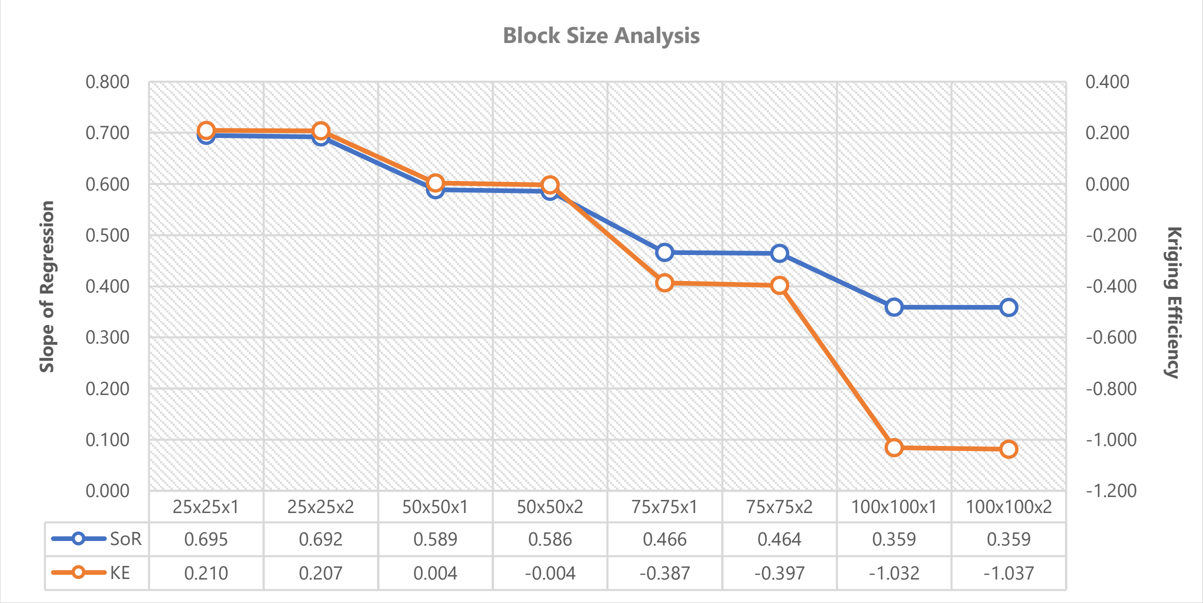


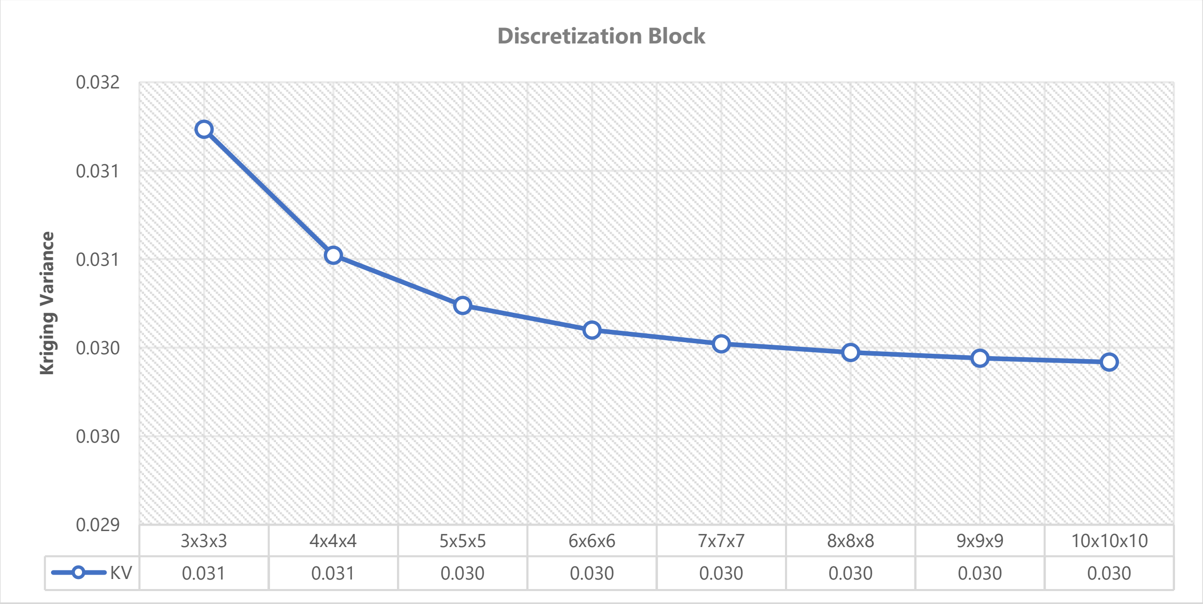
Figure 23 Variogram of Saprolite MnO

1.4.2. Kriging Neighborhood Analysis (KNA)



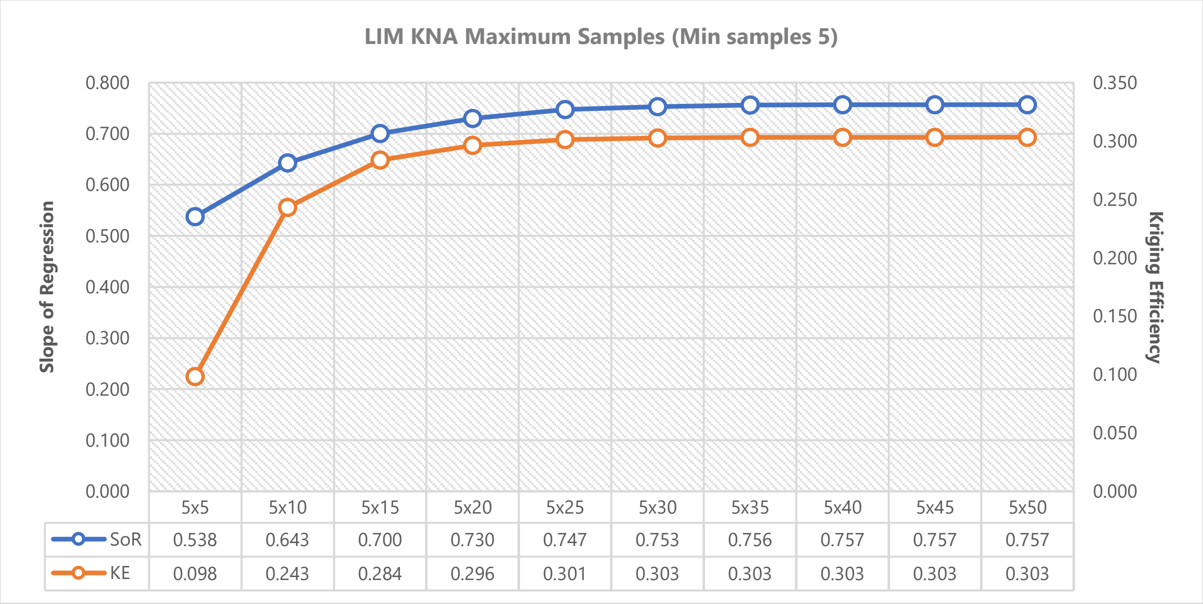
	25x25x1	25x25x2	50x50x1	50x50x2	75x75x1	75x75x2	100x100x1	100x100x2
SoR	0.695	0.692	0.589	0.586	0.466	0.464	0.359	0.359
KE	0.210	0.207	0.004	-0.004	-0.387	-0.397	-1.032	-1.037

Figure 24 KNA for optimum block model size in Block D



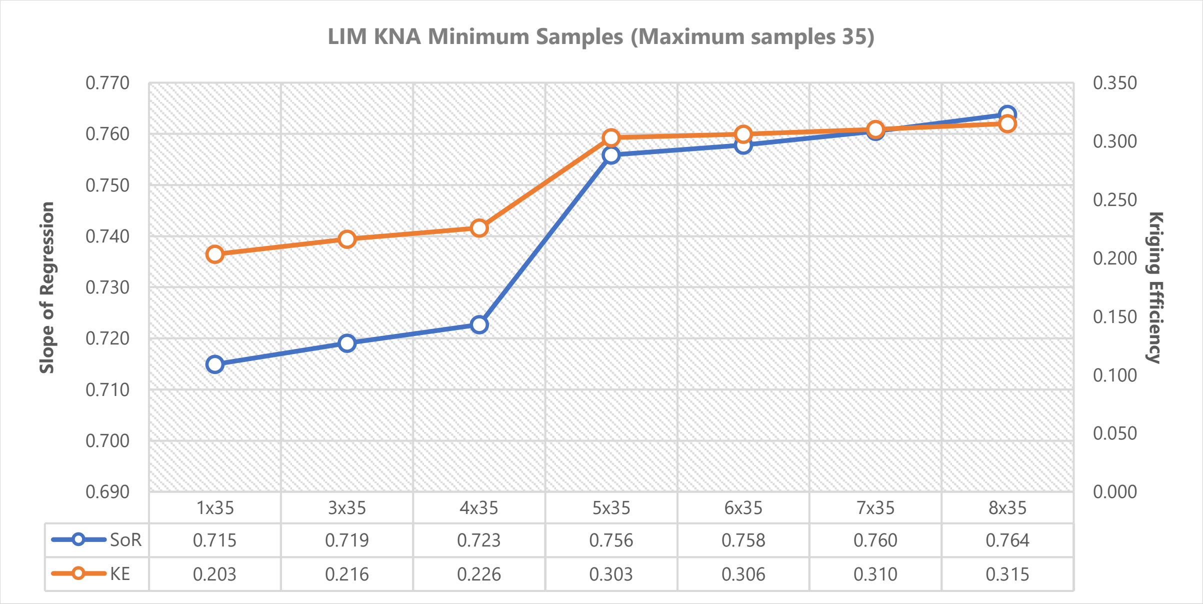
	3x3x3	4x4x4	5x5x5	6x6x6	7x7x7	8x8x8	9x9x9	10x10x10
KV	0.031	0.031	0.030	0.030	0.030	0.030	0.030	0.030

