

product being suitable for the intended purpose, and the second being “right first time”, where mistakes should be eliminated.

The primary Standard Operating Procedure (SOP) for the samples submitted by the exploration and mining operations at PT HM is the “JIS Method for Sampling and Method of Determination of Moisture Content of Garnierite Nickel Ore” JIS M-8109-1996, by H.Kanazawa, August 1996. This Japanese industrial Standard specifies the following methods for this purpose of determination of the average grade and moisture content of a lot of garnierite nickel ore as follows:

1. Method of taking the sample
2. Method of sample preparation for moisture test sample and quality sample.
3. Method of measuring the moisture content
4. Method of determination of the moisture content and dry mass of the lot.

4.6.1.2 Quality Control

Quality control (QC) is a reactive process of analyzing the data returned from the lab. This is crucial for determining the quality of the data and revealing any deviations from the norm. This step should be conducted during the sampling campaign to ensure any issues are identified and quickly rectified.

A comprehensive quality control program will monitor the different stages of the sampling, preparation and assaying stages with the aim of controlling and minimizing any possible measurement error. This is done at the sample collection and splitting stage through controlling the sampling precision. It continues through the sample preparation and sub-sampling stages through controlling the sub-sampling precision and contamination during preparation. The final stage is controlling the analytical accuracy, analytical precision and contamination during assaying.

Quality Control is ensuring that checks and balances are implemented and are constantly reviewed and assessed, in order to identify whether the sampling /measuring systems and the laboratory are providing quality assays, meaning they are “in control”. In the minerals industry, the checks and balances commonly used to monitor the sample preparation and assaying processes includes standards, blanks and duplicates.

Sterk discusses how geoscientists should be aware of variance, and QA/QC and Acceptance Testing (Reporting and Review) are relevant at every stage of the sample collection, sample preparation and assaying treatment. This is important, and we should assess the QA, QC and AT at each and every sample treatment stages. At HM, these are considered as Primary

Sample, 1st Split, 2nd Split, 3rd Split etc., and Analytical, and a summary of these different stages is given in Section 4.3 of this report. These samples are collected at the HM Sample Prep Lab.

4.6.1.3 Reporting and Review

Continuous reviewing and reporting is important to ensure that processes are monitored for quality in order to identify problems and improve systems, and when identified should be incorporated into protocols for staff to follow.

4.6.1.4 Continuous Improvement

Quality data management should be dynamic, with protocols, procedures and sampling practices undergoing regular examination for continual improvement with the aim of removing sources of error and quality degradation. It is an ongoing process. Current international mining standards such as JORC Code 2012, require that a program of data verification is included with any exploration program to confirm the validity of the exploration data, and this is normally done by inclusion of JORC Code, 2012 Edition – Table 1 Report Template, a copy of which is attached Appendix 1 of this report. By implementing a Quality Assurance/Quality Control (QA/QC) program, it is possible to identify and measure any errors within the system, with the objective of reducing uncertainty within our ore Resource estimates, and adding value to our project, the company and all its stakeholders.

4.7 SAMPLE SECURITY, AUDITS AND REVIEW

Sample core store at the mine office can be locked when unattended and is located in front of the security post which operates 24 hours per day.

A Sample Dispatch Form SOP and construction of a special purpose sample storage facility, adjacent to the Sample Prep Lab at the port, ensures samples are properly recorded and duplicates stored for future reference if required. Sample store at the port is locked when unattended and is adjacent to a security post that has 24 hour security.

5 RESULTS

5.1 GPR SURVEY

Ultra GPR surveys to date and the results are summarized as shown in Table 8.

Table 8 Ultra GPR survey summary

IPPKH AREA	PROSPECT AREA	Survey area (Ha)	Total Traverse Lines	Total UltraGPR Survey Length (km)
IPPKH 1	BETE BETE EXTENSION	94	40	37
IPPKH 2	BETE BETE EAST	107	27	22
IPPKH 2	BETE SOUTH / CENTRAL WEST	472	66	100
IPPKH 1	BETE WEST (MIA)	175	33	38
IPPKH 2	CENTRAL EAST	204	55	39
IPPKH 1	BETE FAR WEST	259	47	52
IPPKH 3	CENTRAL EAST / CENTRAL WEST	727	95	156
IPPKH 5	CENTRAL NORTH / BETE WEST	395	95	84
Total		2434	458	529

The survey lines shown in Figure 12 below. The Ultra GPR 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 2,434Ha. The nominal spacing between radar lines was approximately 100m with some 50m spacing in the Bete Bete mining area. The Ultra GPR survey grid, where possible, is in the same location as the drill lines. Table 9 shows the resulting interpretation for laterite volumes using the Ultra GPR data.

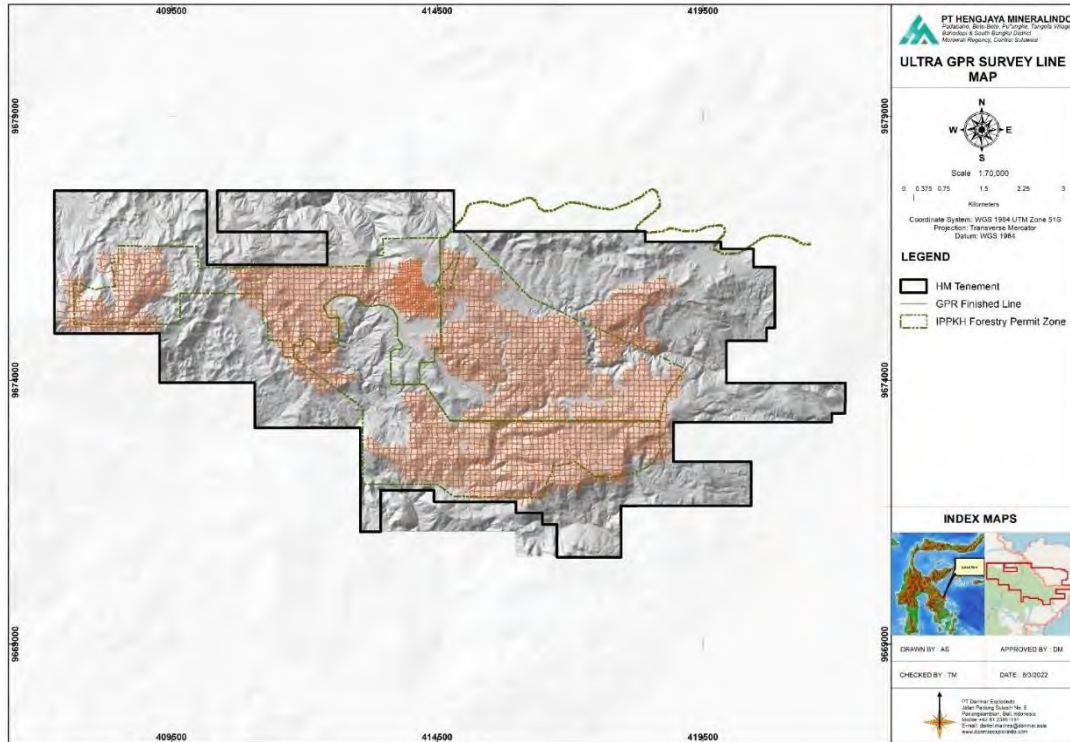


Figure 12 Ultra GPR survey lines on topographic map

Table 9 Ultra GPR survey results interpretation

Block Id	Block size (Ha)	Material Type	Volume (m3)
BETE BETE – EXTENSION	94	Massive clays (Limonite)	5,400,000
		Weathered Rocks (Rocky Saprolite)	7,000,000
Sub Total		TOTAL LATERITE	12,400,000
BETE BETE - EAST	107	Massive clays (Limonite)	5,200,000
		Weathered Rocks (Rocky Saprolite)	7,000,000
Sub Total		TOTAL LATERITE	12,200,000
CZ21 - WEST	472	Massive clays (Limonite)	42,200,000
		Weathered Rocks (Rocky Saprolite)	69,700,000
Sub Total		TOTAL LATERITE	111,900,000
BETE WEST (MIA)	175	Massive clays (Limonite)	6,500,000
		Weathered Rocks (Rocky Saprolite)	12,300,000
Sub Total		TOTAL LATERITE	18,800,000
CZ21 - EAST	204	Massive clays (Limonite)	18,800,000
		Weathered Rocks (Rocky Saprolite)	31,000,000
Sub Total		TOTAL LATERITE	49,800,000
BETE FAR WEST	259	Massive clays (Limonite)	16,800,000
		Weathered Rocks (Rocky Saprolite)	26,100,000
Sub Total		TOTAL LATERITE	42,900,000
IPPKH3	727	Massive clays (Limonite)	39,300,000
		Weathered Rocks (Rocky Saprolite)	88,300,000
Sub Total		TOTAL LATERITE	127,600,000
IPPKH5 / BETE WEST	395	Massive clays (Limonite)	14,300,000
		Weathered Rocks (Rocky Saprolite)	23,500,000
Sub Total		TOTAL LATERITE	37,800,000
ALL	2434	Massive clays (Limonite)	148,500,000
		Weathered Rocks (Rocky Saprolite)	264,900,000
Grand Total		TOTAL LATERITE (m3)	413,400,000

An example of an Ultra-GPR section interpretation covering 1,850m in the Central East area is shown in Figure 13.

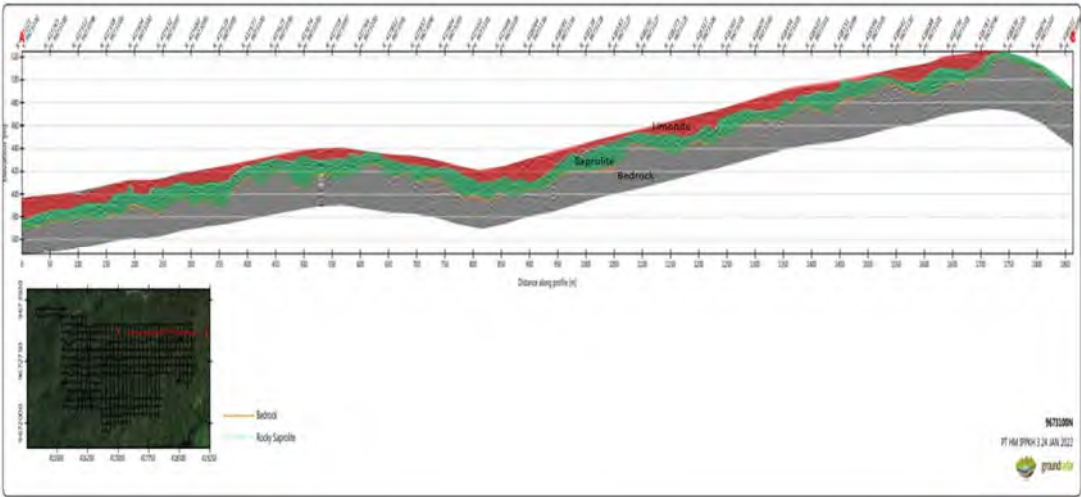


Figure 13 Ultra GPR section line interpretation example from Central East (phase 7)

Figure 14 shows the limonite thickness interpreted from the UltraGPR survey data. Figure 16 shows the saprolite thickness interpreted from the UltraGPR survey data.