Figure 25 KNA for optimum discretization block in Block D



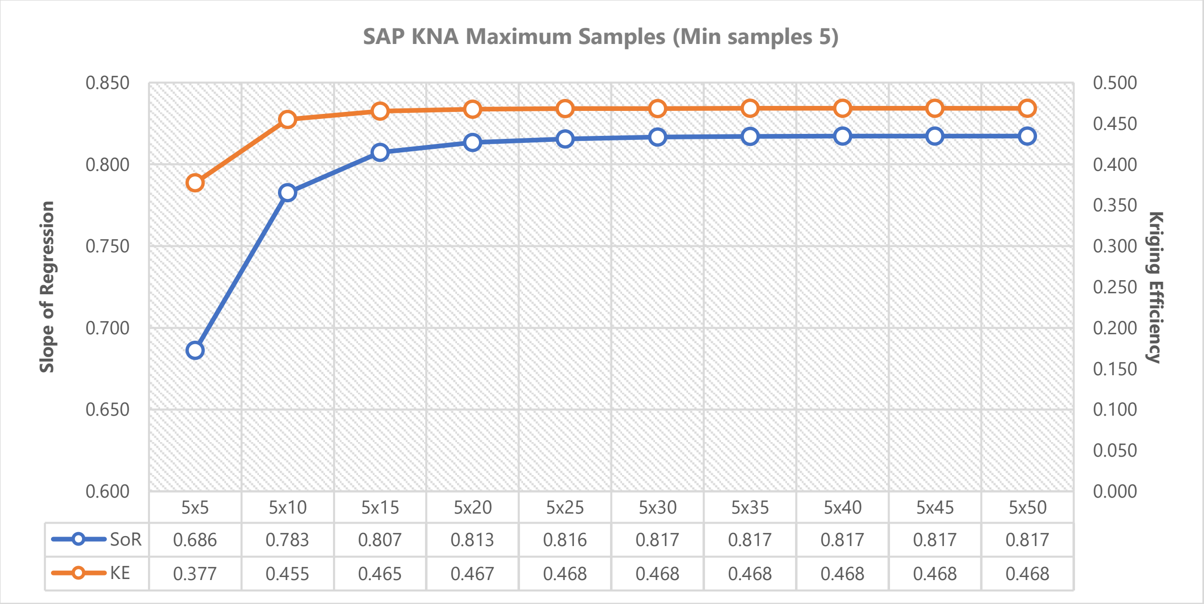
	5x5	5x10	5x15	5x20	5x25	5x30	5x35	5x40	5x45	5x50
SoR	0.538	0.643	0.700	0.730	0.747	0.753	0.756	0.757	0.757	0.757
KE	0.098	0.243	0.284	0.296	0.301	0.303	0.303	0.303	0.303	0.303

Figure 26 KNA for maximum samples Limonite in Block D



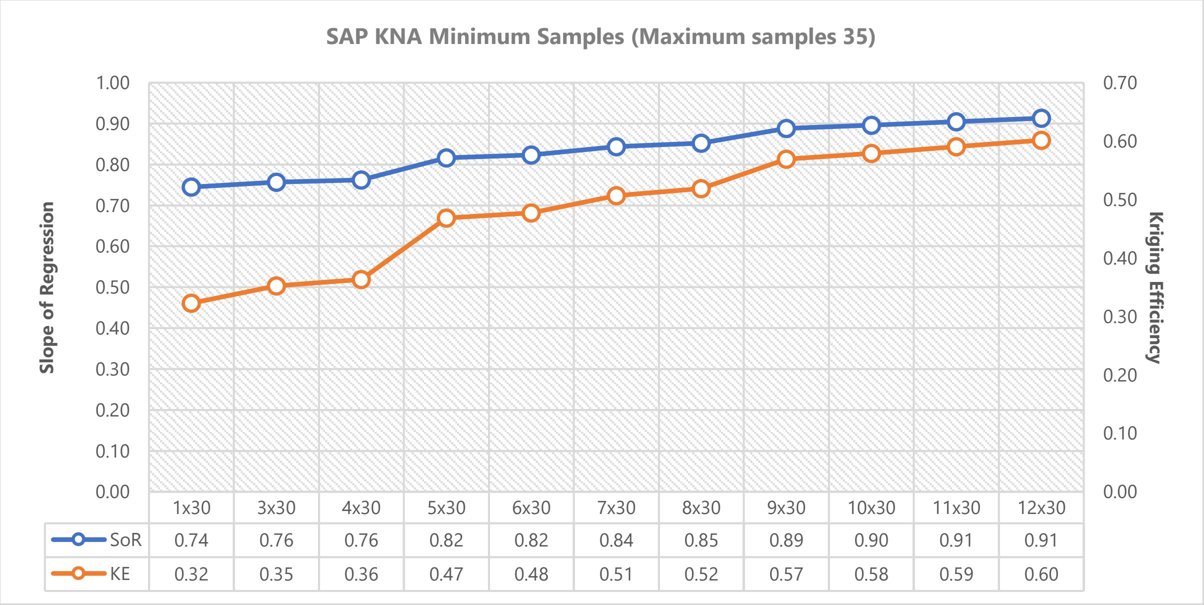
	1x35	3x35	4x35	5x35	6x35	7x35	8x35
SoR	0.715	0.719	0.723	0.756	0.758	0.760	0.764
KE	0.203	0.216	0.226	0.303	0.306	0.310	0.315

Figure 27 KNA for minimum samples Limonite in Block D



	5x5	5x10	5x15	5x20	5x25	5x30	5x35	5x40	5x45	5x50
SoR	0.686	0.783	0.807	0.813	0.816	0.817	0.817	0.817	0.817	0.817
KE	0.377	0.455	0.465	0.467	0.468	0.468	0.468	0.468	0.468	0.468

Figure 28 KNA for maximum samples Saprolite in Block D



	1x30	3x30	4x30	5x30	6x30	7x30	8x30	9x30	10x30	11x30	12x30
SoR	0.74	0.76	0.76	0.82	0.82	0.84	0.85	0.89	0.90	0.91	0.91
KE	0.32	0.35	0.36	0.47	0.48	0.51	0.52	0.57	0.58	0.59	0.60