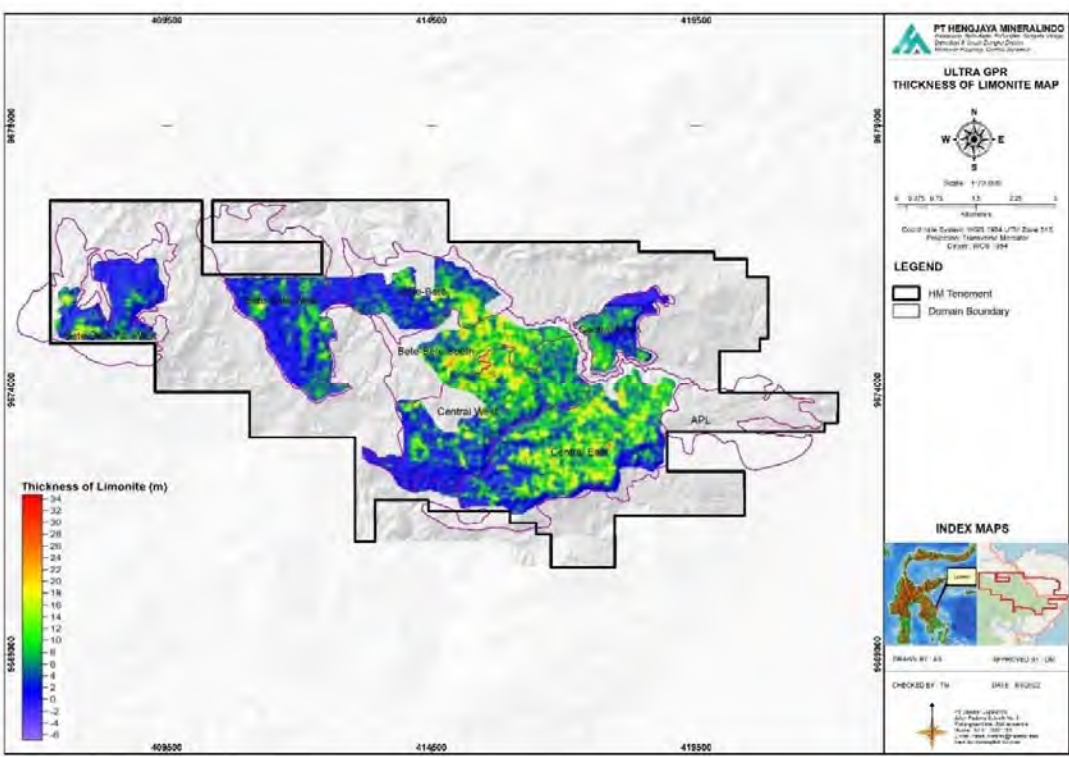


Figure 14 Limonite thickness interpreted from the Ultra-GPR survey

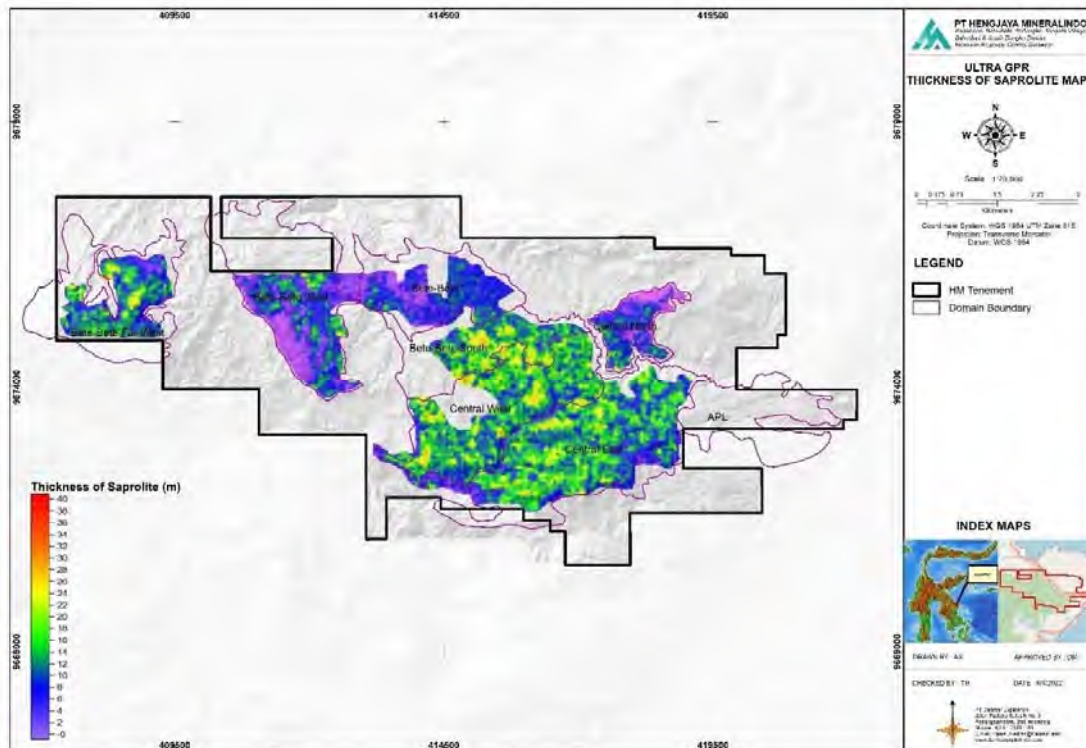


Figure 15 Sapolite thickness interpreted from the Ultra-GPR survey

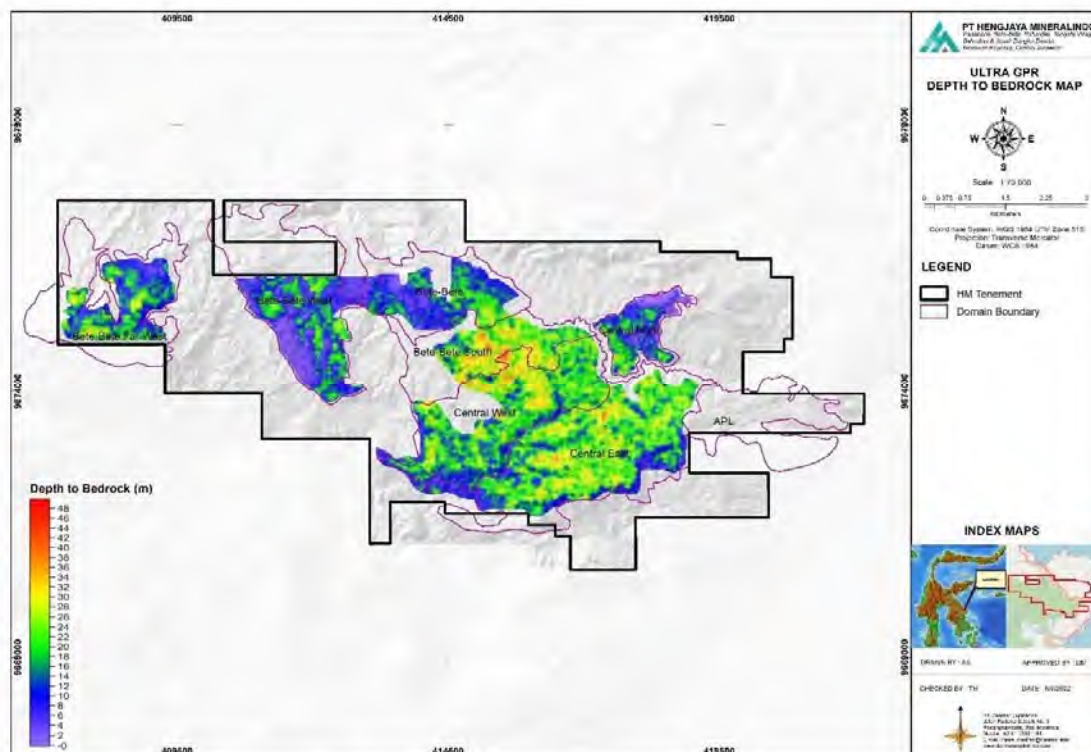


Figure 16 Depth to bedrock interpreted from Ultra-GPR

5.2 DRILL RESULTS

Validated drill data used in this study is summarized below in Table 10.

Table 10 Drill data statistics

DOMAIN		DRILLING USED IN RESOURCE			DRILLING EXCLUDED FROM RESOURCE		
Name	Area (Ha)	Drillholes	Cummulative Meters	Sample Assay Completed	Drillholes	Cumulative Meters	Sample Assay Completed
Bete Far West	371	129	2,101	2,174	7	60	64
Bete West	419	49	703	704	27	308	322
Bete Bete	348	600	10,680	11,246	52	772	421
Bete South	325	563	12,909	13,263	116	2,833	2,122
Central East	698	856	20,882	21,443	141	2,845	2,320
Central North	151			-	9	137	131
Central West	550	2,105	51,603	53,262	338	7,383	6,368
APL	178	355	9,417	9,551	193	4,343	4,112
TOTAL	3,040	4,657	108,294	111,643	883	18,680	15,860

For the purpose of this Resource estimate, a database of validated drilling data including 4,657 drill holes with a cumulative total depth of 108,294m and 111,643 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 with Forestry permits. The drilling locations used in this study are displayed in Figure 17. Other drill data excluded from the Resource database has only been used for Exploration Target identification.

Most (75%) of the drilling has been done at less than 100m spacing on Ultra-GPR targets with the objective of Resource definition in these areas. The distribution of drilling in each Resource block area is summarized in Table 11.

Table 11 Drilling distribution per domain

Domain Name	Area (Ha)	No. of Drill holes by Average Drilling Spacing				
		Mined Out	<50m	50-100	100m	Exploration Targets *
Bete Far West	371	-	-	-	129	3
Bete West	419	-	-	-	49	21
Bete Bete	348	161	478	37	-	-
Bete South	325	-	57	362	146	-
Central West	550	158	1499	249	198	68
Central North	151	-	-	-	-	9
Central East	698	51	302	141	360	17
APL	178	243	101	11	-	167
TOTAL ALL BLOCKS	3040	613	2437	800	882	285
% OF TOTAL AREAS DRILLED		12%	49%	16%	18%	6%

* Drilling in Exploration targets are not included in the Mineral Resource

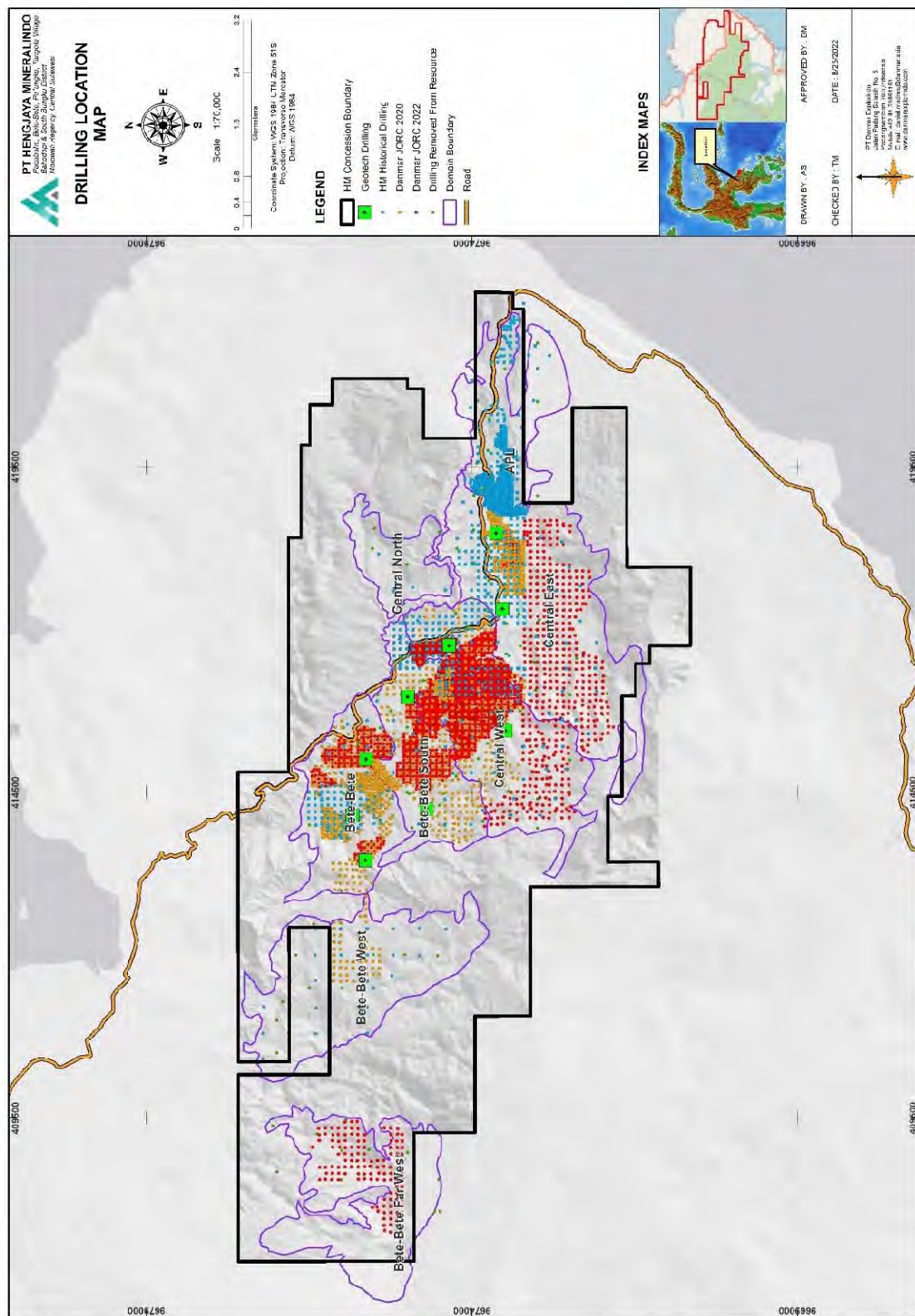


Figure 17 Drill hole location map

Core recovery data is summarized below. Data from the latest drilling programs was systematically recorded and includes core recovery measurements supported by core photography. Some of the older data did not include core recovery information but was used in the Resource because it had complete geological log and sample analysis data which was similar to the results found in the surrounding holes that had core recovery information. It is therefore considered unlikely that any bias was introduced to the Resource because of the inclusion of these holes. Core recovery data is summarized in Table 12.

Table 12 Core recoveries

Data Source	Laterite Profile	Recorded Core Recovery				Unavailable Records
		≥ 95%	95%-90%	90%-85%	< 85%	
Hengjaya Historical Database	SOIL	65.2%	1.7%	4.9%	0.3%	27.9%
	LIM	72.2%	1.5%	2.7%	0.1%	23.5%
	SAP	59.4%	6.1%	12.4%	0.8%	18.4%
	BRK	59.9%	5.6%	22.7%	1.2%	19.8%
	AVERAGE	62.3%	4.4%	11.2%	0.6%	21.5%
Danmar New Drilling Database	SOIL	99.7%	0.1%	0.1%	0.1%	0.0%
	LIM	96.5%	0.3%	0.0%	0.1%	3.4%
	SAP	97.2%	0.4%	0.4%	0.9%	1.2%
	BRK	97.3%	0.6%	0.8%	1.3%	0.0%
	AVERAGE	97.4%	0.3%	0.3%	0.6%	1.5%
Average Total Samples Included in Mineral Resource		89.6%	1.2%	2.7%	0.6%	6.0%

An unofficial translation of the results of these studies are summarized below (see APPENDIX 9.6 Geomine, PT Hengjaya Mineralindo Geotechnical & Hydrogeological Report, Dec 2021).

5.3 GEOTECHNICAL AND HYDROGEOLOGY STUDIES

Based on the results of the interpretation of hydrogeological conditions at PT Hengjaya Mineralindo, it is known that the hydro-stratigraphic layers of groundwater system is divided into three units that are; clay lateritic soil (upper laterite), lower laterite and weathered ultramafic rock, and fresh ultramafic rock. The layers that form the main aquifer zone in this groundwater system are lower laterite and weathered ultramafic rock. Lower laterite layer and weathered ultramafic rock are grouped into one main aquifer zone with thickness ranges from 10-30 m. The clay laterite soil serves as an impermeable seal. The fresh, unjointed ultramafic rock layer acts as an aquifer floor, assumed to be continuous to a thickness of more than 100 meters.

Data requirements for groundwater level and hydraulic conductivity are considered to have met the minimum data requirements for analysis. The data was obtained from field Slug test measurements at nine geotechnical boreholes, with a total cumulative depth of 220m and from data collected at exploration wells and other reference sources in the area.

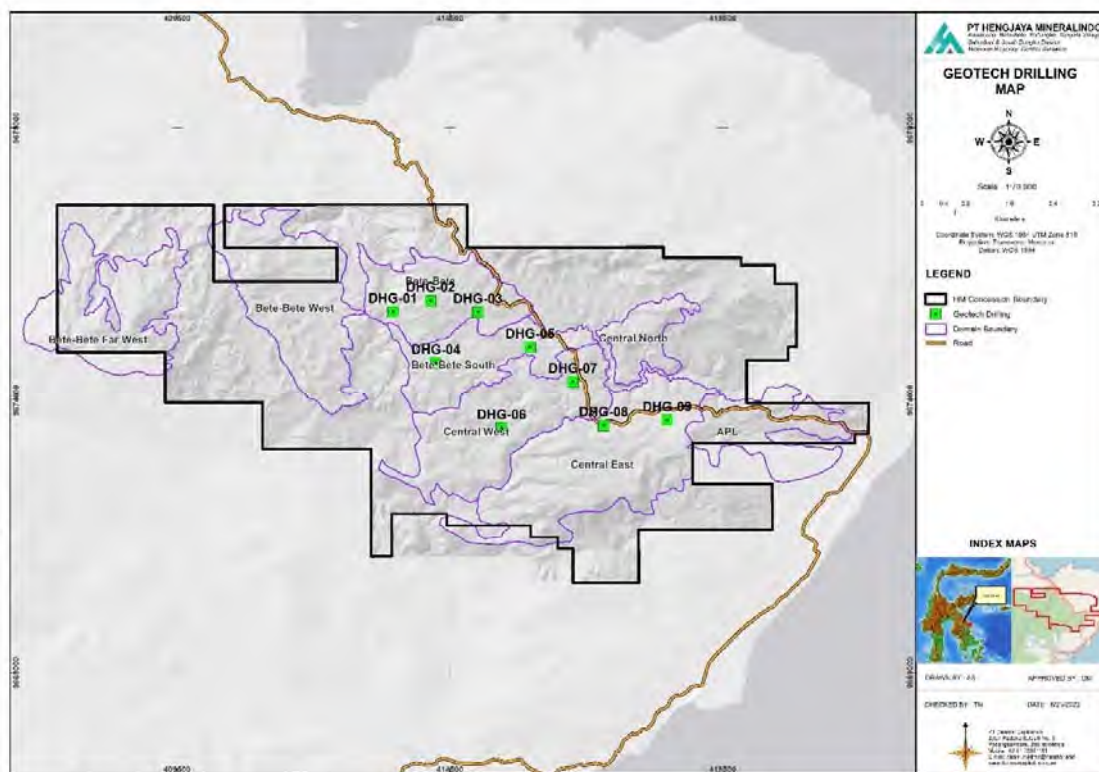


Figure 18 Geotechnical & hydrogeological drilling location map

Based on the prediction model, the estimated result of groundwater inflow in the first year is 22.19 liters/second and gradually decreases towards a steady line around 19.00 liters/second in the following years. Groundwater inflow discharge in general tends to be small due to the relatively low groundwater level, so that it is not expected to significantly intersect with the mine area.