Figure 29 KNA for minimum samples Saprolite in Block D

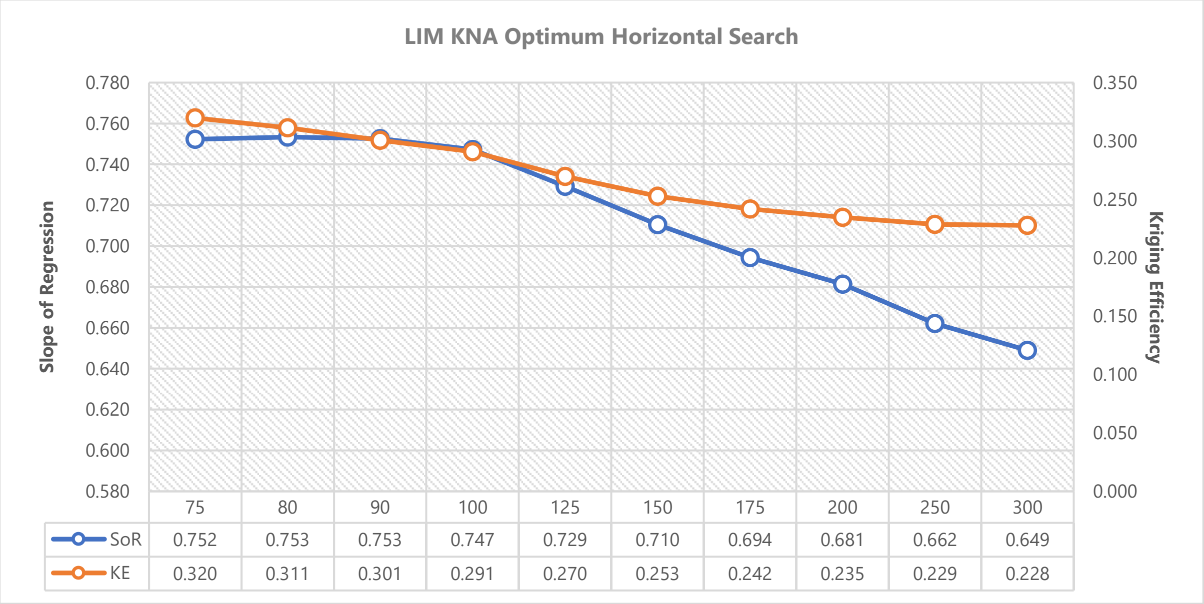


Figure 30 KNA for optimum horizontal search Limonite in Block D

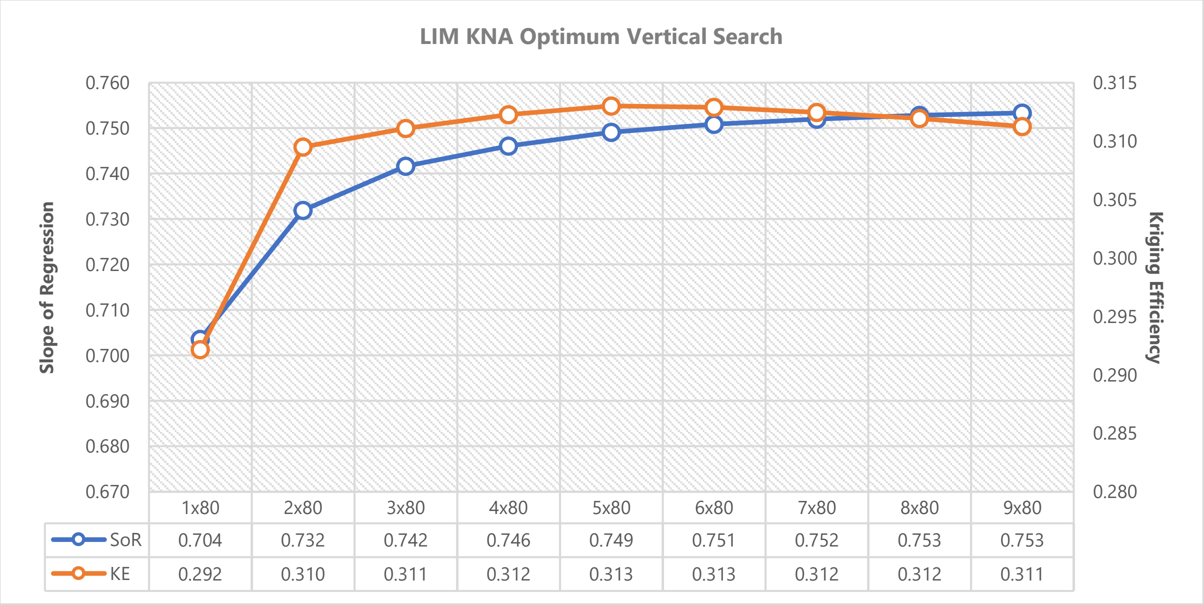


Figure 31 KNA for optimum vertical search Limonite in Block D

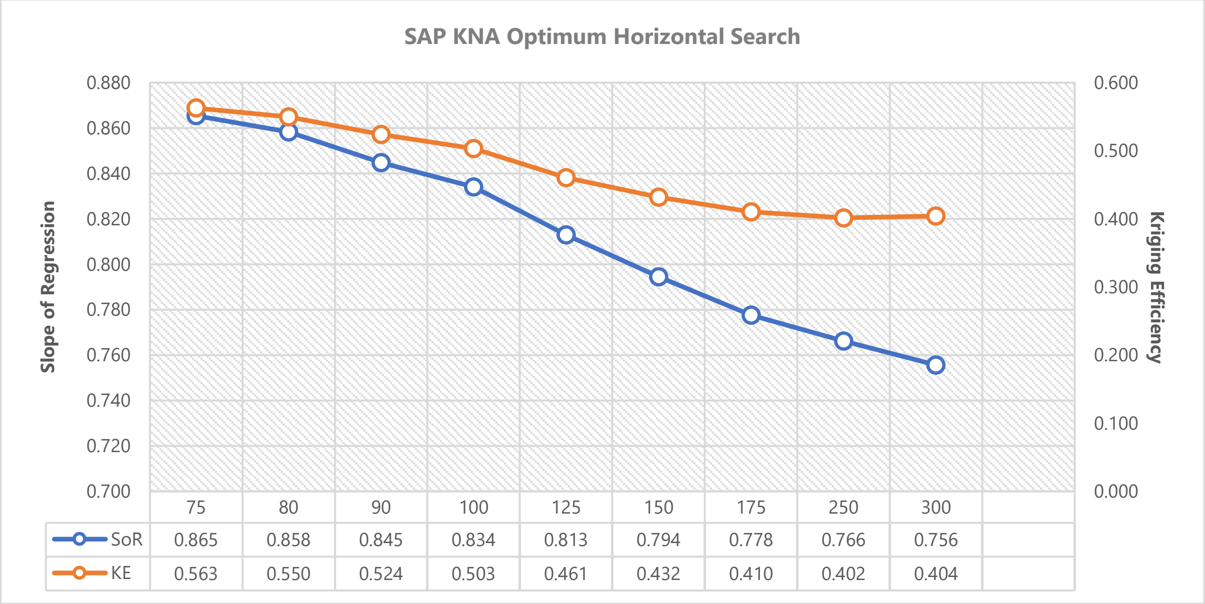


Figure 32 KNA for optimum horizontal search Saprolite in Block D

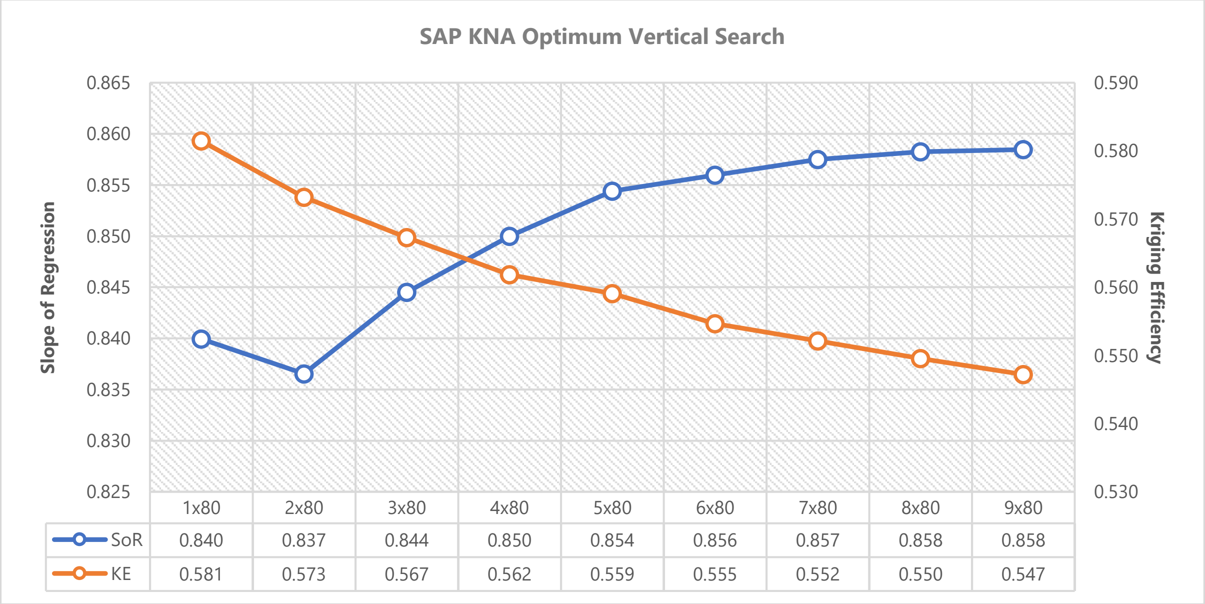


Figure 33 KNA for optimum vertical search Saprolite in Block D

Table 6 KNA summary

Parameter	Limonite	Saprolite
Block Size	25x25x1	
Discretization Block	5x5x4	
Max. Horizontal Search	80	80
Max. Samples	30	30
Max. Vertical Search	5	4

1.5. Grade Estimation

Table 7 Search parameters of Limonite

Parameter	Ni			Co			Fe			MgO			SiO2			Al2O3			Cr2O3			CaO			MnO		
	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	Pass 3
Minimum Sample	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1
Maximum Sample	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Max. Search Radius	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320
Max. Vertical Distance	5	10	20	5	10	20	5	10	20	5	10	20	5	10	20	5	10	20	5	10	20	5	10	20	5	10	20
Dip	0			0			0			0			0			0			0			0			0		
Dip Azimuth	0			0			0			0			0			0			0			0			0		
Pitch	90			90			90			90			90			90			90			90			90		
Major/Semi-major 1	0.595			0.513			0.906			0.870			0.950			0.966			1.000			0.762			0.911		
Major/Semi-major 2	1.000			1.000			1.063			1.078			1.000			1.220			1.000			1.000			1.017		
Major/Minor 1	2.500			2.353			4.800			3.750			3.324			9.500			11.750			4.800			7.286		
Major/Minor 2	8.800			8.400			12.750			9.500			7.250			32.333			5.818			12.688			14.750		
Nugget	0.086			0.101			0.127			0.070			0.058			0.196			0.168			0.378			0.071		
Structure 1	0.383			0.639			0.518			0.591			0.523			0.509			0.504			0.495			0.795		
Structure 2	0.397			0.234			0.289			0.307			0.382			0.197			0.199			0.128			0.130		
Range 1	25			20			48			60			59.83			57			47			48			51		
Range 2	88			84			153			152			145			194			64			203			118		
Block Discretization	5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4		
Drillhole Limit	4			4			4			4			4			4			4			4			4		

Table 8 Search parameters of Saprolite

Parameter	**Ni**			**Co**			**Fe**			**MgO**			**SiO2**			**Al2O3**			**Cr2O3**			**CaO**			**MnO**		
	Pass 1	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**	**Pass 1**	**Pass 2**	**Pass 3**
Minimum Sample	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1	5	3	1
Maximum Sample	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Max. Search Radius	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320	80	160	320
Max. Vertical Distance	4	8	16	4	8	16	4	8	16	4	8	16	4	8	16	4	8	16	4	8	16	4	8	16	4	8	16
Dip	0			0			0			0			0			0			0			0			0		
Dip Azimuth	0			0			0			0			0			0			0			0			0		
Pitch	22			90			90			90			90			90			90			90			90		
Major/Semi-major 1	0.771			1.115			1.000			1.000			1.000			1.419			1.021			1.125			1.074		
Major/Semi-major 2	1.000			1.327			1.183			1.850			1.000			0.851			1.000			1.000			1.950		
Major/Minor 1	7.400			6.444			7.750			6.000			4.800			14.167			12.250			60.000			10.744		
Major/Minor 2	10.000			14.600			19.400			15.857			20.333			23.500			13.333			17.500			23.400		
Nugget	0.161			0.221			0.100			0.081			0.276			0.111			0.234			0.152			0.146		
Structure 1	0.356			0.445			0.637			0.521			0.458			0.494			0.477			0.525			0.727		
Structure 2	0.317			0.349			0.300			0.414			0.250			0.292			0.290			0.211			0.110		
Range 1	74			29			31			30			24			85			49			72			48.35		
Range 2	120			73			97			111			122			188			80			245			117		
Block Discretization	5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4			5 X 5 X 4		
Drillhole Limit	4			4			4			4			4			4			4			4			4		