Technical recommendations related to drainage plans including the design of drainage channels, sumps and pumping, as well as sediment ponds, have been provided.

The data collection of HM material properties was carried out through geotechnical logging of the cores of the nine geotechnical drilling holes and the results of physical and mechanical properties testing. Validation of properties using actual geometry and Reverse analysis, using instability indication was also carried out to determine the properties that represent the characteristics of the geotechnical domain in the HM area.

Single slope stability analysis shows that the majority of single slope geometries meet the minimum of Safety Factor criteria, especially for the saprolite and bedrock domains. For the limonite domain, a 3meter high bench level, with saturated conditions, meets the criteria, but

for the 5meter high bench level a dry condition is required to be able to meet the safety criteria. Table 13 summarizes the results.

Table 13 Slope Stability Analysis Results

Lithology	Bench Height (m)	Slope (°)	Saturated Moisture Condition			
			FK Statik	POF	FK	POF
Limonite	3	45	1.68	0.00%	1.44	0.00%
		50	1.58	0.00%	1.36	0.00%
		55	1.46	0.00%	1.28	0.00%
		60	1.35	0.00%	1.19	0.00%
	5	45	1.2	0.00%	1.03	0.00%
		50	1.11	0.00%	0.96	0.00%
		55	1.02	0.00%	0.89	0.00%
		60	0.92	0.00%	0.82	0.00%
Saprolite	3	45	6.33	0.00%	4.96	0.00%
		50	6.25	0.00%	4.97	0.00%
		55	6.19	0.00%	4.98	0.00%
		60	6.15	0.00%	4.8	0.00%
	5	45	3.91	0.00%	3.23	0.00%
		50	3.82	0.00%	3.11	0.00%
		55	3.8	0.00%	3.04	0.00%
		60	3.77	0.00%	2.92	0.00%
Bedrock	3	45	17.13	0.00%	13.39	0.00%
		50	16.91	0.00%	13.41	0.00%
		55	16.76	0.00%	13.45	0.00%
		60	16.65	0.00%	12.97	0.00%
	5	45	10.63	0.00%	8.71	0.00%
		50	10.48	0.00%	8.59	0.00%
		55	10.38	0.00%	8.29	0.00%
		60	10.37	0.00%	8	0.00%
Lithology	Bench Height (m)	Slope (°)	Dry Condition			
			FK Statik	POF	FK	POF
Limonite	5	45	1.62	0.00%	1.4	0.00%
		50	1.49	0.00%	1.31	0.00%
		55	1.39	0.00%	1.22	0.00%
		60	1.3	0.00%	1.14	0.00%

The overall slope stability analysis shows that the final pit design of PT Hengjaya Mineralindo has met the criteria and shows a stable condition with a Safety Factor (FK) value above 1.3 for static conditions and above 1.05, except on Section KK' which is located in Central East. The results of the analysis on Section KK' show that the FK and PoF values are below the minimum criteria limit and indicate a marginally stable condition. To make the condition stable on Section KK', it is necessary to adjust the pit slope to the overall angle to 29° or decrease groundwater level to 6 m deep with the installation of a drain hole.

Slope stability analysis was also carried out on the waste dump located in Bete-bete (geotechnical drill point DHG-02). Based on the actual waste dump conditions in the monitored DHG-02 area experiencing instability, Reverse analysis is carried out to get the properties of the waste material as close as possible to represent the actual conditions observed and can be used in further analysis. The results of the Reverse analysis of the waste properties produced are shown in Table 14. With the waste properties from the result of the Reverse analysis, to maintain slope stability in the waste dump area, it is necessary to reduce the overall angle about 2° from the actual condition to obtain the FK value in accordance with the provisions. The overall slope angle that shows the safe FK value is 18° with a height of 33 m.

Table 14 Material Properties Result of Reverse Analysis

Lithology	Unit Weight (kN/m ³)	Mohr Coloumb	
		C (KPa)	Phi (Degree)
Limonite	18.77	11	27
Saprolite	20.21	61	18
Bedrock	26.71	217	35
Waste	21.9	9	20

Excavation and dig-ability analysis were carried out in each domain based on parameter data of rock compressive strength and joint spacing which were plotted into a Pettifer-Fookes graph. From the graph it can be concluded that the characteristic of each domain is distributed in a relatively homogeneous category so that the excavation or harrowing treatment is also relatively the same for each of these domains as summarized in Table 15.

Table 15 Excavation and Dig-ability per Lithology

Lithology	Method
Limonite	Easy Digging
Saprolite	Hard Digging
Bedrock	Easy-Hard Ripping

5.4 SURVEY RESULTS

LiDAR topography survey covering the HM IUP was completed in 2015. The resulting topographic map is shown in Figure 19. Ground survey drill hole collar mis-close with LiDAR topography is shown in Table 16.

Table 16 Survey mis-close between drill collars and LiDAR survey

SURVEY METHOD VALIDATED			COLLAR SURVEY MISCLOSE WITH LIDAR TOPOGRAPHY					
TOTAL STATION	GPS	COLLAR (%)	MINIMUM (m)	MAXIMUM (m)	AVERAGE (m)	STANDARD DEVIATION (m)	(-2) Std (m)	(+2) Std (m)
4476	181	96%	-4.97	12.74	0.01	0.56	-1.10	1.12

158 holes used in the model had only GPS coordinates available. 76 of these holes are located in the mined-out areas. The holes with GPS coordinates were used because they had complete drill log, analysis data, GPR data supporting laterite thickness and were surrounded by other holes with similar quality and depth with surveyed coordinates. It is considered appropriate to use these holes as the drill intersections match the surrounding holes and the analysis data does not introduce a bias to the nickel grades. Figure 20 shows the included drillhole collars with GPS locations in red. The data is considered sufficiently accurate and appropriate for use in this Resource estimation.

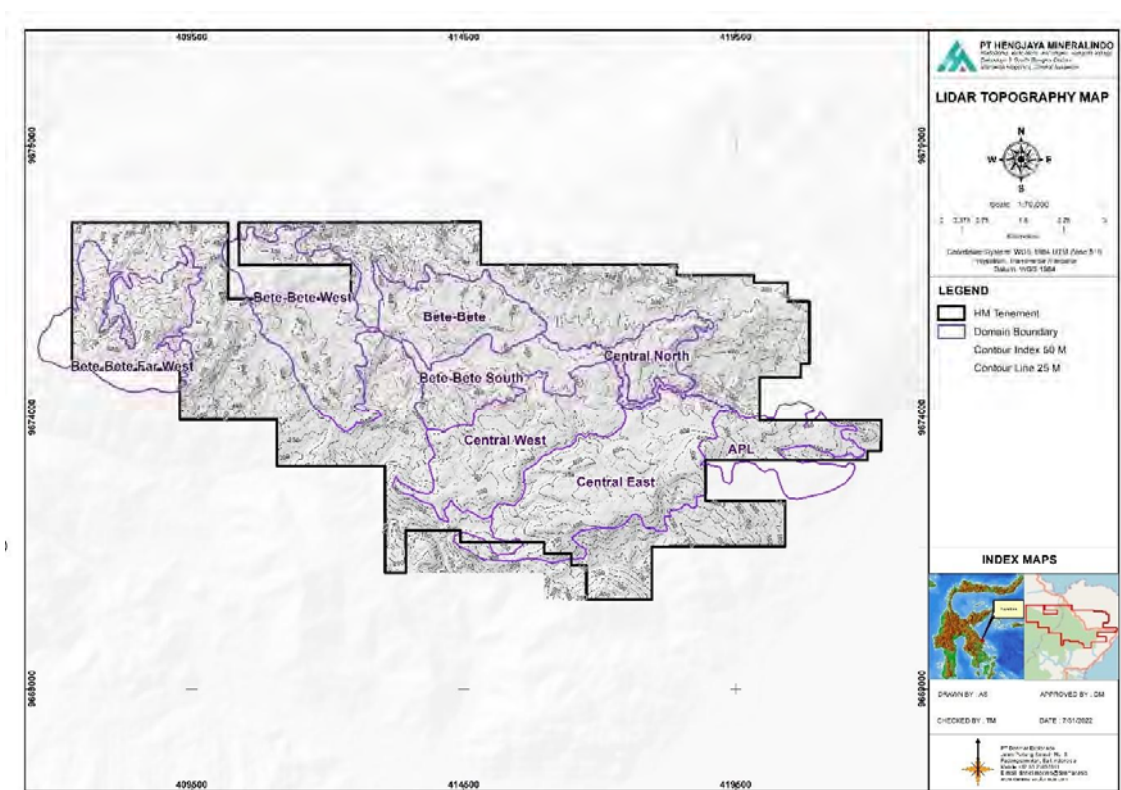


Figure 19 LiDAR topography map of the HM IUP

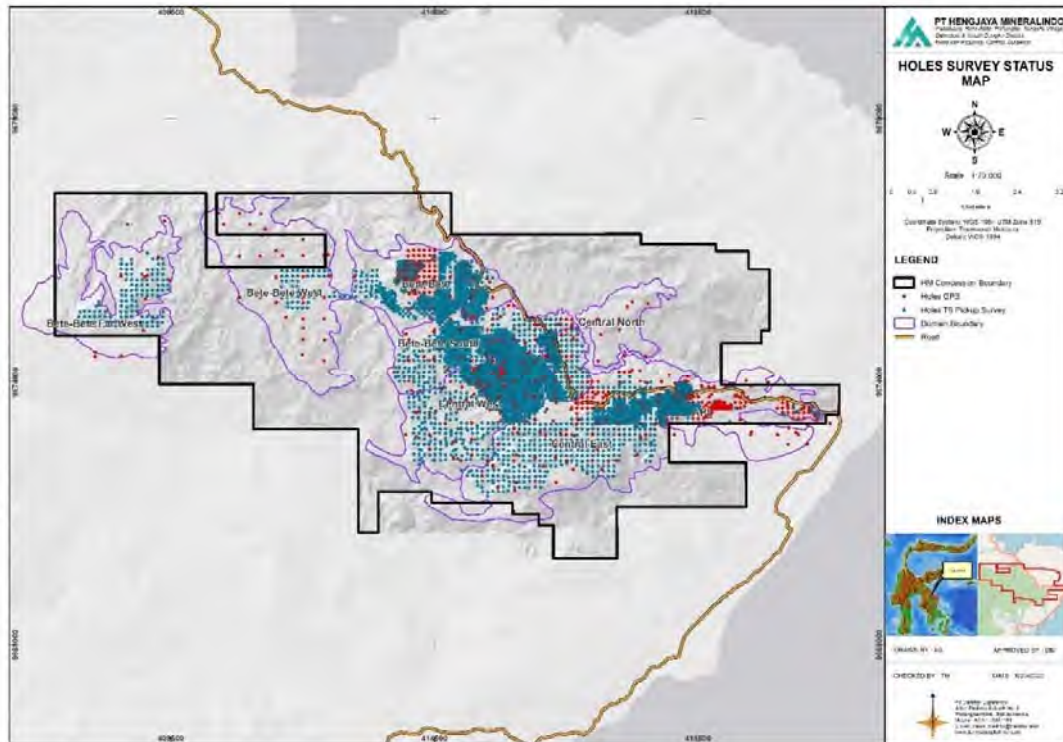


Figure 20 Drillhole location and survey status map

5.5 ASSAY ANALYSIS RESULTS

111,692 XRF sample analyses have been performed on drill core samples to document the grade characteristics throughout the nickel Resource area at HM. Sample interval has been predominantly 1m as per each core run. Where the sample interval has been less than 1m the analysis result has been weighted for the interval that it represents. Figure 21 displays the sample interval data and Table 14 shows the sample interval statistics.

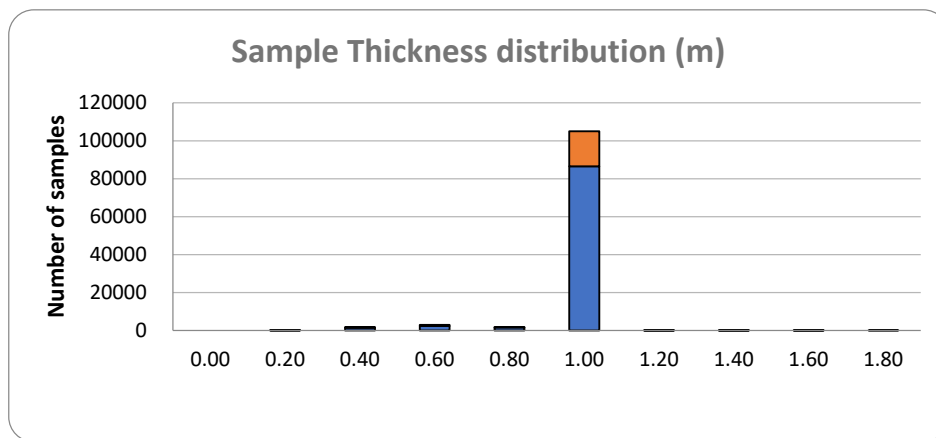


Figure 21 Sample interval distribution

Table 17 Sample interval statistics

Parameter	Drilling Program	
	Hengjaya	Danmar
Mean	0.97	0.97
Median	1.00	1.00
Mode	1.00	1.00
Standard Deviation	0.13	0.13
Sample Variance	0.02	0.02
Kurtosis	18.95	16.61
Skewness	-4.36	-4.15
Range	1.50	1.63
Minimum	0.05	0.01
Maximum	1.55	1.64
Sum	18951	89373
Count	19507	92185
Confidence Level(95.0%)	0.0018	0.0008

Since April 2019, the analysis of exploration samples has been largely in house at the HM mine site lab.

5.5.1 SPECIFIC GRAVITY MEASUREMENTS

Insitu density measurements on drill core were made for each stratigraphic layer in each of hole drilled since April 2019. A total 13,004 density measurements on drill core samples have been performed. The results are summarized in Table 18. These are insitu density measurements for laterite layers in the ground. Samples were immediately packed tightly using masking tape at the well site and prioritized for transfer to the lab.