1.6. Blockmodel Validation

1.6.1. Visual Validation

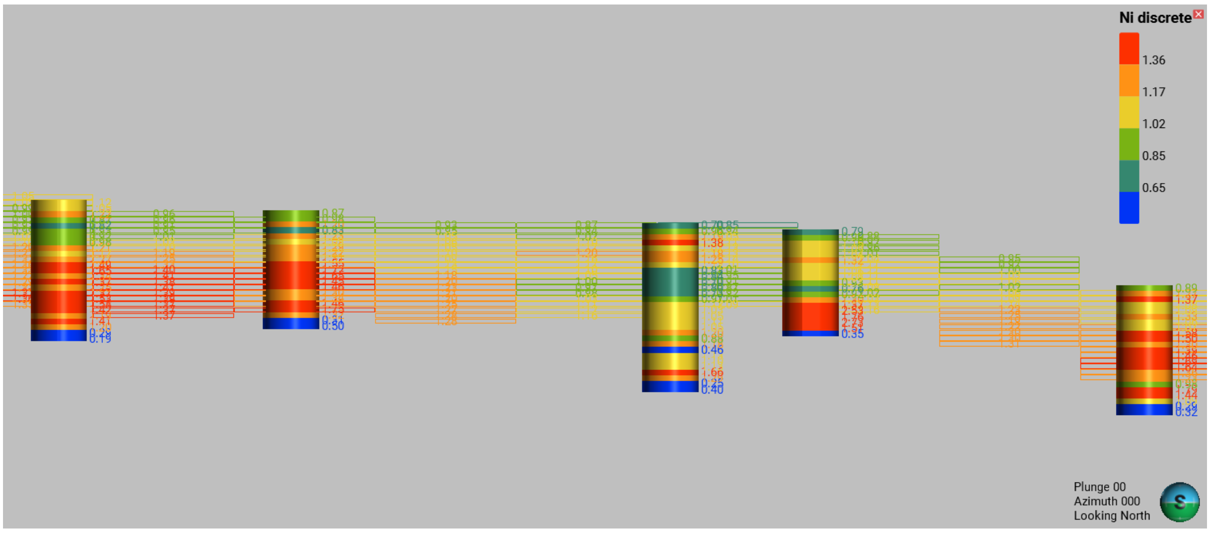


Figure 34 Visual validation for Ni Limonite

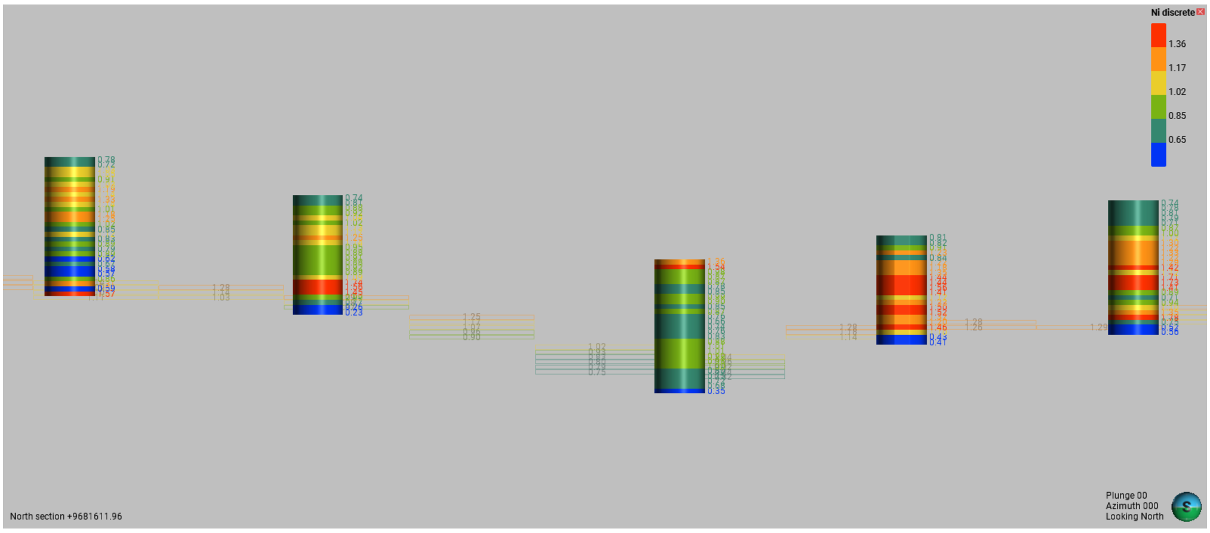


Figure 35 Visual validation for Ni Saprolite

1.6.2. Swath Plot

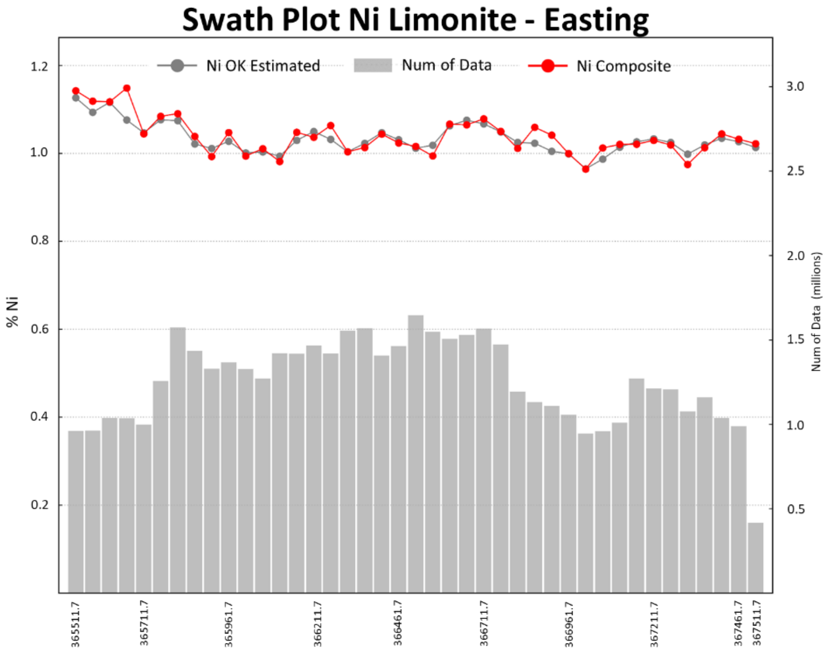


Figure 36 Swath plot of Ni Limonite – Easting

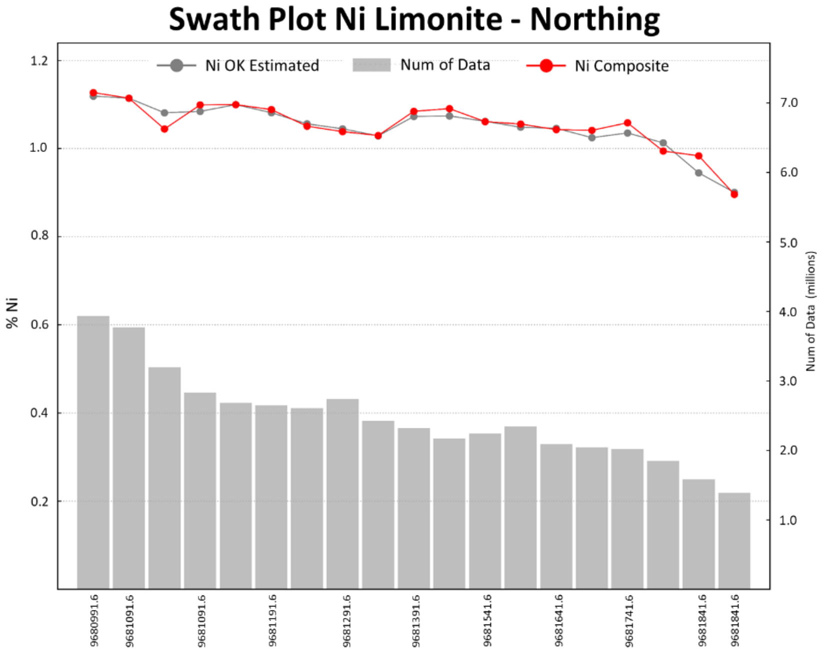


Figure 37 Swath plot of Ni Limonite – Northing

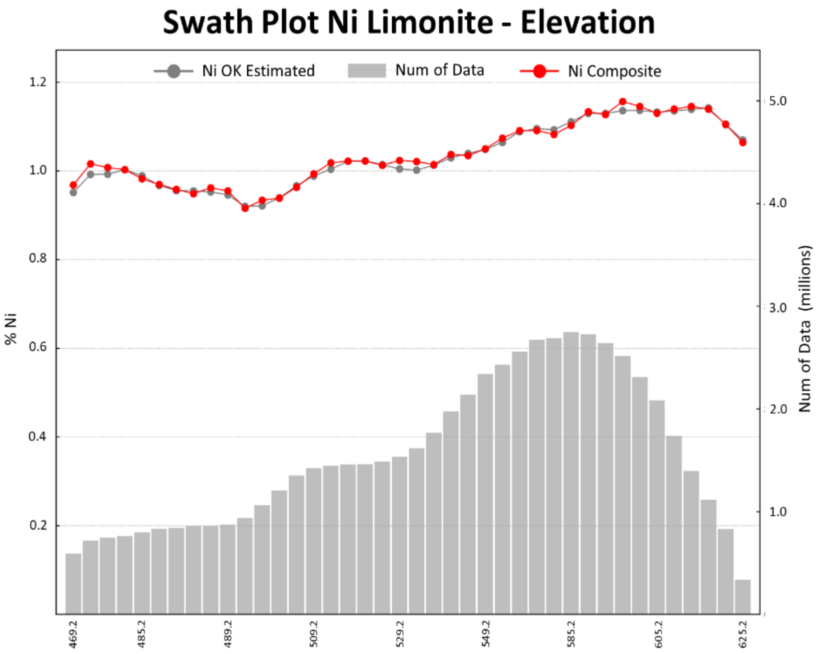


Figure 38 Swath plot of Ni Limonite – Elevation

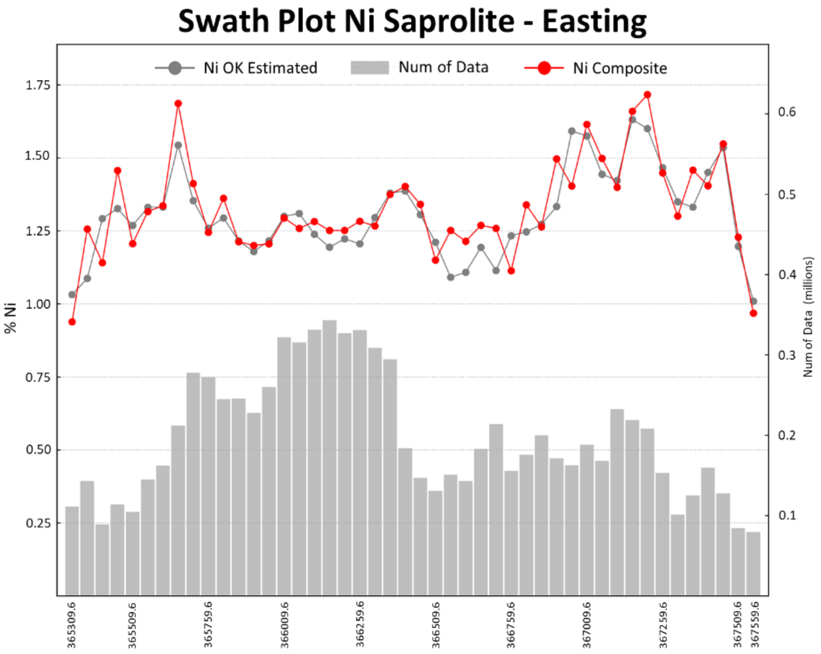


Figure 39 Swath plot of Ni Saprolite – Easting

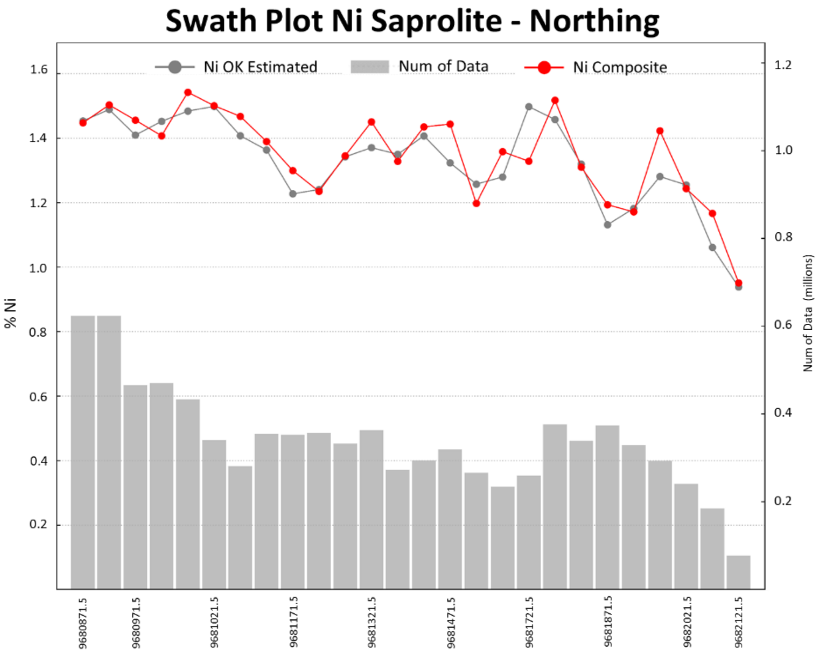


Figure 40 Swath plot of Ni Saprolite – Northing

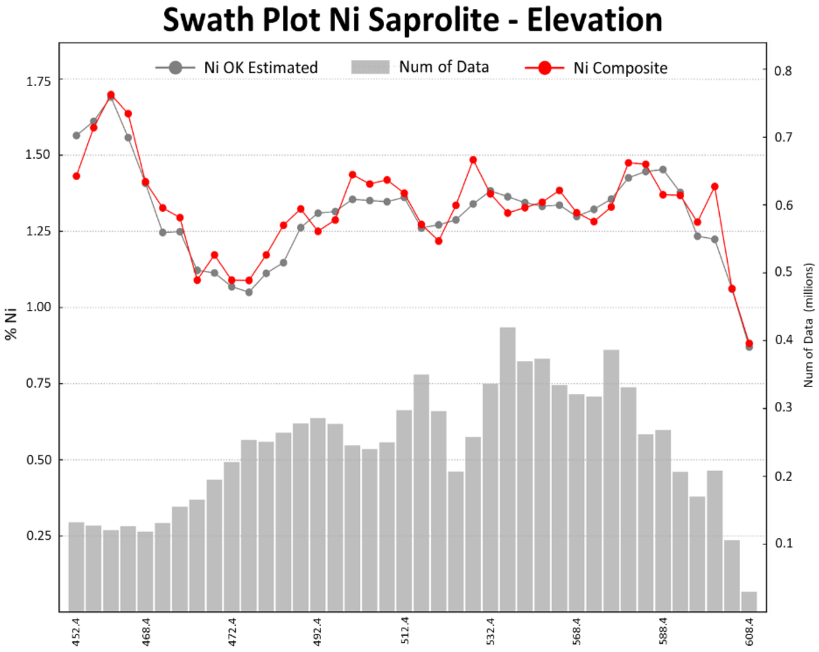


Figure 41 Swath plot of Ni Saprolite – Elevation

1.7. Resource Estimation

1.7.1. Grade Tonnage

Table 9 Limonite estimated Resource breakdown

LIMONITE - GLOBAL MINERAL RESOURCE ESTIMATE											
GRADE CUT-OFF RANGE	MINERAL RESOURCE	XRF (DRY ANALYSIS)									Relative Density (sg Wet)
	MILLION TONNES (Wet)	Ni %	Co %	Fe %	MgO %	SiO2 %	SM Ratio	Al2O3 %	Cr2O3 %	CaO %	MnO %	
≥0.2	115.56	1.01	0.11	40.54	7.24	1.87	0.26	11.83	2.83	0.11	1.03	1.76
≥0.3	115.55	1.01	0.11	40.54	7.24	1.87	0.26	11.83	2.83	0.11	1.03	1.76
≥0.4	115.33	1.01	0.11	40.55	7.24	1.88	0.26	11.82	2.83	0.11	1.03	1.76
≥0.5	113.55	1.02	0.11	40.63	7.13	1.87	0.26	11.78	2.85	0.11	1.04	1.76
≥0.6	109.16	1.04	0.11	40.80	6.91	1.86	0.27	11.70	2.87	0.11	1.06	1.76
≥0.7	103.06	1.06	0.11	40.93	6.74	1.85	0.27	11.61	2.89	0.10	1.08	1.76
≥0.8	93.79	1.09	0.11	40.97	6.67	1.86	0.28	11.52	2.91	0.10	1.12	1.76
≥0.9	81.51	1.13	0.12	40.86	6.84	1.91	0.28	11.40	2.92	0.10	1.16	1.76
≥1.0	64.44	1.18	0.12	40.70	7.09	2.00	0.28	11.22	2.94	0.11	1.21	1.76
≥1.1	43.66	1.24	0.12	40.53	7.41	2.10	0.28	10.96	2.97	0.12	1.27	1.76
≥1.2	23.95	1.31	0.13	40.13	8.10	2.30	0.28	10.63	2.99	0.13	1.34	1.76
≥1.3	10.19	1.39	0.13	39.61	9.09	2.57	0.28	10.16	3.01	0.14	1.39	1.76
≥1.4	3.46	1.49	0.13	38.81	10.43	2.96	0.28	9.65	2.99	0.17	1.43	1.76
≥1.5	1.16	1.59	0.13	37.86	11.90	3.34	0.28	9.22	2.96	0.18	1.48	1.76
≥1.6	0.39	1.69	0.13	36.69	13.44	3.75	0.28	8.92	2.88	0.21	1.52	1.76
≥1.7	0.14	1.79	0.13	36.32	14.18	3.92	0.28	8.61	2.86	0.21	1.54	1.76
≥1.8	0.04	1.91	0.13	35.44	15.69	4.26	0.27	8.14	2.82	0.23	1.50	1.76
≥1.9	0.02	1.99	0.13	35.60	15.41	4.08	0.27	8.32	2.76	0.20	1.62	1.76

Table 10 Saprolite estimated Resource breakdown

SAPROLITE - GLOBAL MINERAL RESOURCE ESTIMATE											
GRADE CUT-OFF RANGE	MINERAL RESOURCE	XRF (DRY ANALYSIS)									Relative Density (sg Wet)
	MILLION TONNES (Wet)	Ni %	Co %	Fe %	MgO %	SiO2 %	SM Ratio	Al2O3 %	Cr2O3 %	CaO %	MnO %
≥0.2	19.01	1.23	0.04	17.33	12.69	35.68	2.81	6.43	1.36	1.57	0.43	1.6