Table 18 specific gravity measurements

Laterite Profile	Bete Far West	Bete West	Bete Bete	Bete South	Central West	Central East
SOIL	1.83	1.83	1.95	1.92	2.01	1.93
LIMONITE	1.78	1.77	1.85	1.76	1.83	1.81
SAPROLITE	1.72	1.50	1.53	1.64	1.85	1.66
BRK	2.88	2.25	2.67	2.87	2.80	2.79
Total Samples	343	189	1677	1849	6912	2034

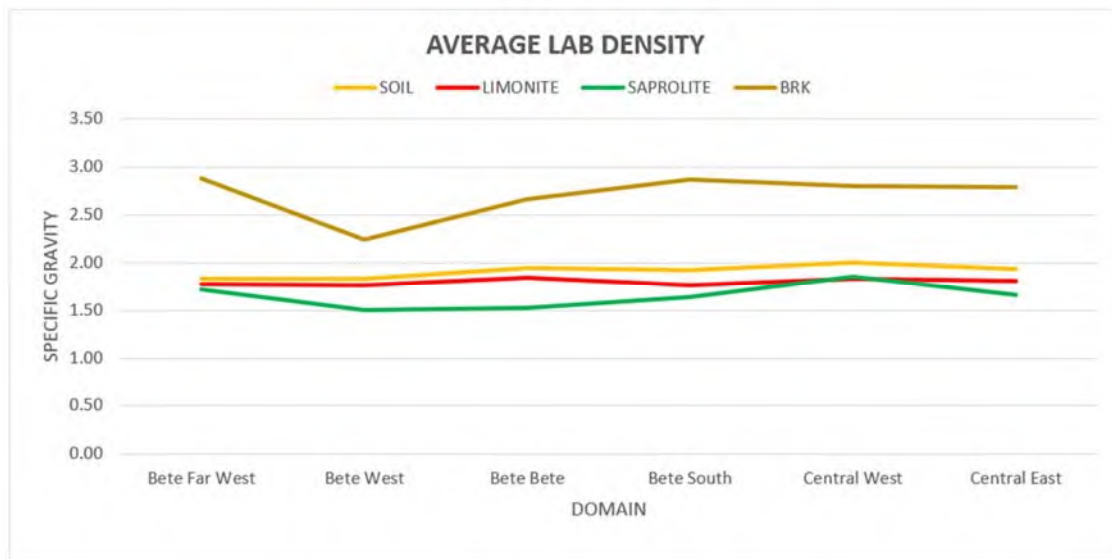


Figure 22 Average density measurement from cores

5.5.2 MOISTURE MEASUREMENT

Since April, 2019 every 1m drill core sample was measured for Moisture using the Japanese Industrial Standard (JIS). A total 33,544 Moisture measurements were performed. The results are summarized in Table 19. Figure 23 shows the average moisture content for each layer compared by domain.

Table 19 Moisture content

Laterite Profile	Average Moisture Content %					
	Bete Far West	Bete West	Bete Bete	Bete South	Central West	Central East
SOIL	36.5%	35.5%	32.5%	35.5%	34.2%	35.4%
LIMONITE	40.1%	41.8%	40.2%	43.3%	41.2%	41.9%
SAPROLITE	24.3%	35.7%	31.8%	32.9%	31.5%	31.8%
BRK	6.6%	24.7%	13.3%	10.3%	9.8%	12.2%
Total Samples	2179	611	9867	12912	52514	15991

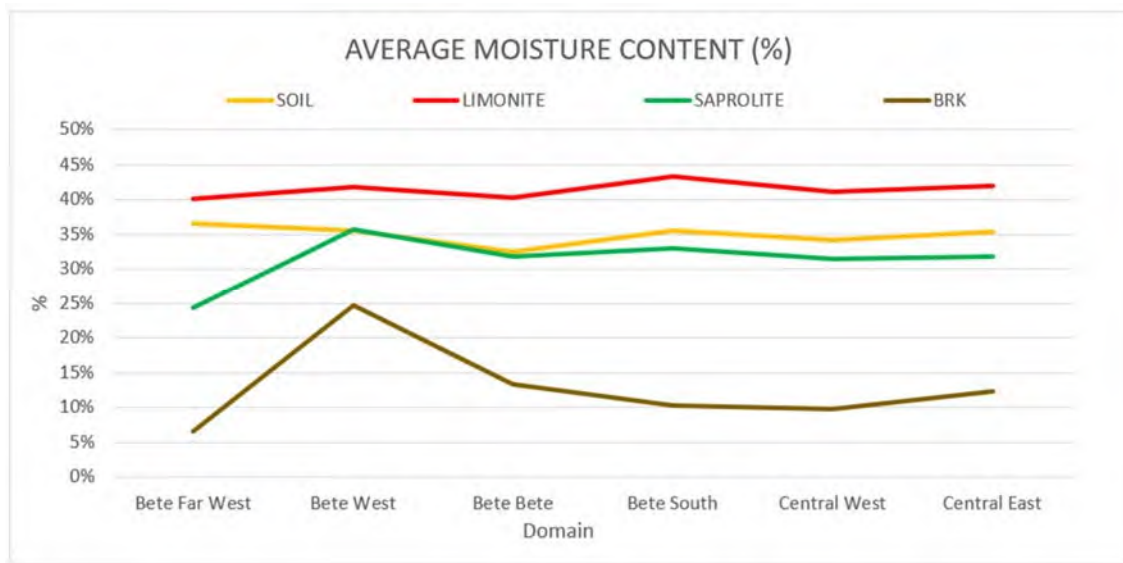


Figure 23 Average moisture content

5.5.3 SAMPLE ASSAY QUALITY CONTROL

Sample assay quality is defined through analytical accuracy, analytical precision and contamination during assaying. It is assessed using fine grained, pulverized samples that are inserted into the sample stream after the preparation stage and before the assaying stage. Samples used in testing assay quality include pulp duplicates, Certified Reference Materials (CRMs) and fine blanks. Sampling or analysis is said to be accurate when the mean error approaches zero. Sampling or analysis is said to be precise when there is a small spread of errors around the mean sampling error.

Data with “good” accuracy and “good” precision can be regarded as “Good Quality” and as such, will be “fit for purpose”. The terminology “representative,” is used when the precision and accuracy are within acceptable tolerances.

Accuracy refers to the component of the measurement error that in replicate measurements remains constant or varies in a predictable manner. It is assessed by using Certified Reference Materials, for example OREAS 193, and by inserting these CRMs into the sample stream, it is possible to assess the performance of the assay lab undertaking the assay work for internal control. When sent to commercial laboratories with Interlaboratory Check samples it allows comparison of the HM Assay Lab performance against commercial laboratories and assess for any bias.

Accuracy is treated as a qualitative attribute, meaning low or lower accuracy, high or higher accuracy, and should not be given a quantitative value. Accuracy is measured through the

bias, which is the difference between the expectation of the test results and an accepted reference value. There is an inverse relationship between accuracy and bias, the higher the absolute value of the bias, the lower the accuracy, and vice versa.

5.5.3.1 Coarse Blanks

Contamination is assessed by using coarse blank samples, these being barren samples in which the elements being tested, at HM these are Ni and Fe. At HM blank samples and OREAS are inserted within exploration batch streams at a rate of 4 OREAS and 4 coarse blanks for every 92 exploration core samples to test for cross contamination.

5.5.3.2 Coarse Duplicates

Figure 24 is a scatterplot showing the results for the four elements Ni, Fe, MgO and SiO₂ from the original and duplicate roll sample results from a population of 1,020 exploration assays undertaken over the period July 2021 to March 2022. The graphs show the original and duplicate elemental values in red plotted on a middle grey line representing the mean elemental values of these samples. The two yellow 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 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 24 shows that with all four elements the red dots plot within the +10% and -10% variance lines. In fact, the majority plotted between the +5% and -5% yellow lines, showing there is a high correlation between the original and the duplicate assay values. This is further confirmed with the correlation coefficient (R) values of > 0.999 for the elements being assayed. These figures confirm the high precision of the jaw crushing, the first splitting and roll crushing stages and supports the use of the Coarse Duplicate assay data for Resource estimation purposes.

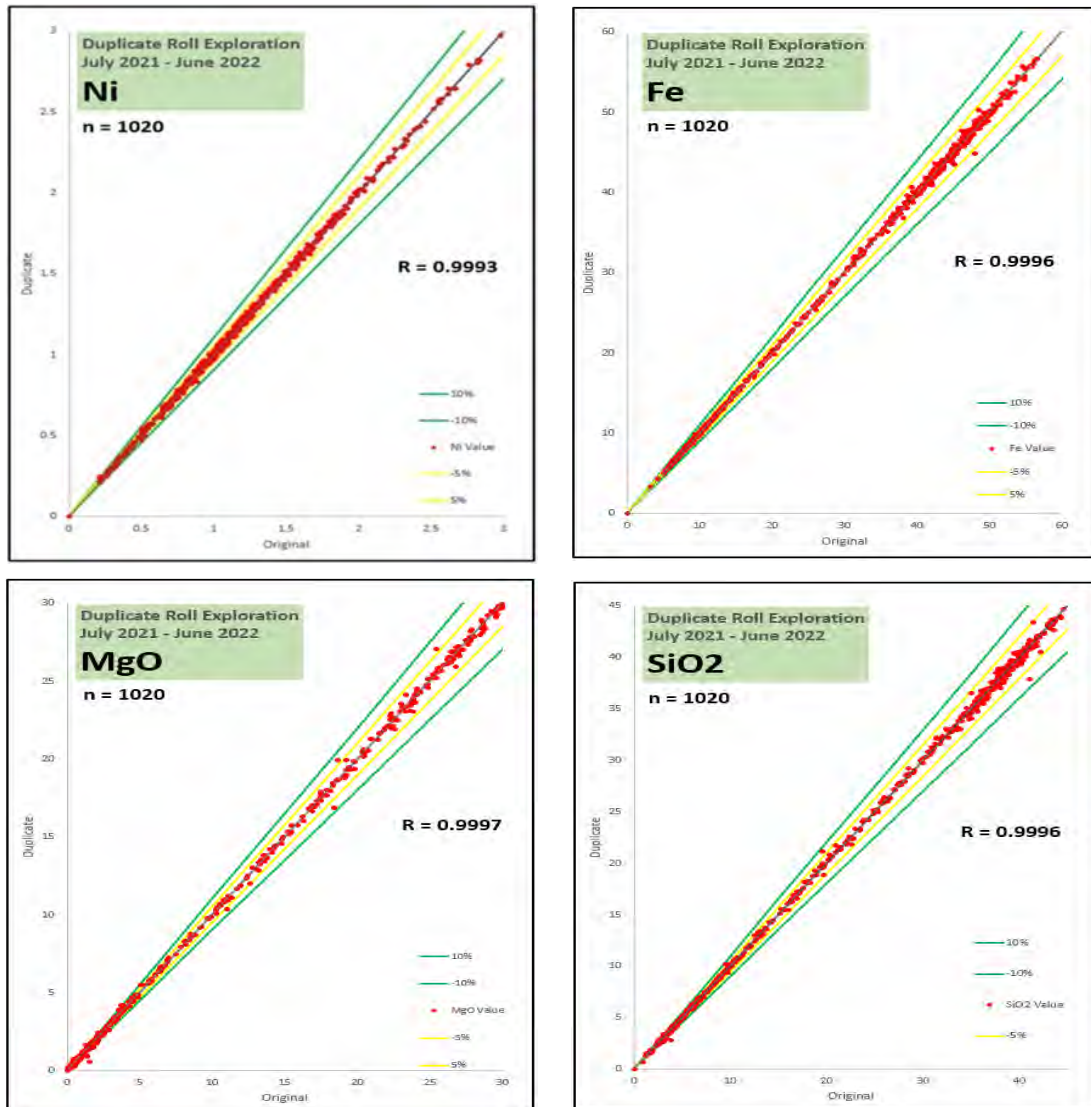


Figure 24 Scatterplot showing results of 1020 Coarse Reject original vs duplicate assays

5.5.3.3 Particle Sizing Test- -200# Screen Test

Figure 25 shows two graphs showing the results of the particle sizing tests undertaken on 111 exploration samples and 104 mining samples at the HM Prep Lab during March 2022. The yellow line is for 95% of the pulverized material passing the 200# screen and shows the majority of the samples returning a result of between 97% and 98% for both the exploration samples and the mining samples. These results show the repeatability precision of the pulverizing process in reducing the particle size of the samples to be high.

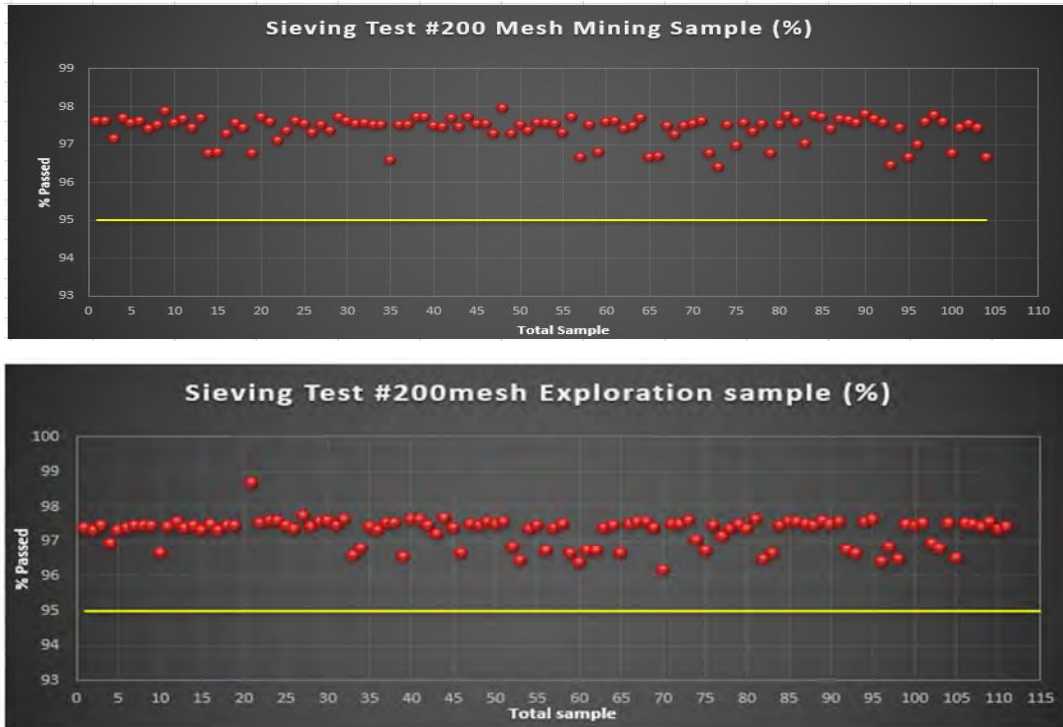


Figure 25 Screen test results – March 2022

5.5.3.4 Pulp Duplicates, or Duplicate Assay

Pulp duplicates, or Duplicate Assays (DA), as they are called at HM, are second splits of the fine, grained pulp samples that are collected in the final incremental splitting of the samples after pulverizing. Along with the incremental split sample that is taken and bagged for XRF assay at the HM assay lab and the sample taken for storage and future reference if required, a third sample is collected from each batch and analyzed at the same time as the original sample, but with a different sample number. 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.