≥0.3	19.01	1.23	0.04	17.33	12.69	35.68	2.81	6.43	1.36	1.57	0.43	1.6
≥0.4	19.01	1.23	0.04	17.33	12.68	35.68	2.81	6.43	1.36	1.57	0.43	1.6
≥0.5	18.91	1.23	0.04	17.33	12.70	35.68	2.81	6.41	1.36	1.57	0.43	1.6
≥0.6	18.44	1.25	0.04	17.34	12.73	35.64	2.80	6.36	1.36	1.56	0.43	1.6
≥0.7	17.65	1.28	0.04	17.34	12.81	35.54	2.78	6.31	1.36	1.56	0.43	1.6
≥0.8	16.51	1.31	0.04	17.33	12.86	35.50	2.76	6.27	1.37	1.56	0.43	1.6
≥0.9	14.84	1.36	0.04	17.35	12.91	35.31	2.73	6.25	1.37	1.56	0.43	1.6
≥1.0	13.10	1.42	0.04	17.33	13.00	35.19	2.71	6.22	1.37	1.56	0.43	1.6
≥1.1	11.22	1.48	0.04	17.27	13.15	35.14	2.67	6.13	1.37	1.54	0.43	1.6
≥1.2	9.31	1.55	0.04	17.21	13.32	35.15	2.64	5.95	1.36	1.51	0.43	1.6
≥1.3	7.47	1.62	0.04	17.14	13.51	35.20	2.61	5.75	1.36	1.46	0.43	1.6
≥1.4	5.61	1.71	0.04	17.05	13.70	35.33	2.58	5.51	1.36	1.40	0.43	1.6
≥1.5	4.18	1.80	0.04	17.05	13.84	35.39	2.56	5.29	1.36	1.33	0.43	1.6
≥1.6	3.05	1.90	0.04	16.98	14.05	35.51	2.53	5.05	1.36	1.27	0.43	1.6
≥1.7	2.24	1.99	0.04	17.01	14.14	35.60	2.52	4.90	1.37	1.23	0.43	1.6
≥1.8	1.63	2.08	0.04	16.98	14.25	35.81	2.51	4.75	1.36	1.17	0.43	1.6
≥1.9	1.15	2.18	0.04	17.00	14.23	36.05	2.53	4.59	1.37	1.10	0.44	1.6

Table 11 All nickel laterite estimated Resource breakdown

LIMONITE AND SAPROLITE - GLOBAL MINERAL RESOURCE ESTIMATE												
GRADE CUT-OFF RANGE	MINERAL RESOURCE	XRF (DRY ANALYSIS)										Relative Density (sg Wet)
	MILLION TONNES (Wet)	Ni %	Co %	Fe %	MgO %	SiO2 %	SM Ratio	Al2O3 %	Cr2O3 %	CaO %	MnO %	
≥0.2	134.57	1.04	0.10	37.26	8.01	6.65	0.83	11.07	2.62	0.32	0.95	1.74
≥0.3	134.56	1.04	0.10	37.26	8.01	6.65	0.83	11.07	2.62	0.32	0.95	1.74
≥0.4	134.34	1.04	0.10	37.26	8.01	6.66	0.83	11.06	2.63	0.32	0.95	1.74
≥0.5	132.46	1.05	0.10	37.30	7.93	6.70	0.85	11.01	2.63	0.32	0.95	1.74
≥0.6	127.60	1.07	0.10	37.41	7.75	6.74	0.87	10.93	2.65	0.32	0.97	1.74
≥0.7	120.71	1.09	0.10	37.48	7.63	6.78	0.89	10.84	2.67	0.32	0.99	1.74
≥0.8	110.30	1.13	0.10	37.43	7.60	6.90	0.91	10.73	2.68	0.32	1.01	1.74
≥0.9	96.35	1.17	0.10	37.24	7.77	7.06	0.91	10.61	2.68	0.33	1.04	1.74
≥1.0	77.54	1.22	0.11	36.75	8.09	7.60	0.94	10.38	2.68	0.36	1.08	1.73
≥1.1	54.88	1.29	0.11	35.77	8.58	8.86	1.03	9.97	2.64	0.41	1.10	1.73
≥1.2	33.26	1.38	0.10	33.72	9.56	11.49	1.20	9.32	2.54	0.51	1.08	1.72
≥1.3	17.66	1.49	0.09	30.10	10.96	16.38	1.49	8.29	2.31	0.70	0.98	1.69
≥1.4	9.07	1.63	0.08	25.35	12.45	22.99	1.85	7.09	1.98	0.93	0.81	1.66
≥1.5	5.34	1.76	0.06	21.57	13.42	28.43	2.12	6.15	1.71	1.08	0.66	1.63
≥1.6	3.43	1.88	0.05	19.19	13.98	31.94	2.28	5.48	1.53	1.15	0.55	1.62
≥1.7	2.38	1.98	0.05	18.13	14.14	33.76	2.39	5.11	1.45	1.17	0.50	1.61
≥1.8	1.67	2.08	0.05	17.44	14.29	35.02	2.45	4.84	1.40	1.15	0.46	1.60
≥1.9	1.17	2.17	0.05	17.28	14.25	35.57	2.50	4.64	1.39	1.09	0.45	1.60