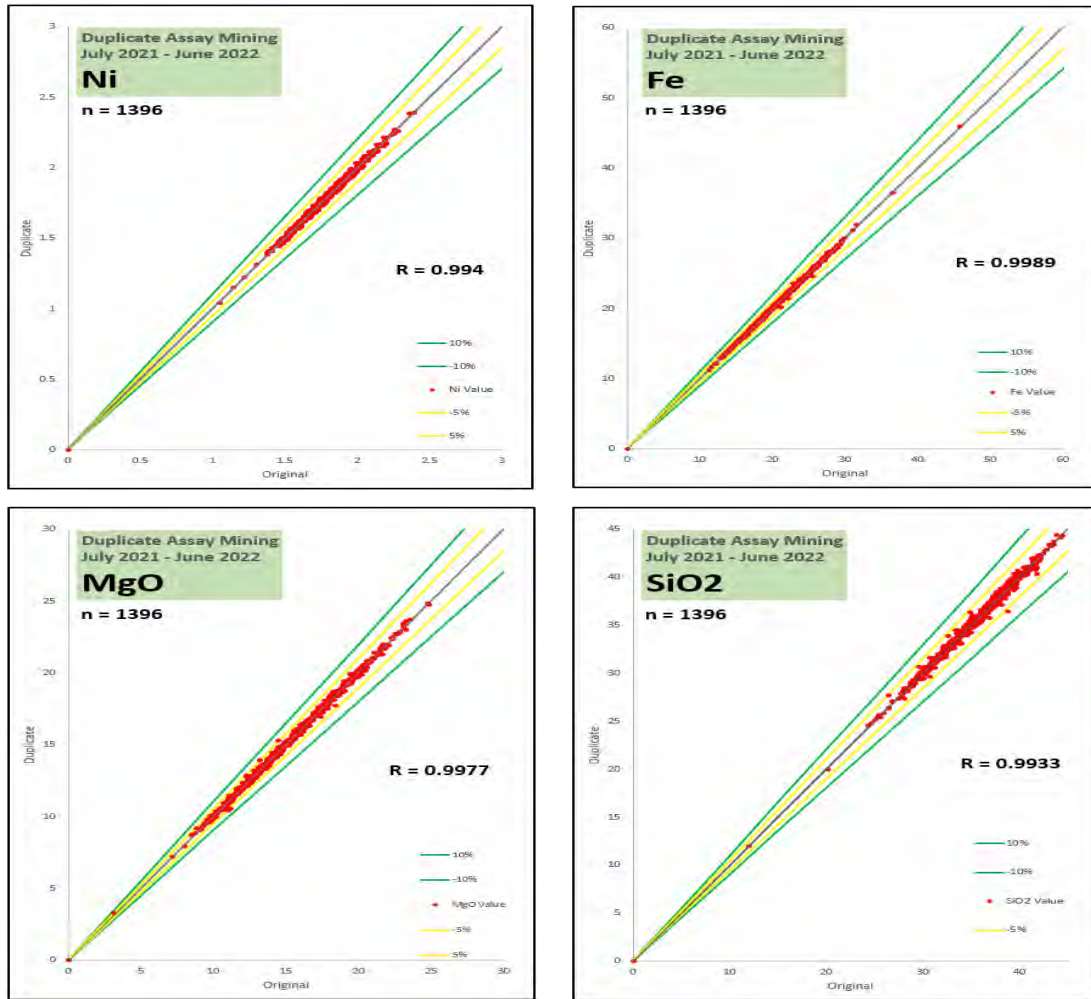


Figure 26 Scatterplot results of 1,396 plots for pulp original vs duplicate assays

Figure 26 shows scatterplots for the elements Ni, Fe, MgO and SiO₂ from original and duplicate assays from 1,396 pulp samples analyzed between July 2021 and June 2022. The scatterplots are similar to those shown in Figure 24 for the Coarse Reject assays, with the majority of the Ni and Fe falling within the two yellow lines representing a +/- 5% variance from the assay, a high precision, and reflected with correlation coefficients of 0.994 and 0.9989 respectively.

One difference between the Pulp Duplicate and the Duplicate Roll Graphs is the lack of data points at the lower values of Ni, Fe, MgO and SiO₂. The reason for this is that Figure 24 shows the wider range of elemental results for exploration samples, while Figure 26 shows results for mining samples where cut-off grades around 1.5% Ni are reflected in the average saprolite grades of around 1.75% Ni. Similarly, average saprolite Fe results are around 20%, for MgO an average of 23%, and for SiO₂, around 38%.

5.5.3.5 Check Standards, or Certified Reference Materials (CRM's)

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. HM use CRMs produced by OREAS (Ore Research & Exploration P/L, from Victoria, Australia. OREAS CRMs currently used are Standards 182, 187, 192, 193, 194 and 195 with certified Nickel values of 0.707, 1.37, 1.77, 1.93, 2.13 and 2.94, respectively. In addition, these standards have certified standard deviations and state the 95% Confidence and Tolerance Limits with low and high values.

CRMs are generally placed into the sample stream at a frequency of one in 20 samples with mine samples and higher frequency of one in 10 exploration samples. This higher value due to the first sample in each run on the Epsilon 4 and Puma S2 XRF spectrometers being a standard as described in the Standard Operating Procedure.

Figures 27, 28, 29 & 30 are Shewart Control Charts for the results of assays using the OREAS standards 182, 187, 192 and 195 over a ten month 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 line showing the certified mean value and two green lines showing the expected value plus/minus two standard deviations, also referred to as Upper and Lower Warning Limits, and two red lines representing the Upper and Lower Control Limits at three standard deviations.

Abzalov describes how specific analytical problems have recognizable patterns on certain diagrams, the different distribution patterns of the analytical results being indicative of the error sources and types, being most effective when applied to certified standards such as the OREAS CRM's. 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.

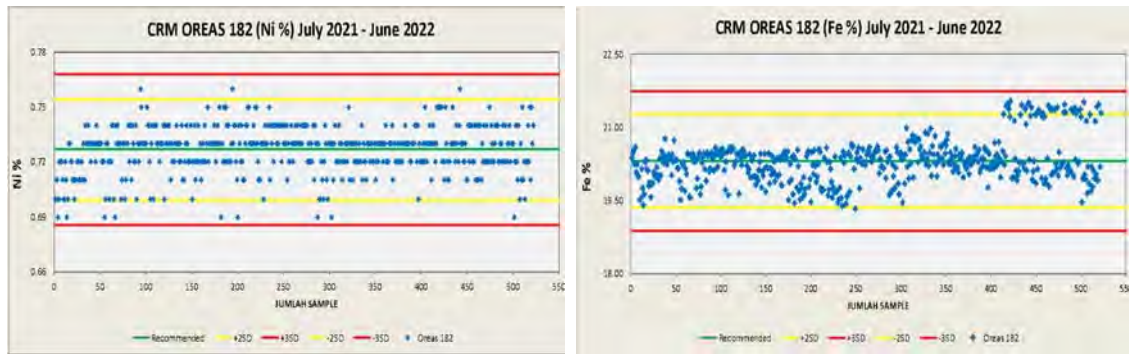


Figure 27 CRM OREAS 182 - 537 Exploration Sample Analyses

Figure 27, the OREAS Standard 182 shows the results plotting with 95% within two standard deviations of the mean for both Ni and Fe and showing good precision. However, with the Fe graph, the accuracy is not as good on the right hand side of the graph.

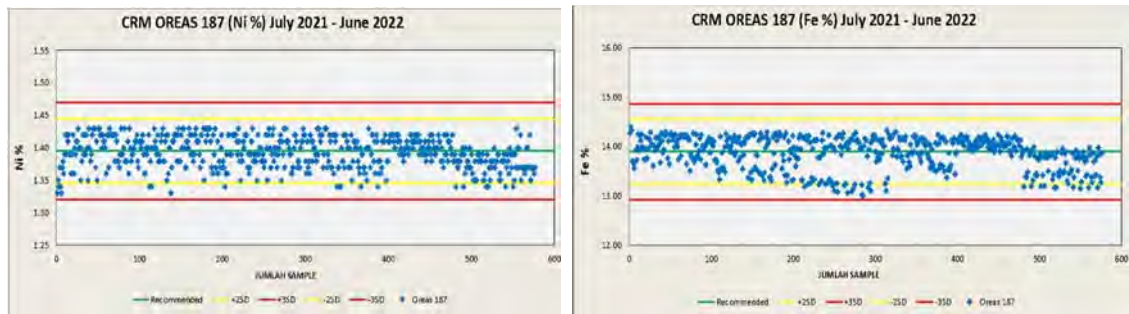


Figure 28 CRM OREAS 187 – 582 Exploration Analyses

Figure 28 shows the results for 582 exploration samples for Ni and Fe, with both elements showing good precision, 95% of the results plotting within two standard deviations of the mean, and similar numbers of samples above and below the mean. Accuracy in the Fe graph is not as good, with the appearance of more sample results below the mean.

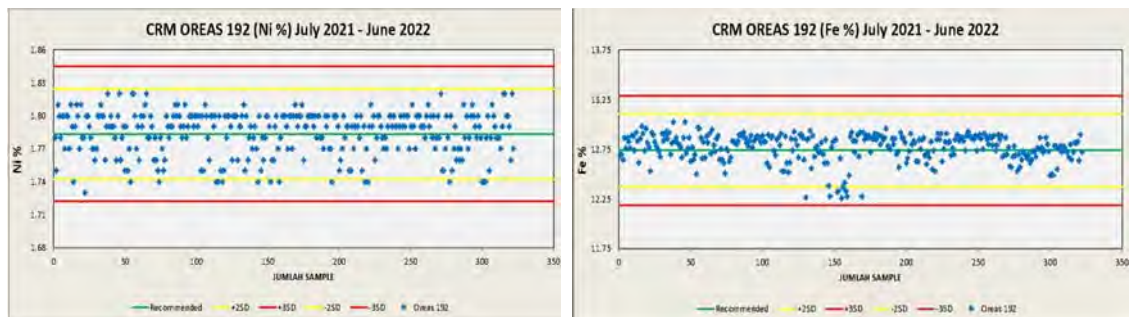


Figure 29 CRM OREAS 192 – 339 Exploration Analyses

Figure 29 shows good distribution of 339 exploration data results, with 95% of the data points plotting within two standard deviations of the mean, and similar numbers of data points above and below the mean for excellent precision, but the Fe graph shows a number of data points close to the negative -10% warning line which reduces the accuracy in this graph.

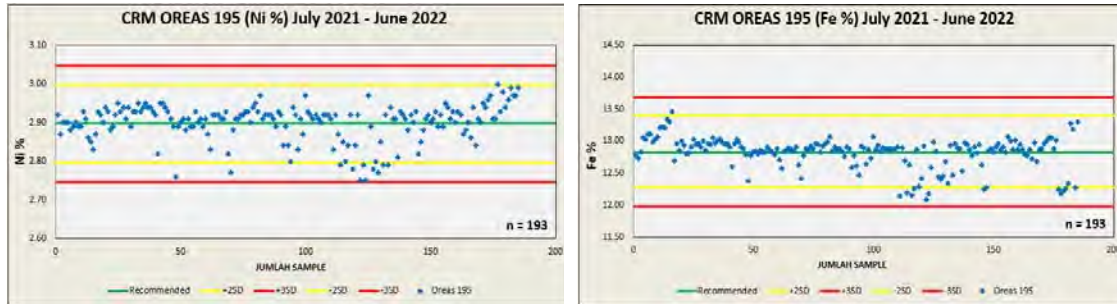


Figure 30 CRM OREAS 195 – 193 Exploration Analyses

Figure 30 shows a good distribution of the 193 exploration data points with 95% of the results plotting within two standard deviations of the mean for both Ni and Fe, but as with the previous graphs, the accuracy appears to drop around the 100 sample mark for approximately 10 samples which indicates less accuracy.

These graphs show that for the 1,651 exploration samples assayed using 4 different OREAS Laterite Suite CRM's the precision between the original and the CRM values are generally excellent, whilst the accuracy for the Ni is good to excellent whilst for the Fe it is of lower quality.

5.5.3.6 Replicate Samples

These are two portions of the same pulp samples that are used to produce two separate pressed pellets or fused beads, that are given different sample numbers before being inserted into the same batch, or Job Sheet. At HM they are taken as part of the standard package of check samples, these being one DA or pulp assay, one DR or coarse reject assay, one REP or replicate sample and one CRM.

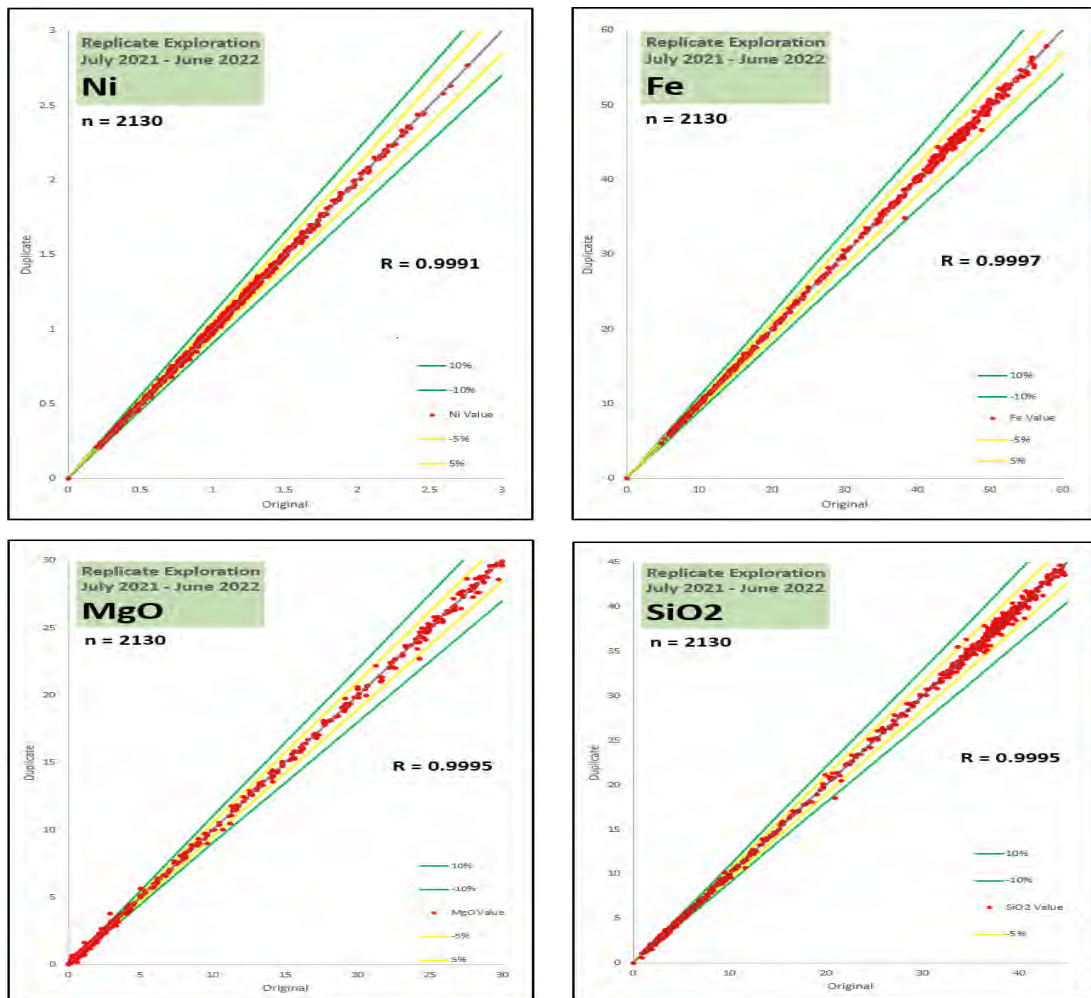


Figure 31 Scatterplot showing results of 2,130 plots for original vs replicate assays

Figure 31 shows scatterplots for 2,130 replicate analyses undertaken between July 2021 and June 2022. The format of the scatterplots is the same as for the previous scatterplots for the Coarse Rejects (DR) and the Pulp Duplicates (DA), with these results showing the wider range in values for the elements due to the samples being tested originating from exploration samples.

The scatterplots for replicate sample assays show the majority of the results plotting within the two yellow 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 0.999, indicating high precision. Spreadsheet data shows there is also an even spread of the replicate assay being both similar to, higher than and lower than the primary assay in the case of Ni, whilst for Fe, MgO and SiO₂ there are slightly more duplicate assays in the Assay less than Original category with a corresponding lower figure in the Assay equal to Original

category. This confirms a normal distribution of assay values for these elements and indicates there is little evidence of systematic bias occurring in this replicate check assay program.

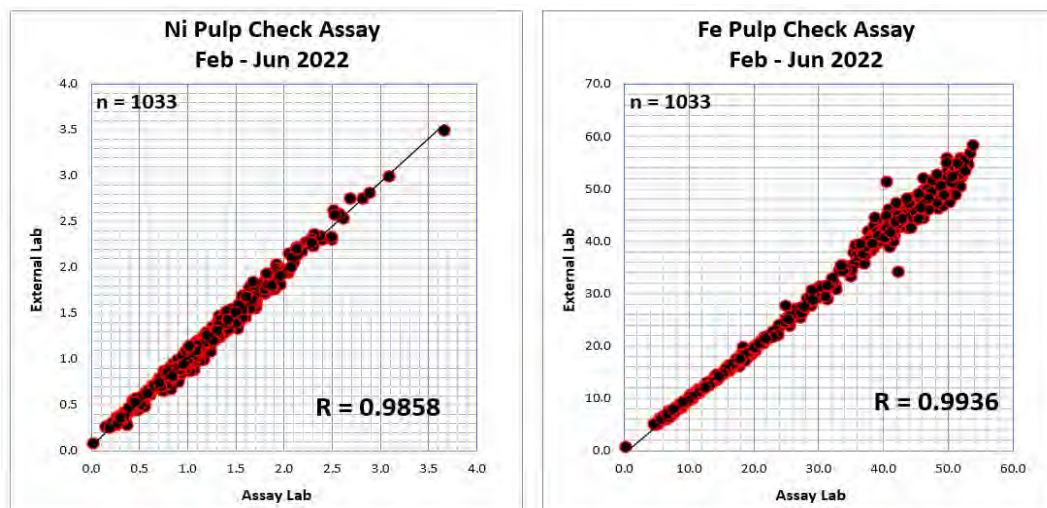
5.5.3.7 Interlaboratory Check Samples

5.5.3.7.1 HM Lab vs PT Geoservices Lab

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, Geoservices Laboratory.

Batches of Exploration samples were sent to the Geoservices Laboratory in Kendari on a periodic basis where the coarse reject samples underwent pulverizing and incremental splitting, to be sent off for XRF assay at the 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 assayed, the results were returned to the Assay Laboratory at the Tangofa site.

Figure 32 shows the results of the inter laboratory check sample tests comparing the results of 1033 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.



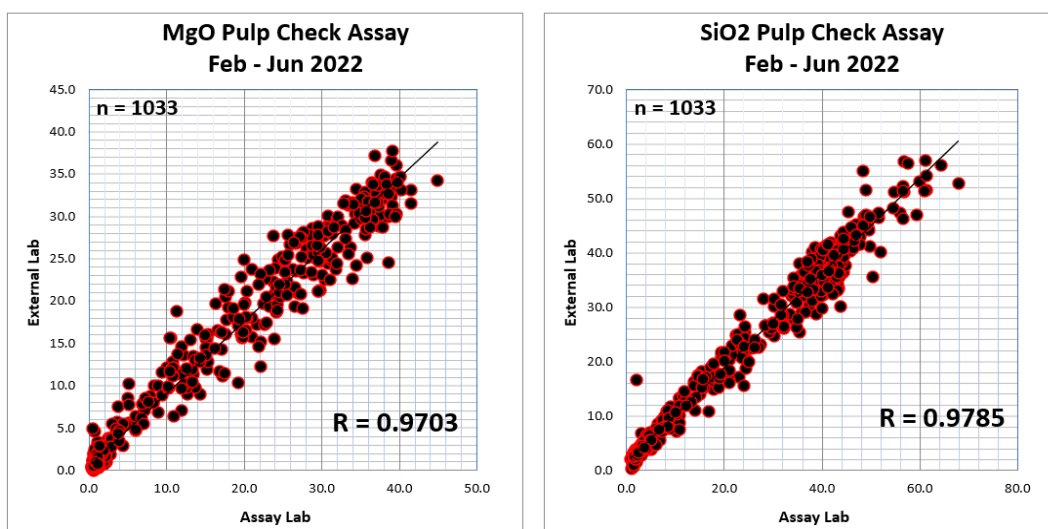


Figure 32 Scatterplot results of 1033 plots of HM original vs Geoservices duplicate assays

The scatterplots show differing precision for the different elements, with the best correlation between the results for Fe and Ni, 0.9936 and 0.9858 respectively, MgO and SiO₂ have lower correlations at 0.9785 and 0.9703.

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 1.15 % Ni and 27.52 % Fe against 1.13 % Ni and 26.93 % Fe for Geoservices, a difference of 1.74% for Ni and 2.14% for Fe. These represent a +/- 5% variance from the assay, a high precision and reflected with correlation coefficients of 0.9858 and 0.9936.

These results 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.

5.5.3.7.2 Comparison PT HM Assay Lab vs IMIP Smelter Results

When the barges carrying ore from the HM Jetty to the IMIP smelter arrive, samples are collected from the saprolite ore and assayed at the IMIP facility. These results are used to

determine the price paid for the nickel laterite ore. These results are provided in a Certificate of Analysis (COA) and Certificate of Quality by PT Intertek Utama Services, Indonesia.

Figure 35 shows graphics of the plots of the Ni and Fe results from the HM Assay Lab and the IMIP COA for 54 samples from barge numbers BP 774 and BP 828 which delivered saprolite ore from the HM Mining Operations to the IMIP Smelter between May 2022 and July 2022.

These graphs represent HM assay results with means of 1.78% Ni and 19.10 % Fe, standard deviations of 0.04 and 1.30, and variances of 0.0016 and 1.6834 respectively. Similar results of 1.74% Ni and 18.66% Fe, standard deviations of 0.04 and 1.20, and variances of 0.0017 and 1.4441 were recorded on the IMIP COA's. Interestingly, the difference between the two sets of data shows a mean difference of 0.04, or 2.2% for the Ni values, with 50 of the 54 COA values being less than the HM assay values. With the Fe values, there is a 2.3% difference between the HM and COA values, with 41 of the 54 COA's returning lower values than HM.

The consistency of results from these 54 samples is interesting, and as before, can be the result of sample processing differences, for example, pressed pellet vs fused bead, different equipment and calibration issues. The other problem is the hygroscopic nature of nickel ore, and how the increase in moisture content of the saprolite between leaving the HM stockpiles and being fed into the smelter is likely to result in differences in the Ni values and may explain the variation between the Ni and Fe graphs.

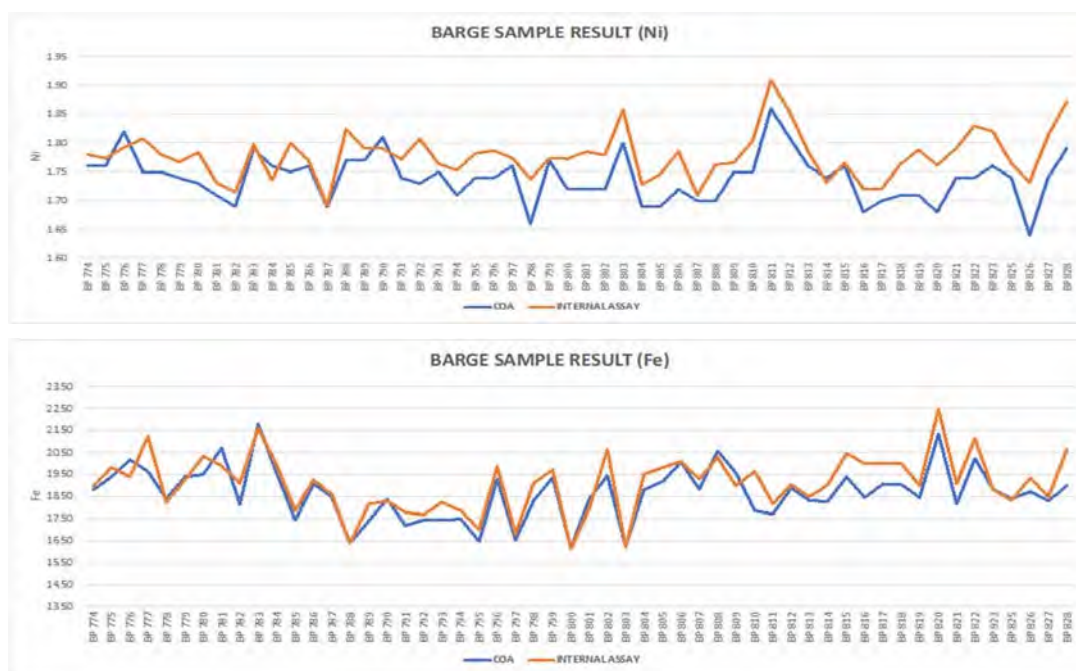


Figure 33 Graphic showing results of 54 saprolite samples assayed at HM and IMIP Smelter

5.5.3.8 Control Sample Insertion Rates

HM operates a quality control program at its Tangofa Laboratories where different types and sub-types of control samples are inserted into the sample stream in order to monitor precision, accuracy and possible contamination at the different stages in the sampling, sample preparation and sample assaying sequence.

Sample collection is usually controlled through the use of twin samples and field duplicates, but due to all the triple tube barrel, drill core being sent for sample preparation and assay, these control samples are not sent for checking. At HM blank samples and OREAS are inserted within exploration batch streams at a rate of 4 OREAS and 4 blanks for every 92 core samples to test for cross contamination.

Sample preparation is controlled through the use of coarse blanks, coarse rejects (DR) and 200# particle sizing tests at the HM Prep Lab.

Sample assay is controlled through the use of pulp duplicates (DA), CRM's, Replicate samples and Interlaboratory check samples.

Mendez (2011) described the frequency of control samples using information from International QA/QC consultants, Exploration and Mining Companies, various authors and the Toronto Stock Exchange and found that a figure of 20% (1 in 5) of the total samples assayed comprise control samples of various types.

During the period July 2021 to June 2022 a total of 50,102 exploration samples were processed at the HM Sample Prep and Assay Labs. The following check samples were added into this original sample stream:

Table 20 Exploration Control Sample Insertion Rates July 2021-2022

Period	Exploration Samples	Coarse Rejects/DR		Pulp Duplicates/DA		Replicates		CRM's		Interlab Checks	
		No.	%	No.	%	No.	%	No.	%	Checks	%
May - July 2022	50,102	1,020	2	1,110	2.2	2,130	4.2	1,997	4.0	1,951	3.9

The Coarse Reject and Pulp Duplicate samples comprise 2.0% and 2.2% of the samples submitted. These figures correspond to those proposed by Mendez, of 2% and 2% respectively.

Replicate samples and CRMs comprise 4.2% and 3.98% respectively of the samples submitted. Although Mendez does not appear to specifically include replicates, this figure of 4.2% allows an additional measurement of the Assay Quality at the HM labs and is due to two

replicate samples being inserted into the sample stream instead of the one coarse reject and one pulp duplicate sample per batch.

The differences between the % of check samples proposed by Mendez, 1 in 5, or 20%, and the 12.5% at HM is due to the lack of Twin Samples collected at the sample collection stage, 2%, because the whole drill core is sent for sample preparation and assay, and a further 2% by way of pulp blanks are also not collected at HM. With 4% of the samples being CRM's this is less than the 6% CRM's suggested by Mendez, but 1,951 Interlaboratory Check samples were sent for assay at Geoservices, 3.9% of the total exploration samples, and in line with the 4% suggested by Mendez.

In summary, a total of 8,208 check samples were inserted into the sample stream of 50,102 exploration samples and submitted for assay at the Geoservices Assay Laboratory, a total of 16.4% as compared to the 20% suggested by Mendez.

5.5.3.9 Review, Reporting and Continuous Improvement

This section covers three aspects of the activities undertaken at the QA/QC Department that give added confidence to the culture and systems that are in place at Hengjaya project.

The Review section is similar to the Acceptance Testing that Sterk discusses and which he believes should accompany each QA and QC stage in the sample collection, preparation and analysis stages of the sample processing stream. At present, the HM QC team undertake the following:

- Receive printout of assay results for the batches/consignments of exploration samples
- Check results to confirm check samples inserted into sample stream by HM staff/client
- Identify check samples and compare with original results to confirm acceptable precision and accuracy, and present to the Supervisor to confirm acceptability of results, and whether or not samples need to be re-assayed in the event of contamination, bias or poor precision.
- If CRM results are not acceptable, the analyst and Foreman will consult and clean the Tube Filter and repeat the analysis. If the next assay is in order the sample assaying will continue.
- If the repeat assay is not acceptable, the next assay will be conducted with a different CRM. If this assay produces an acceptable result, the assay sampling will continue. If this assay produces an unacceptable result, the Supervisor will inform the Lab Superintendent and the Supervisor will undertake recalibration of the unit.
- Lab Foreman then decides and approves circulation of results internally
- Lab Superintendent decides and approves results going out to client

- Lab Foreman decides and approves entry of sample results data onto HM database
- Lab Supervisor checks and confirms data entry is correct and in order

In addressing any issues with Interlaboratory Check Samples, Sterk emphasizes the importance of communicating with the commercial laboratory which undertook the assaying of check samples and discussing what may have caused any serious differences in precision or accuracy.