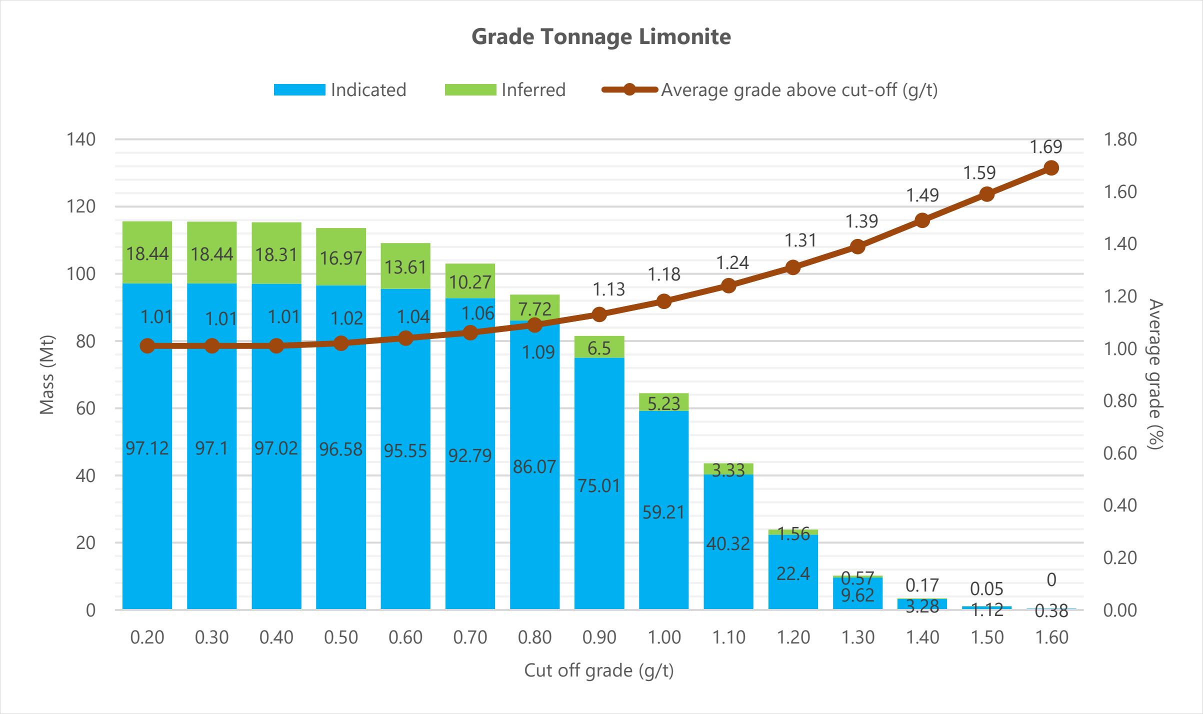


Figure 42 Grade Tonnage of Limonite

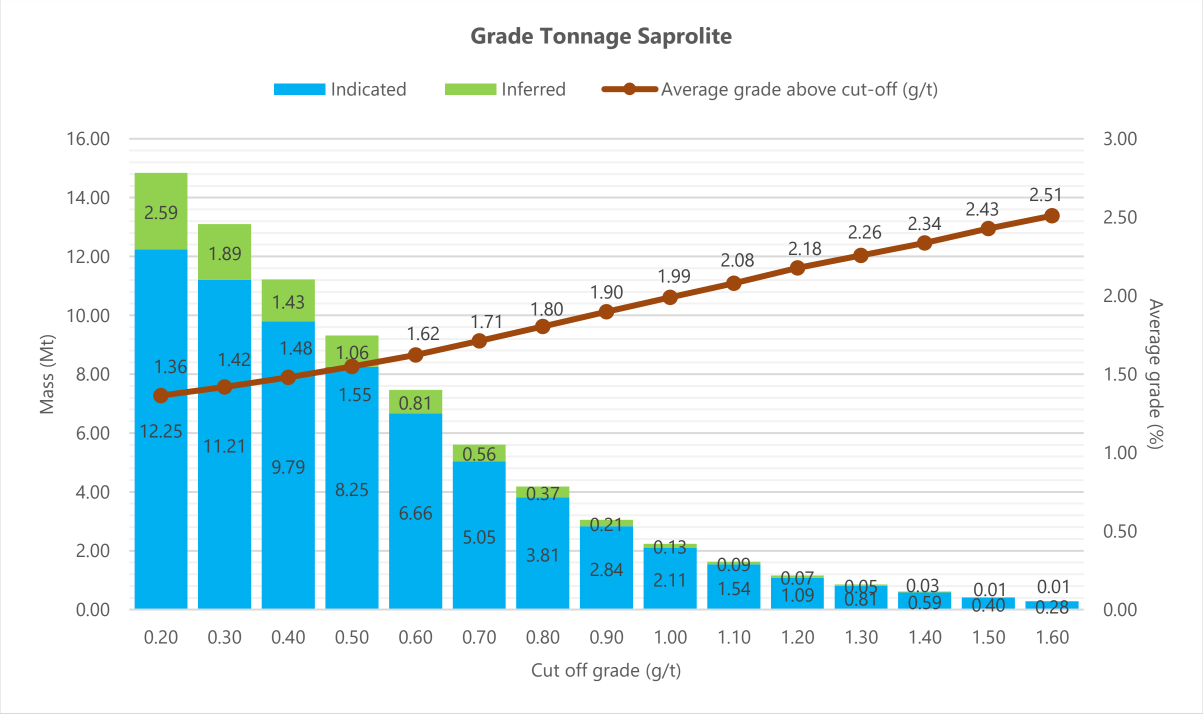


Figure 43 Grade Tonnage of Saprolite

1.7.2. Resource Estimation

Table 12 Resource summary estimated for ETL Nickel Project

Layer	Category	Mass	Ni	Co	Fe	SiO2	MgO	Cr2O3	Al2O3	MnO	CaO	Material Content
												Ni
		Mt	%	%	%	%	%	%	%	%	%	Mt
LIM (CoG 0.8%)	Indicated	86.07	1.09	0.11	40.97	6.60	1.85	2.91	11.56	1.12	0.10	0.94
	Inferred	7.72	1.07	0.11	40.92	7.50	2.02	2.94	11.03	1.08	0.13	0.08
	Total	93.79	1.09	0.11	40.97	6.67	1.86	2.91	11.52	1.12	0.10	1.03
SAP (CoG 1.3%)	Indicated	6.66	1.63	0.04	17.11	35.07	13.55	1.36	5.79	0.42	1.48	0.11
	Inferred	0.81	1.54	0.04	17.45	36.33	13.22	1.37	5.34	0.46	1.27	0.01
	Total	7.47	1.62	0.04	17.14	35.20	13.51	1.36	5.75	0.43	1.46	0.12
Total	**Indicated**	**92.73**	**1.13**	**0.10**	**39.26**	**8.64**	**2.69**	**2.80**	**11.15**	**1.07**	**0.20**	**1.05**
	Inferred	**8.53**	**1.11**	**0.10**	**38.69**	**10.24**	**3.08**	**2.79**	**10.49**	**1.02**	**0.24**	**0.10**
	Total	**101.26**	**1.13**	**0.10**	**39.21**	**8.77**	**2.72**	**2.80**	**11.09**	**1.07**	**0.20**	**1.15**

APPENDIX 5

RESUME OF COMPETENT PERSONS AND CONTRIBUTING AUTHORS

DANIEL MADRE , MSc (GEOLOGY)

EXPLORATION SPECIALIST

Summary

Daniel Madre has been an Australian coal and mineral geologist since 1980, with full time work experience in Indonesia since 1988. He is specialist in exploration and for this reason is familiar with most coal and mineral projects in the country since their earliest stage of development. He has a diverse network of professionals throughout the industry. Daniel has a Master of Science degree in Geology. Daniel Madre is a member of the Australasian Institute of Mining and Metallurgy (no: 100878), the Australian Institute of Geoscientists (no: 5632), Ikatan Ahli Geologi Indonesia (no: 5000) and Masyarakat Geologi, Ekonomi Indonesia (no: B-0718). Daniel is a Competent Person in Indonesia for KCMI Code for Coal Resources.

Daniel runs a successful exploration consultancy and has in-house capabilities that range from geology, geophysics, drilling, geological modelling, mine design and planning. The company has discovered coal in East Kalimantan and Sumatra which has resulted in numerous coal mine developments. The company is formally registered by the Indonesian Department of Minerals and Energy to carry out exploration surveys and report coal and mineral resources.

Since 2005, the company diversified into nickel and mineral sands exploration and resource development. This work resulted in the development of the first nickel mine in Kalimantan. Other nickel projects investigated by the company are located in Sulawesi, Halmahera and Papua. Mineral sands projects have been investigated in Sumatra and Papua.

Commodities

Coal, oil shale, nickel laterites, phosphate, gold, manganese and mineral sands

Countries

Indonesia, Australia, USA, PNG, Kenya

Experience

Nov, 2000 - present PT Danmar Explorindo Jakarta, Indonesia
Managing Director
1996–Nov 2000 Independent Consultant Jakarta, Indonesia
Consultant Geologist
1988–1996 PT Petrosea Jakarta, Indonesia
Manager of Geology
1982–1988 Greenvale/Esperance group Sydney, Australia
Exploration Manager
1981–1982 Oil Refining & Exploration PL Sydney, Australia
Field geologist
1980 – 1981 NSW Coastal Engineers Sydney, Australia
Lab attendant

Education

1986- 1989 University of Wollongong Australia
Master of Science (geology)
1978- 1980 University of Sydney Australia
Bachelor of Science (geology and marine science)

Some Articles & Publications

- 1987, The Geology of the Alpha Oil Shale Deposit, Fuel, Vol.66, Butterworths UK
- 1990, Torbanite Deposits of the World, Thesis: University of Wollongong
- 2000, Coal Geology of the Bengkulu Block, Journal Asian Earth Science, Elsevier Advances in Sedimentology Series, Elsevier Special editions
- 2005, Coal Geology of the Bengkulu Block. Proc. SE Asian Coal Geology Conference, Bandung
- 2012, Coal Deposits of Sumatra, Coal Trans Conference Bali
- 2012, Low Rank Coal Deposits of Indonesia, Coal Trans Conference Bali
- 2013, Tectonic Framework of Sumatra & the Distribution of Coal Deposits, Ozmine Conference, Jakarta
- 2014, Coal Potential of Sumatra, Coal Markets Workshop, Singapore
- 2014 Adding Value Through Optimizing Exploration Techniques, 2nd Asian Nickel Conference
- 2014 Coal Potential of Sumatra, World Coal Magazine volume 23
- 2016 The Exploration Potential of Sumatra, Sumatra Miner Conference, Palembang Sumatra
- 2016 Why Things are Improving in the Indonesian Coal Industry, RTC Kalimantan, Conference Balipapan, Indonesia
- 2019 The Coal and Mineral Potential of Sumatra, Sumatra Miner Conference, Palembang Sumatra

Resume

Name: Tobias Geoffrey Maya
Date of Birth: 26 March 1981
Marital Status: Married
Nationality: Australian

Address: Jl. H. Saidi II No. 16 RT.011 RW.07,
Cipete Utara, Kebayoran Baru,
Jakarta Selatan 12150,

Mobile: (+62) 0812 3869379 ;
Email : tobiasmaya@yahoo.com.au
tobias.maya@danmar.asia

Since 2004, Tobias has been working full time in the Indonesian coal and minerals exploration industry specializing in exploration geology, regional mineral studies, due diligence work, database validation and resource development. Tobias has a Bachelor of Science degree from the Charles Sturt University in NSW, Australia. He has also held a membership with the AusIMM since 2009.

Tobias has more than 18 years exploration experience throughout the country. This work includes the exploration and development of numerous nickel laterite projects. providing a key role in the optimization of exploration techniques that can be used to minimize costs & maximize project value, increasing confidence in estimation of Nickel laterite volumes to determine what are the controlling factors for project development within Indonesian deposits.