Reporting of the analysis of the Quality Control samples is continual, ongoing process and the HM QA/QC Department issues a Monthly Report detailing the activities of the department for each calendar month. Contents covered in the QA/QC Laboratory Monthly Report for June 2022 are:

- Health & Safety – Near Miss Report
- Accident Report
- Radiation Accident Report
- Preparation Lab Production Report
- Assay Lab Production Report
- Sample Type Statistics
- Monthly Sample Split eg Mining, Exploration, Barging, QAQC
- Quality Control – Sieving Test
- Precision
- Accuracy
- CRM's
- Interlaboratory Check Samples
- Personnel
- Planning, Implementation and Constraints
- Photos

Continuous Improvement is an ongoing procedure that is necessary to maintain the quality of the sample preparation and assay at the HM Laboratories in response to the increase in production at the PT HM Tangofa Mine, from 75,000 wmt per month during 2019 to 300,000 wmt per month in June 2022. Accompanying this threefold increase in the production of saprolite ore, Nickel Industries is now commencing the mining of limonite to feed an HPAL Plant at IMIP to produce batteries for electric vehicles in Sulawesi. This increase in production has seen a corresponding increase in the staffing levels at the Sample Prep and Assay laboratories, as well as the purchase of additional equipment to meet the increased production with upgrading the equipment at the sample prep lab, the assay lab and associated storage.

Nickel Industries have been signing MOU's and other agreements to acquire additional resources to provide additional feedstock for additional RKEF lines at IMIP at Morowali and IWIP at Halmahera.

To meet the challenges of the increased production and implementation of additional technologies and equipment to handle these increases it will be important to upgrade the skill sets of the staff to ensure that the increase in production will see a corresponding increase in the quality of the data generated at the labs and continue to seek higher standards of precision and accuracy through improved techniques.

Current international standards the reporting of exploration and mining results such as JORC Code 2012 and Canadian NI43-101, require that a program of data verification is included with any exploration program to confirm the validity of the exploration data, and this is normally done by inclusion of JORC Code, 2012 Edition – Table 1 Report Template, a copy of which is attached in Appendix 9.1.

HM operates a quality control program at its Tangofa Laboratories where different types and sub-types of control samples are inserted into the sample stream, in order to monitor precision, accuracy and possible contamination at the different stages in the sampling, sample preparation and sample assaying sequence.

Mendez (2011) described the frequency of control samples using information from International QA/QC consultants, Exploration and Mining Companies, various authors and the Toronto Stock Exchange and found that a figure of 20% (1 in 5) of the total samples assayed comprise control samples of various types.

During the period July 2021 to June 2022 a total of 50,102 exploration samples were recorded as being processed at the HM Sample Prep and Assay Labs. The following check samples were added into this original sample stream:

Coarse Rejects/Duplicate Rejects	– 1,020
Pulp Duplicates/Duplicate Assays	– 1,110
Replicates/Replicate Assays	– 2,130
Certified Reference Materials	– 1,997
Total Check Samples	– 6,257

The Coarse Reject and Pulp Duplicate samples comprise 2.0% and 2.2% respectively of the samples submitted. These figures correspond to those proposed by Mendez, of 2% and 2% respectively.

Replicate samples and CRMs comprise 4.2% and 3.98% respectively of the samples submitted. Although Mendez does not appear to specifically include replicates, this figure of 4.2% allows an additional measurement of the Assay Quality at the HM labs and is due to more replicate samples being taken for Barge Samples that are sent to the smelter and for which HM require as accurate data as possible. The CRM total presently used is less than the 6% suggested by Mendez but reflects equipment constraints on the production program when the XRF's are down due to equipment issues, for example faulty X-Ray tubes and limitations on capacity. The complete Lab report is attached in Appendix 9.5.

5.6 DOMAINS AND MINERALIZATION

Historically the Hengjaya mine project has been divided into separate blocks based on their geographical position. As the exploration results have accumulated it appears that several distinct geological domains can be identified where exploration work has been concentrated. These domains can be defined based on the following characteristics:

- a) laterite thickness and Ni grade
- b) mineralogical characteristics
- c) distinct statistical population
- d) elevation and geological environment

At this time 7 separate domain areas have been detected. These are as follows:

- 1) Bete Far West
- 2) Bete West
- 3) Bete Bete
- 4) Bete South
- 5) Central West
- 6) Central East
- 7) APL

Figure 34 shows the location of these domains within the IUP.

Central North may be an additional domain area but at this time there is insufficient sample data to determine if this is a distinct statistical population or part of one of the Central domain areas.

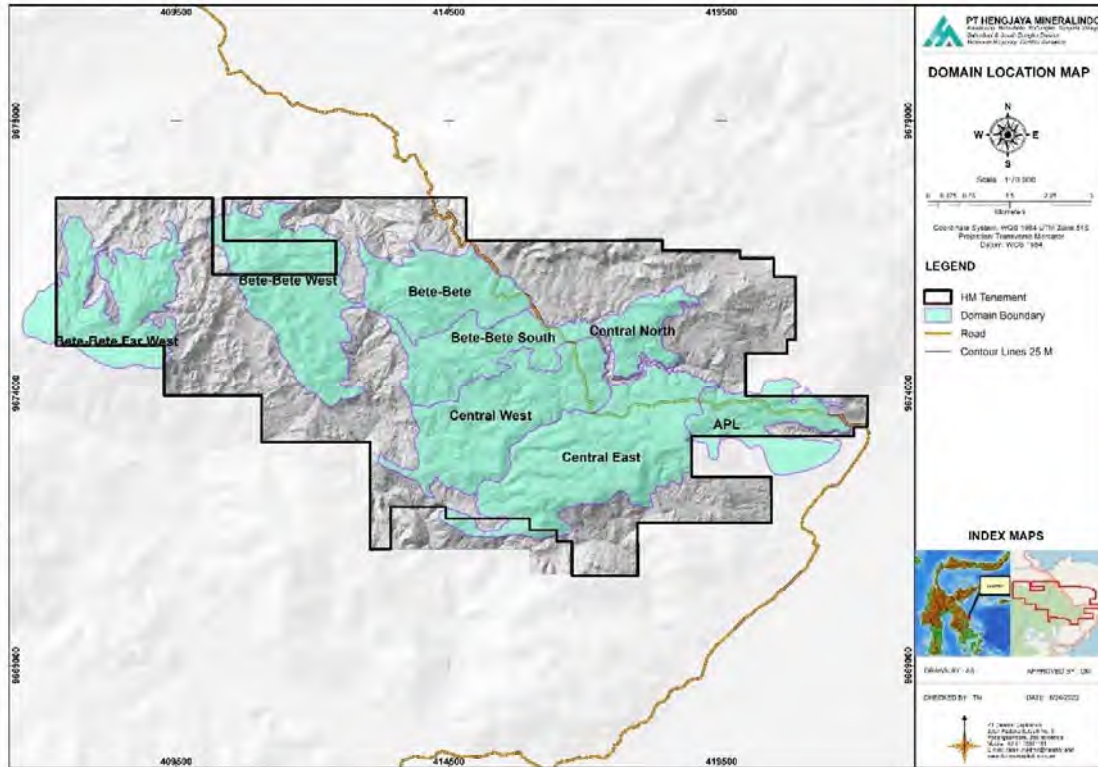


Figure 34 Domain location map

Diagrammatic sections through the 7 main domain areas have been constructed based on the geological model used in this report to show the relative location and characteristics of the laterite and bedrock morphology (see figure 35). Relative elevation and topographic conditions tend to be a key factor in the type of laterite that forms.

Laterite thickness characteristics from the current drill data is shown in Figure 36.

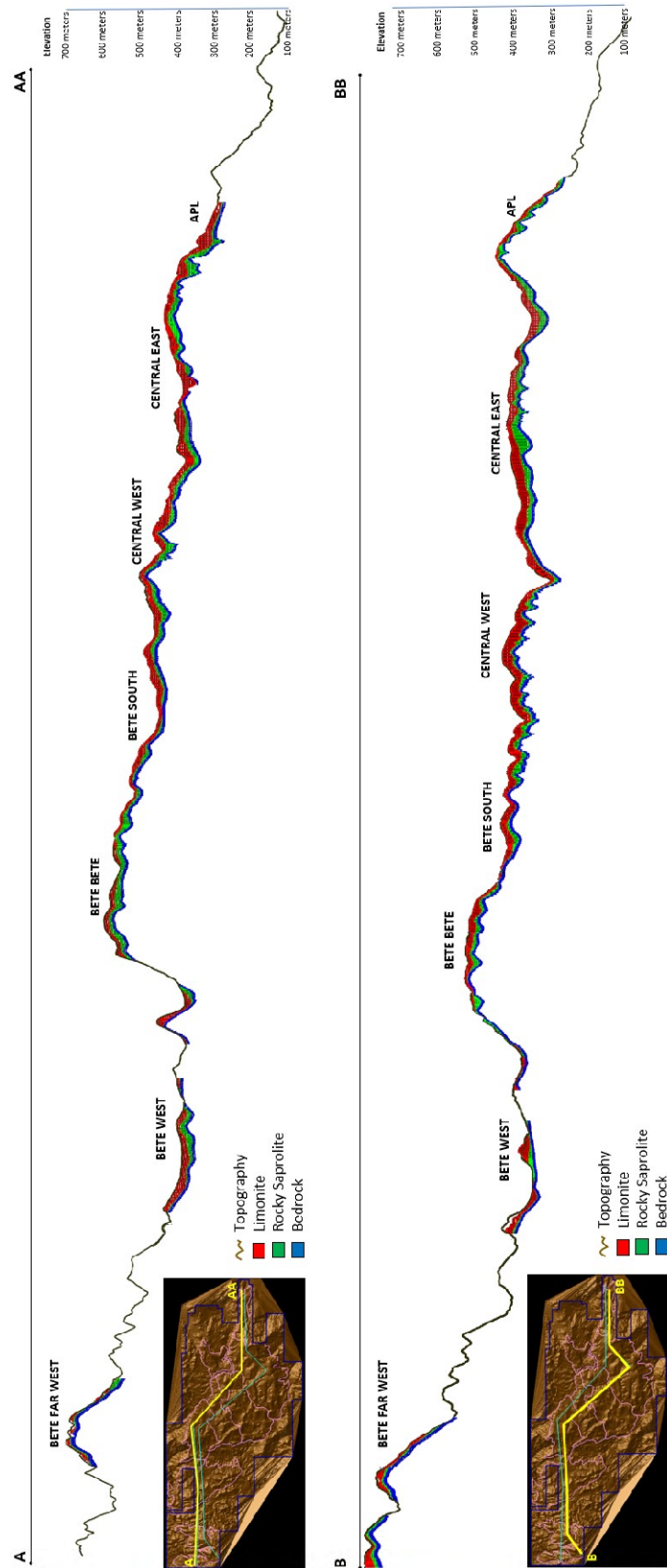


Figure 35 Diagrammatic sections through HM nickel laterite deposit showing relative elevation and geological characteristics

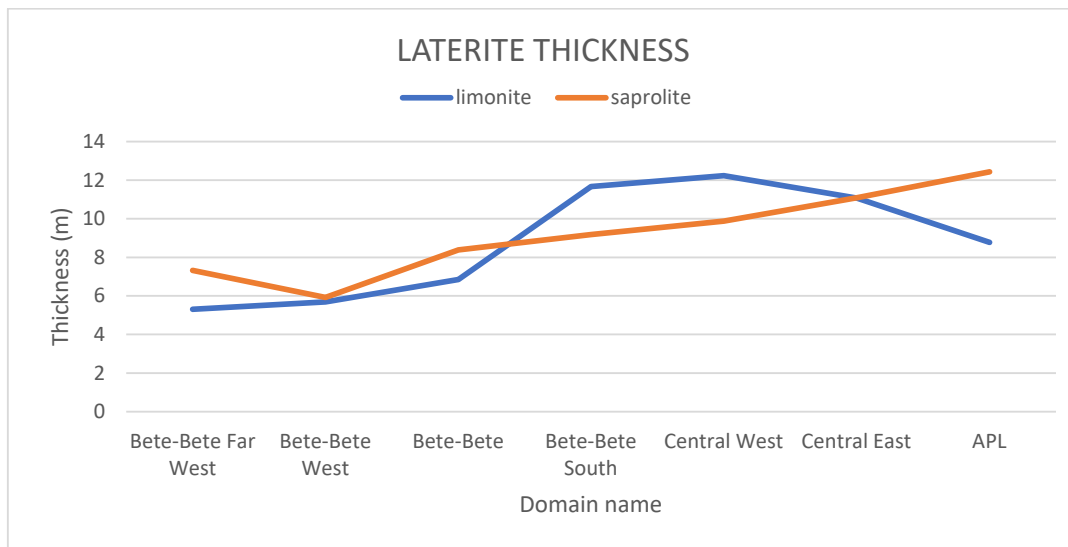


Figure 36 Laterite thickness chart per domain

From west to east, the thickness of limonite and saprolite appears to gradually increase. In the domains with the highest elevations saprolite is relatively thicker than limonite, probably as a result of erosion of limonite to surrounding areas with lower elevations. Bete Bete South, Central West and Central East have the thickest limonite probably due to the accumulation of limonite transported by erosion from higher elevated areas.

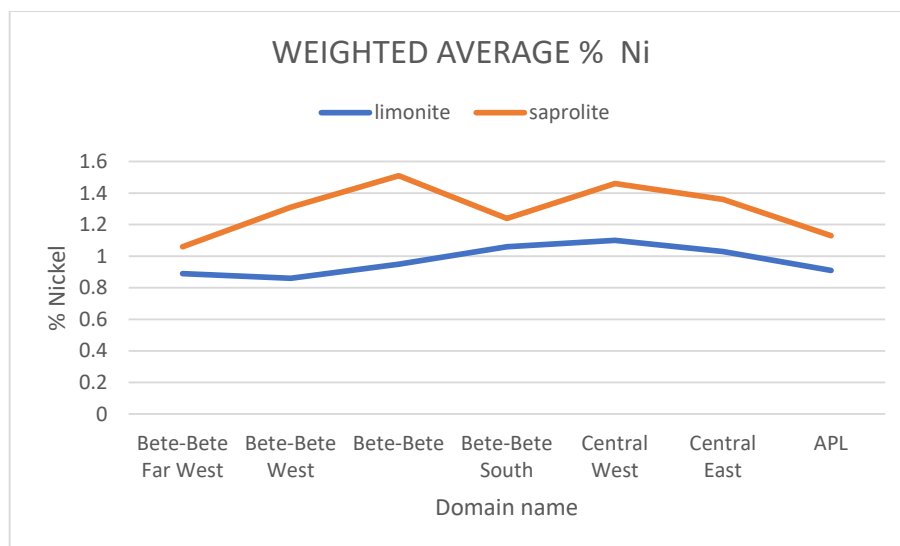


Figure 37 Ni grade average over the 7 domains

Average nickel grade of saprolite in Bete Bete and Central West are the highest of all the domains. This may be because the bedrock and surface topography in these areas is relatively

gently sloping, creating conditions suitable for saprolite development. Bete Bete South, Far West and APL nickel grade in saprolite is significantly lower, possibly due to steeper surface and bedrock topography.