EDUCATION AND TRAINING

2006-2013	Completed BSc with major in Spatial Science with 2 minors in information technology and management Charles Sturt University, Wagga Wagga, NSW
2013	Certificate for successful completion of Valuation and Technical-Economic Assessment of Mining Projects, SRK Consultancy
2009	Certificate for successful completion of Mining and Minerals optimization course, Whittle Consultancy
1999-2001	Completed Geographic Information Systems (GIS)Diploma Wollongong TAFE
1998	Higher School Certificate; Bulli High School
1996	School Certificate; Bulli High School
1994	St Johns Ambulance First Aid Certificate

MEMBERSHIP OF PROFESSIONAL ORGANIZATIONS

Since 2009	Member of the AusIMM (No.304661)

EMPLOYMENT & WORK EXPERIENCE

2013 – Present **PT. Geo Search (full-time) part of the Danmar Group**

- President Director.
- Geophysical surveys
- Principle Geological consultant to PT Danmar Explorindo

2004 – 2013 **PT. Danmar Explorindo (full-time)**

- Head GIS/Resource Geologist (SURPAC).
- Management Coal and Mineral Exploration, (Drilling, Survey, Resource Estimates).
- Business development / client relationship manager
- Mine Reconciliations of Ongoing operations (monthly)
- Database validation (JORC)
- Training Personnel in Software (SURPAC, GIS,).
- Drafting JORC reports under Principle Mr Daniel Madre, MSc (AusIMM member - 100878)

Provided above Consultancy services for following projects:

2018-present **PT.Hengjaya Mineralindo (HM) -** Morowali, Sulawesi. for **Nickel Industries Limited (ASX : NIL)**
-Laterite Nickel Exploration and database validation
-Resource Geology assessments
-Mine planning and production reconciliations
-UltraGPR survey 265km
-JORC (2012) compliant reports 2020 & 2022

2018-present **PT.Halmahera Sukses Minerals (HSM)** - Halmahera, Maluku.
-Laterite Nickel Exploration and database validation
-Resource Geology assessments
-UltraGPR survey 75km

2018-Present **PT.Sulawesi Cahaya Mineral (SCM)** – North Konawe, Sulawesi
-Laterite Nickel Exploration and Project support
-UltraGPR survey 2,000km

2020-Present **PT.Iriana Mutiara Mining (IMM) -** Sarmi, Papua for **Nickel Industries Limited (ASX : NIL)**
- Laterite Nickel Exploration and database validation
-Resource Geology assessments
-UltraGPR survey 185km

2022-Present **PT.Vale Indonesia (PTVI)** – Sorowako, Sulawesi
-Laterite Nickel Exploration and Project support
-UltraGPR survey 300km

2020-Present	**PT.Abadi Nikel Nusantara (ANN) -** Routa, Sulawesi for **Nickel Industries Limited (ASX : NIL)** - Laterite Nickel Exploration and database validation -Resource Geology assessments -UltraGPR survey 485km
2018-Present	**PT.Kumamba Mining (KM**) **-** Sarmi, Papua, Indonesia -Exploration management and database validation - Geology assessments - Trial UltraGPR survey 30km - Trial Ground Magnetometer survey 30km
2019-2021	**PT.Bumi Liputan Teknik (BLT)** - Ketapang, West kalimantan -Laterite Bauxite Exploration and project Due diligence -UltraGPR survey 80km
2017-2019	**PT.Sarana Mineralindo Perkasa (SMP) -** Morowali, Sulawesi.. - Laterite Nickel Exploration and database validation -Resource Geology assessments -Mine planning and pit optimization -UltraGPR survey 85km
2017-2018	**PT.Ceria Nugraha Indotama (CNI)** - Kolaka, Sulawesi.. -Laterite Nickel Exploration and database validation -UltraGPR survey 175km
2017-2018	**PT.Tiga Samudra Perkasa (TPS)** - Malili, Sulawesi -Laterite Nickel Exploration and database validation -Resource Geology assessments -UltraGPR survey 75km
2005-2019	**PT.Ratu Samban Mining (RSM) -** Bengkulu, Sumatra. -Thermal Coal Exploration management and database validation -Resource Geology assessments -Mine planning and production reconciliations -Nedo regional study 2011 -Jogmec regional study 2013 -Bathymetric survey
2009-2018	**PT.Gunung Bara Utama (GBU) -** Kutai Barat, East Kalimantan. -Thermal Coal Exploration management and database validation -Resource Geology assessments -Pre-JORC study 2010 -JORC (2004) compliant reports 2011 & 2012
2005-2011	**PT.Itamatra Nusantara (ITM) -** Morowali, Central Sulawesi. -Laterite Nickel Exploration management and database validation -Resource Geology assessments -Bathymetric survey

2004-2010 **PT.Telen Indoclay (TIC) Long Ikis Nickel -** Pasir, East Kalimantan
-Laterite Nickel Exploration management
-database validation
-Resource Geology assessments
-Mine Construction and Production
-Mine planning, Grade control and production reconciliations -
-Bathymetric survey

2010-2016 **PT.Trisula Kencana Sakti (TKS) -** Barito Utara, Central Kalimantan
for **Golden Energy Mines (GEMS)**
-Thermal Coal Exploration management and database validation
-Resource Geology assessments
-JORC (2004) compliant reports 2010 & 2012
-JORC (2012) compliant reports 2013

2010-2018 **PT.Moa Maju Kurina Utama (MMKU) -** Bulungan, North Kalimantan
-Lignite Exploration management and database validation
-Resource Geology assessments
-Mine planning
-JORC (2004) compliant reports 2010 & 2011
-JORC (2012) compliant reports 2013

2011-2015 **PT.Delta Samudra (DS) -** Kutai Barat, East Kalimantan
-Lignite Exploration management and database validation
-Resource Geology assessments
-JORC (2004) compliant reports 2013

2012-2018 **PT.Berau Usaha Mandiri (BUM) -** Berau, East Kalimantan
-Lignite database validation
-Resource Geology assessments
-Mine planning

2010-2015 **PT.Inti Putera Kanaan (IPK) -** Musi banyuisn, South Sumatra
-Lignite Exploration management and database validation
-Resource Geology assessments
-Mine planning
-JORC (2004) compliant report 2012

2006-2014 **PT.Mulawarman Putra Abadi Sakti (MPAS) -** East Kalimantan
-PCI Coal Exploration management and database validation
-Resource Geology assessments
-JORC (2012) compliant reports 2014

2011-2013 **PT.Satria Lestari (SL) -** Tenggarong, East Kalimantan
-Thermal Coal exploration management and database validation
- Resource Geology assessment

2013 **Jingella Resources Pty Ltd -** Dingo, Queensland, Australia
-PCI Coal database validation
-Resource Geology assessments

2013	**Greenvale Mining Pty Ltd - (Alpha Oil shale)** Alpha, Queensland, Australia -Torbanite / Cannel Coal database validation -Resource Geology assessments
2013	**PT.Bumi Merapi Energi (BME) -** Lahat, South Sumatra -Thermal Coal database validation -Resource Geology assessments -Mine planning -JORC (2004) compliant report 2012
2010-2012	**PT.Komunitas Bangun Bersama (KBB) -** Samarinda, East Kalimantan -Lignite Resource Geology assessment -JORC (2004) compliant reports 2010 & 2012
2012	**PT.Delma Mining Corporation (DMC) -** Bulungan, North Kalimantan -Lignite database validation -Resource Geology assessments -JORC (2004) compliant report 2012
2012	**PT.Indonesia Pacific Energy (IPE) & PT.Mega Multi Cemerlang (MMC) -** Meulaboh, Aceh Barat & Nagan Raya, Aceh -Lignite database validation -Resource Geology assessments -JORC (2004) compliant report 2012
2012	**Draig Resources Pty. Ltd -** Teeg & Nariin Teeg mining license, ovorhangay Province, Central Mongolia -PCI COAL database validation -Resource Geology assessments -JORC (2004) compliant report 2012
2004-2010	**PT.Tunas Inti Abdai (TIA) -** Tanah Bumbu, South Kalimantan for **ABM investama (ABM)** -Thermal Coal Exploration management and database validation -Resource Geology assessments -JORC (2004) compliant reports 2010 & 2011
2010	**PT.Bukit Utama Sehjatera (BUS) -** Sorong, West Papua -Lignite Exploration management and database validation -Resource Geology assessments
2006-2010	**PT.Mifa Bersaudara (MIFA) & PT.Bara Energy Leastari (BEL)** - Meulaboh, Aceh Barat & Nagan Raya, Aceh -Lignite Exploration management and database validation -Resource Geology assessments -Mine planning -JORC (2004) compliant report 2010

2009 **PT.Bakti Pertiwi Nusantara (BPN)** –
Weda Utara, Central Halmahera, maluku
-Laterite Nickel database validation
-Resource Geology assessments
-JORC (2004) compliant report 2009

2009 **Bildan.Pty.Ltd -** Pulau Talud, North sulawesi
-Manganese Exploration management

2008 **PT.Berau Bara Energy (BBE)** - Berau, East Kalimantan
-Thermal Coal database validation
-Resource Geology assessments
-JORC (2004) compliant report 2008

2007-2008 **PT.Ratu Samban Mining (RSM) -** Krui, Lampung. Sumatra.
-Iron Sand Exploration management

2006-2008 **PT.Tekno Marina Cipta (TMC)** - Kota Bangun, East Kalimantan
-Thermal Coal Exploration management and database validation
-Resource Geology assessments

2004-2007 **CV. Gudang Hitam Prima (GHP/BBM) -** Sanga Sanga Coal Mine, Samarinda, East Kalimantan
-Thermal Coal Exploration management and database validation
-Resource Geology assessments
-Mine planning and production reconciliations

2006 **PT.Borneo Indobara (BIB) -** Tanah Bumbu, south kalimantan for SINAR MAS MINING
- Project Due diligence study Grimulya Block

2004-2006 **PT. Multi Prima Energy (MPE) -** Loa Raya Coal Mine, Tenggarong, East Kalimantan.
-Thermal Coal Exploration management and database validation
-Resource Geology assessments
-Mine planning and production reconciliations

Previous Employment

1999- 2004 Natural Beauty Floor Sanding (full-time)

- Surface preparation; punch & fill, sanding & edging
- Applying coating products

September 2000 Hydrographic Sciences Australia (2 weeks work experience)

- Re-editing Hydrographic charts
- Hydrographic chart compilation
- Sounding selection

CONFERENCE PAPER PRESENTATIONS

August 2022	**"Nickel Laterites – Adding Value by Optimizing Exploration"** - Nickel Summit by Indonesia Miner, Jakarta, Indonesia
November 2018	**"Indoneisa, Hi-CV coal supply?"** - 7th annual Coaltrans Emerging Asia Markets, Hanoi, Vietnam
May 2018	**" Developing efficiency in the Indonesian coal supply chain"** - 24th annual Coaltrans Asia, Bali,
September 2017	" **Exploration potential for new Nickel supplies in Indonesia”** - Metal Bulletin: 5th Asian Nickel Conference, Jakarta,
July 2016	**" Which Indonesian coal energy projects will attract Korean investors through 2020?"** - Korea Coaltrans Asia, Seoul,
March 2015	**"The Coal Potential of Sumatra"** - Sumatra Miner 2015 conference
September 2014	**"Adding value through optimizing exploration techniques"** - 2nd Asian Nickel Conference
December 2012	**"Low Rank Coal Deposits of Indonesia"** - IHS Mcloskey Asia Pacific Coal Outlook Conference 2012, Bali
June 2012	**"The Coal Deposits of Sumatra"** - 18th annual Coaltrans Asia, Bali

SOFTWARE EXPERIENCE

- SURPAC Mining software – Expert Knowledge of Geodatabase, Surface modelling, Block Modelling, Pit optimisation, Pit design modules.
- WHITTLE Pit optimisation Software – good knowledge of Pit optimisation procedure and analysis of results
- ArcGIS 9.3 GIS Software – Good knowledge of Spatial interpolation techniquies and map design
- MapINFO, Global mapper and Surfer GIS software
- Microsoft 7-10, VISTA, XP and NT operation systems
- Microsoft office 2003, 2007 & 2010 Word, Excel, Access, Powerpoint
- Adobe acrobat 8 Professional
- AutoCAD 2009

REFERENCES

Daniel Madre (Director)
PT.Danmar Explorindo
SANUR, BALI
Ph. +62 81 23851151
daniel.madre@danmar.asia

YORRIS WIBRIANA

Resource Geologist, Competent Person Indonesia

yorris.wibriana@danmar.asia | +62-8122-1795-84

PROFILE

I am qualified as Competent Person Indonesia (CPI) for public reporting of Coal Exploration and Resource Estimation under KCMI Code with more than 19 years of professional experience in geological exploration and mining development across Indonesia. I have strong knowledge in exploration data validation, geological modelling, geostatistics and Resource estimation for several mining commodities.

SKILLS

- Minescape Stratmodel (5/5)
- Qgis & Arcgis (4/5)
- Surpac (3/5)
- Leapfrog Geo(5/5)
- MySQL and PostgreSQL Database (4/5)

EDUCATION

Bachelor of Geological Engineering, Padjadjaran University Indonesia
Graduated 2004

AWARDS

Best Technical Discovery in IAGI Exploration Award 2021

WORK EXPERIENCE

- PT DANMAR EXPLORINDO (2021 – current)
  Resource Estimation, Geological Exploration Manager
- PT BARAMULTI SUGIH SENTOSA (2020 – 2021)
  Senior Geologist, Mining Business Development
- PT DANMAR EXPLORINDO & PT GEOSEARCH (2015 – 2020)
  Resource Estimation, Geological Exploration Manager
- PT MINESERVE CITRA TEKNIK (2012 – 2015)
  Coal Resource & Geological Exploration
- PT CSA GLOBAL (2012)
  Coal Resource Geologist
- PT RIDA JAYA MANDIRI (2011 – 2012)
  Coal Resource Geologist
- PT MINESERVE CITRA TEKNIK (2007- 2011)
  Field & Coal Resource Geologist, Short term mine planning
- PT KALTIM BATU MANUNGGAL (2006 – 2007)
  Coal Pit Geologist
- PT BUMI MAKMUR SELARAS (2005 – 2006)
  Nickel Geologist

GEOLOGICAL MODELING & EXPLORATION REPORT

1. **PT Halmahera Sukses Mineral, Halmahera (2023)**
   Geological modeling and contributor to Nickel Resource Estimation Report (JORC Report)

2. **PT Iriana Mutiara Mining (2023)**
   Geological modeling and contributor to Nickel Resource Estimation Report (JORC Report)

3. **PT Ratu Samban Mining (Blok 9), Bengkulu (2023)**
   Geological modeling and Author of Coal Exploration and Resouce Estimation Report (KCMI Report)

4. **PT Komunitas Bangun Bersama, East Kalimantan (2022)**
   Geological modeling and Author of Coal Exploration and Resource Estimation Report (KCMI Report)

5. **PT Petroindo Utama (2021)**

   PT Multi Tambangjaya Utama (MUTU) Due Diligence of Remaining Coal Resources and Reserves Report (Author)

6. **PT Pada Idi, East Kalimantan (2021)**
   Geological modeling and Author of Coal Exploration and Resource Estimation Report (KCMI Report)

7. **PT Chaido Mega Mineral, East Kalimantan (2021)**
   Author of Preliminary Coal Mapping Report (SNI Report)

8. **PT Borneo Indo Bara, South Kalimantan (2021)**

   Geological model validation and Author of Coal Resource Estimation Report (KCMI Report)

9. **PT Dayak Membangun Pratama, Central Kalimantan (2021)**

   Geological model validation and Author of Coal Resource Estimation Report (KCMI Report)

10. **PT Bima Putra Abadi Citranusa, South Sumatera (2021)**

    Geological model validation and Contributor to Coal Resource Estimation Report (JORC Report)

11. **PT Komunitas Bangun Bersama, East Kalimantan (2019)**

    Geological modeling and Author of Coal Exploration and Resource Estimation Report (KCMI Report)

12. **PT Bangun Banua Persada Kalimantan (2019)**

    Geological modeling and Author of Coal Exploration and Resource Estimation Report of Block Banta & Batu Tungku (KCMI Report)

13. **PT Dinasty Maha Karya & PT Bukit Eno Persada, East Kalimantan (2018)**

    Geological modeling and Author of Due Diligence Study of KPR Coal Project Report

14. **PT Kalimantan Energi Lestari, South Kalimantan (2018)**

    Geological modeling and Author of Coal Exploration and Resource Estimation Report (KCMI Report)

15. **PT Gunung Bara Utama, East Kalimantan (2017)**

    Geological modeling and Author of Coal Resource Estimation Report (KCMI Report)

16. **PT Borneo Indo Bara, South Kalimantan (2017)**

    Geological model validation and Author of Coal Resource Estimation Report (KCMI Report)

17. **PT Mantimin Coal Mining, South Kalimantan (2016)**

    Contributor to PT Mantimin Coal Mining Qualified Person's Report of Coal Resources & Reserves of Coal

18. **PT Mantimin Coal Mining, South Kalimantan (2016)**

    Author of Mantimin Coal Mapping Exploration Report

19. **PT Wira Rimba Lestari, South Sumatera (2016)**

    Geological modeling and contributor to PT Wira Rimba Lestari Coal Resource & Reserve Report (JORC Report)

20. **PT Minemex Indonesia, South Sumatera (2015)**

    Geological modeling and contributor to PT Minemex Indonesia Coal Resource & Reserve Report (JORC Report)

21. **PT Bukit Bara Alam, South Sumatera (2013)**

    Geological modeling and contributor to PT Bukit Bara Alam Coal Resource Report (JORC Report)

22. **PT Bara Alam Utama, South Sumatera (2012)**

    Geological modeling and contributor to PT Bara Alam Utama Coal Resource & Reserve Report (JORC Report)

23. **CV Datra Katama Jaya, South Kalimantan (2011)**

    Geological modeling and Author of Coal Resource & Reserve Report

24. **PT Laskar Semesta Alam, South Kalimantan (2011)**

    Geological modeling and Author of Coal Exploration & Resource Estimation Report

25. PT Rida Jaya Mandiri, West Kalimantan (2011)

Geological modeling and Author of Coal Exploration & Resource Estimation Report

26. CV Prima Mandiri, East Kalimantan (2011)

Geological modeling and contributor to CV Prima Mandiri Coal Resource & Reserve Report (JORC Report)

27. PT Kartika Sela Bumi Mining, East Kalimantan (2011)

Geological modeling and contributor to PT Kartika Sela Bumi Mining Coal Resource & Reserve Report (JORC Report)

28. PT Bara Indah Lestari, Bengkulu (2010)

Geological modeling and Author of Coal Exploration & Resource Estimation Report

29. PT Nusa Kencana Riau, Riau (2010)

Geological modeling and Author of Coal Exploration & Resource Estimation Report

30. PT Inti Bara Perdana, Bengkulu (2008-2010)

Exploration manager, geological modeling, Coal Exploration & Resource Estimation Report, and short term mine planning

31. PT Dian Rana Petrojasa, South Sumatera (2009)

Geological modeling and Author of Coal Exploration & Resource Estimation Report

32. PT Semesta Centramas, South Kalimantan (2007)

Geological modeling and Author of Coal Exploration & Resource Estimation Report

Harman Adhittyo

Resource Geologist

Jl. Pengantin Ali II No. 26, Ciracas
East Jakarta 13740
DKI Jakarta, Indonesia

Tel (M) : +62 813 1951 3181 (Indonesia)

e-mail : harmanadhittyo@gmail.com

Place and date of birth	: Jakarta, February 6th 1987
Sex	: Male
Religion	: Islam
Marital Status	: Married
Nationality	: Indonesian

Geologist with 8+ years of experience in epithermal low sulphidation deposit and 5 years of experience in modelling and resource estimating nickel laterite deposit. Expertise from exploration to mining. Core competencies include:

Exploration Mapping and Sampling ● Core and RC Logging ● Grade Control Mapping and Sampling ● Wireframing ● Block Modeling ● Resource Estimation ● Database

Professional Experience

PT Danmar Explorindo

Resource Geologist, January 2019 – Present, South Jakarta, DKI Jakarta

Primary Duties Include:

- Responsible for quality control of database
- Responsible for updating database
- Responsible for updating wireframe, composite data, statistics and domaining
- Responsible for updating resource estimation

Sumatra Copper and Gold, Plc.

Mine Geologist, September 2017 – August 2018, Tembang, South Sumatra

Primary Duties Include:

- Responsible for quality control of database
- Responsible for updating wireframe, composite data, data statistics and domaining
- Responsible for updating open pit block model using GCX module in Surpac software
- Responsible for updating underground block model manually in Surpac software
- Responsible for monthly reconciliation report
- Responsible for grade control mapping and sampling (face, floor, wall) in underground
- Responsible for production data (tonnes production, ore to crusher, ore stock)

Harman Adhittyo

Resource Geologist

Jl. Pengantin Ali II No. 26, Ciracas
East Jakarta 13740
DKI Jakarta, Indonesia

Tel (M) : +62 813 1951 3181 (Indonesia)

e-mail : harmanadhittyo@gmail.com

Junior Resource Mine Geologist, January 2016 – September 2017, Tembang, South Sumatra

Primary Duties Include:

- Responsible for quality control of database
- Responsible for updating wireframe, composite data, data statistics and domaining
- Responsible for updating open pit block model using GCX module in Surpac software
- Responsible for updating underground block model manually in Surpac software
- Responsible for monthly reconciliation report
- Responsible for grade control mapping and sampling (trench, blast hole, RC drill, channel) in open pit
- Responsible for grade control mapping and sampling (face, floor, wall) in underground
- Responsible for logging both RC drilling and blast hole drilling
- Responsible for density and moisture sampling project

Junior Mine Geologist, June 2015 – January 2016, Tembang, South Sumatra

Primary Duties Include:

- Responsible for grade control mapping, sampling and geology interpretation
- Responsible for logging both RC drilling and blast hole drilling
- Responsible for plotting data to map
- Responsible for density and moisture sampling project
- Responsible for monthly report to Senior Geologist

Junior Exploration Geologist, July 2012 – June 2015, Lebong Tandai, Bengkulu

Primary Duties Include:

- Responsible for mapping, sampling and geology interpretation
- Responsible for quick logging and detail logging diamond drill
- Responsible for plotting data to map
- Responsible for monthly report to Project Geologist and Senior Geologist
- Supervised activities for fly camp

Junior Exploration Geologist, June 2010 – July 2012, Pasaman, West Sumatra

Primary Duties Include:

- Responsible for mapping, sampling and geology interpretation
- Responsible for quick logging and detail logging diamond drill
- Responsible for plotting data to map
- Responsible for monthly report to Project Geologist and Senior Geologist

Graduate Geologist, April 2010 - June 2010

Harman Adhittyo

Resource Geologist

Jl. Pengantin Ali II No. 26, Ciracas
East Jakarta 13740
DKI Jakarta, Indonesia

Tel (M) : +62 813 1951 3181 (Indonesia)

e-mail : harmanadhittyo@gmail.com

Formal Education

Bachelor of Geological Engineering, Bandung Institute of Technology, Indonesia, 2010

Languages

English	: Enough
Bahasa Indonesia	: Fluent

Computer Software Literacy

MapInfo ● ArcGis ● QGIS ● GlobalMapper ● Microsoft Office Applications ● Surpac ● Micromine ● Minescape ● Leapfrog