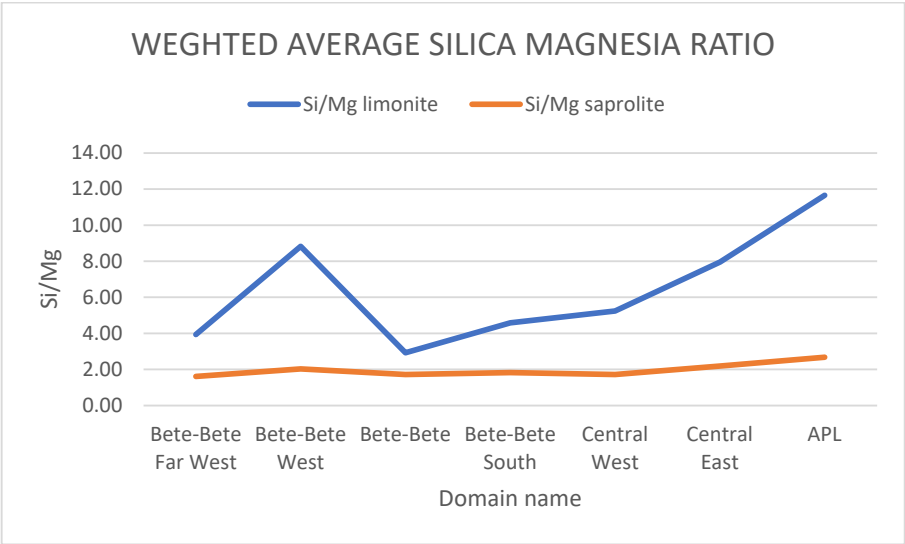


Figure 38 Silica / Magnesia ratio over the 7 main domain areas

The Silica Magnesia Ratio in limonite peaks at Bete Bete West and APL areas. These areas are near the edge of the ultramafic rock contact with the underlying sediments.

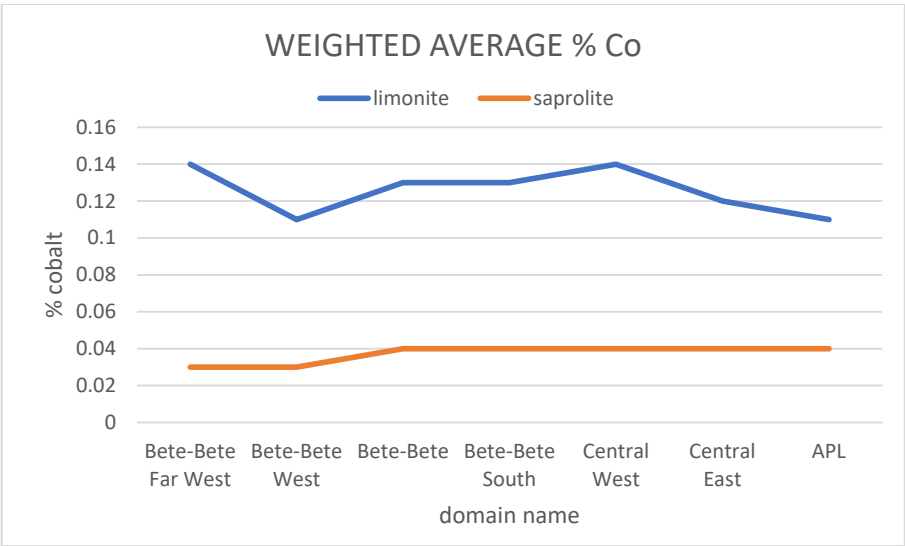


Figure 39 Cobalt grade over the 7 main domain areas

Cobalt grade in limonite peaks in the Central West and Bete Bete Far West domains.

Complete descriptive statistics for each domain are summarized in Appendix 9.4.

5.7 DATA COMPILATION

5.7.1 DATABASE

The Hengjaya Project Database compilation, validation and correlation uses Surpac® mining software with Microsoft® Access Relational Database Management System (RDBMS) providing the storage of collar, downhole survey, lithology and assays.

The project database is comprised of 2 parts;

- 1) The historical drilling supplied by Hengjaya used for ongoing mining operations as well as previous Mineral Resource estimates
- 2) New infill drilling data collected by PT Danmar Explorindo from April 2019 until June 2022

5.7.2 DATA VALIDATION PROCESS

The collar survey, assay and geology tables of both these datasets 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 survey 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

If these errors could not be fixed to a suitable level of confidence or failed to meet the accuracy standards during the validation process, they were removed from the data set. Approximately 50% of the excluded data was from samples still in process of analysis at the laboratory. Table 21 summarizes the reasons drill holes were excluded from the final validated dataset.

Table 21 Drilling Excluded from the Mineral Resource database

Reason for Data Exclusion	No. Drillholes	Comments
Duplicate Hole	4	Same coordinate with other hole
No Assay	411	No assay records because still in lab for assay process
Partial Assay	15	Partial records of assay
Outside IUP	70	Outside IUP permit
Twin hole New Drilling	62	Historical drilling records where newer drilling has superseded the older data
Close to a new reserved hole	34	Close to a new reserved hole
Reliability of Historical Records	327	Collar record & lab assay results insufficient accuracy (mostly original ANTAM exploration data)
Total Drillholes Excluded	923	

5.7.3 SURVEY ACCURACY ISSUES

Approximately 22% (1042) of drillhole collars included in the validated database were draped onto the LiDAR surface for better correlation to the topography for the geological modeling process. The majority of these were from the historical data, including Bete Bete and APL mined out areas, where older survey benchmarks from local grids were used to match a non-LiDAR surface.

Table 22 Collar survey validation

Drill Collar Source	No. Drillhole in Sample set	Drillhole in Sample set (%)	Comment
NEW DEX	3671	79%	TOTAL STATION LESS THAN 1 M VARIANCE
OLD HENGJAYA DATABASE	715	15%	DATA EXTACTED FROM HISTORICAL DATA (DAPED)
NEW DEX	44	1%	MORE THAN 1 M VARIANCE (DRAPED)
NEW DEX	30	1%	MORE THAN 2 M VARIANCE (DRAPED)
NEW DEX OTHER	197	4%	BETE-BETE ACTIVE MINE/DUMP AREA
COLLAR RESURVEY	4657	95%	INCLUDED IN RESOURCE
GPS MINE OUT	72	1%	BETE-BETE& APL MINE AREA (DRAPED)
GPS IN RESOURCE	181	4%	GPS COORDINATE ONLY (DRAPED)
TOTAL HOLE INCLUDED	4910	84%	ASSESSED FROM MINERAL RESOURCE
TOTAL HOLE EXCLUDELUDED	923	16%	IGNORED FROM MINERAL RESOURCE
GRAND TOTAL	5833		ALL DRILLHOLE COLLAR RECORD

5.7.4 RECONCILIATION OF LITHOLOGY AND ASSAY RESULTS

During the database validation process the downhole lithological description provided at the initial observations of the mineralization and lithological zones by the wellsite geologists was reconciled once the lab assay results were available. These corrections were then applied to lithology and composite code to be used in the modeling process. These zones were classified using the generalized limits shown in Table 23.

Limonite (LIM) zones were relatively homogenous due to the highly weathered laterite layer consisting mostly of massive clay formations, with only minimal boulders of bedrock. This layer was divided further for the extraction of composites into Topsoil and Limonite as several different characteristics can be identified in assay, density and moisture content. It is generally assumed in the mining process that the Soil layer is waste (overburden) due to the particular nickel grade cut-offs used. The Limonite layer is designed to meet the specifications for supply to a HPAL(high pressure acid leach) facility at the IMIP smelter. Limonite barging began in November 2021.

The underlying Rocky Saprolite (SAP) zone is in a less homogeneous geological environment. Compared to the Limonite it is only moderately weathered. The Saprolite layer often includes a transition zone, from the overlying Limonite, fresh rock boulders and weathered bedrock

which are all composited into the Saprolite (SAP) code to provide an unbroken composite within the modeled laterite horizon.

Bedrock (BRK) definition was given to intersections of the fresh ultramafic rock zone intersected at the bottom of drill holes, indicating the lower boundary to the total extent of the laterization process.

Assay results were reconciled into lithology codes using Table 22. Some single assays, within the contact between lithological zones that were unconformable, were composited into the dominant surrounding lithology type to provide unbroken zones for modeling.

Table 23 Specification for reconciliation of assay records

Lithological Zones	Model Zones	Composite Zones	No. Assay Records	Ni %	MgO %	Fe %	Co %
Top Soil (Overburden)	LIMONITE (LIM)	OS-LIM	19,498	< 1.0 %	< 1 %	> 40%	< 0.08 %
Limonite Clays, Highly weathered laterite		ORE-LIM	30,358	> 1.0 %	< 5 %	> 30 %	> 0.08 %
Saprolite rocks, Partially Weathered laterite	ROCKY SAPROLITE (SAP)	DRE-SAP	26,076	> 1.2 %	> 5 %	< 30 %	< 0.08 %
		WST-SAP	22,669	> 0.8 %	> 5 %	< 30 %	< 0.08 %
Fresh rock of Ultramafic formation	BEDROCK (BRK)	WST-BRK	12,964	< 0.8 %	> 20 %	< 10 %	< 0.01 %
TOTAL ASSAY RECONCILED AND INCLUDED IN MINERAL RESOURCE			111,565				
Underlying Tokala Formation (Older)	SEDIMENT (LIMESTONES)	SED	58				

Several assay intersections have been identified as sedimentary (SED) which is likely part of the older underlying Tokala Formation that consists of conglomerate and limestone. All of these intersections are located in the Bete West and lower APL domains. It is assumed these are contact points between the younger Ultramafic rocks and the Tokala Formation.

5.7.5 DOWNHOLE STATISTICAL ANALYSIS

Downhole descriptive statistical analysis was conducted on the validated database used in the Mineral Resource in order to check the distribution and ranges of the analyzed elements and identify any anomalous or outlying data before the interpreted lithological surface horizons were correlated into the final model.

These simple statistical checks were completed for Ni, Co, Fe, MgO / SiO₂, Al₂O₃, CaO, Cr₂O₃, MnO which comprise the main elements for the mining extraction and smelting processes already being applied at the Hengjaya site.

Histograms of these unrestricted assay data subsets were created for each domain split by Limonite, Saprolite and Bedrock zones to assess the distribution of assay results. Most of these show relatively normal distributions typical with similar type laterite deposits from Sulawesi, Indonesia. Most histograms also show some skewness of the population due to outliers. These are likely due to the compositing process of the assay reconciliation and transition between the assigned lithology zone breaks. In many cases outliers were accepted due to the geological zoning, with most identified as bedrock boulders inside the Limonite and Saprolite layers.

The histogram plots for nickel grade values show positively skewed data, which suggests outliers could cause possible overestimation to the Mineral Resource grade due to bias caused by the extreme grade which is commonly known as the nugget effect. To reduce the impact of these outliers, top cuts are calculated by estimating the range from 2 standard deviations from the mean, which assumes that 95% of the values are within this adjusted range. This top cut strategy is considered adequate for this project since the frequency of the outliers are considered relatively low. The summary of recommended statistical top cuts for each domain is shown in Table 24.

Table 24 Summary of recommended statistical top cuts for each domain

Block	Lith_comp	Samples	Mean	Median	StDev	Minimum	Maximum	TOP CUT
BETE BETE	ORE-LIM	1906	1.17	1.14	0.21	0.56	2.39	1.59
	ORE-SAP	3267	1.81	1.80	0.51	0.21	4.23	2.83
BETE SOUTH	ORE-LIM	3897	1.22	1.20	0.20	0.48	2.59	1.61
	ORE-SAP	1999	1.56	1.56	0.43	0.26	3.88	2.42
CENTRAL WEST	ORE-LIM	17300	1.23	1.22	0.21	0.23	2.85	1.66
	ORE-SAP	13191	1.76	1.73	0.57	0.19	6.36	2.90
CENTRAL EAST	ORE-LIM	4921	1.22	1.21	0.24	0.14	3.38	1.70
	ORE-SAP	4934	1.71	1.68	0.59	0.02	6.02	2.88
BETE WEST	ORE-LIM	93	1.19	1.16	0.20	0.81	1.80	1.59
	ORE-SAP	141	1.70	1.58	0.42	0.82	3.75	2.55
BETE FAR WEST	ORE-LIM	305	1.09	1.07	0.18	0.63	1.56	1.45
	ORE-SAP	204	1.72	1.62	0.43	0.75	2.95	2.58
APL	ORE-LIM	1198	1.16	1.16	0.20	0.10	1.93	1.57
	ORE-SAP	1719	1.63	1.58	0.64	0.12	5.20	2.91

The application of these top cuts to normalize the distribution of the statistical percentage nickel grades were reviewed. From these recommendations, a top cut for each domain was applied to nickel composites and used in the model grade interpolations to limit the influence

of statistical outliers within each of the grade domains. Bottom cuts of 0.25% Nickel were also applied to all domains.

Figure 40 shows the histogram of all Ni grade values (without laterite profile restriction) indicating the positive skew of the dataset which indicates we have a large group of low nickel values compared to the high nickel values. Figure 41 shows the application of the top cut on the distribution of the nickel grade values used in the model.

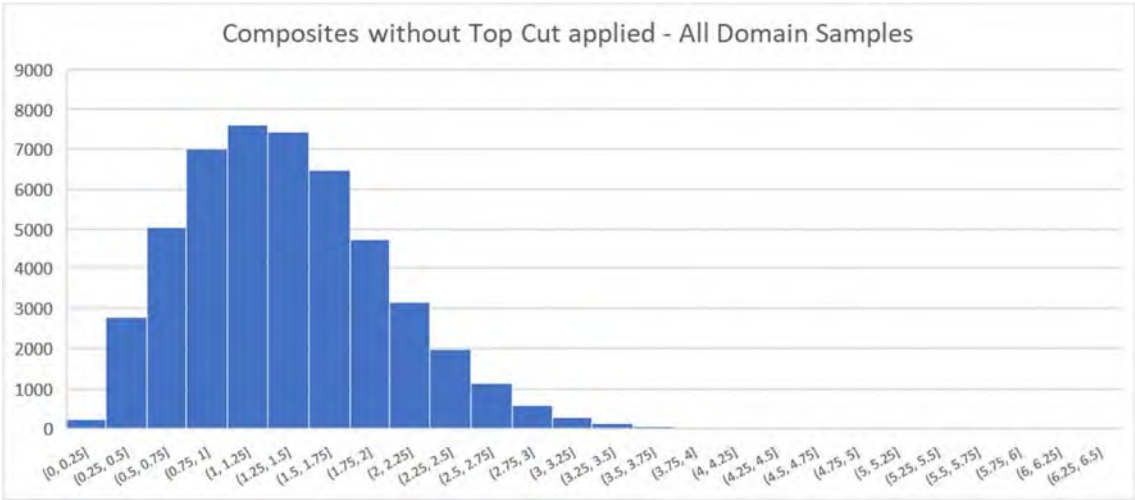


Figure 40 Histogram of Ni Grade (without laterite profile restriction)

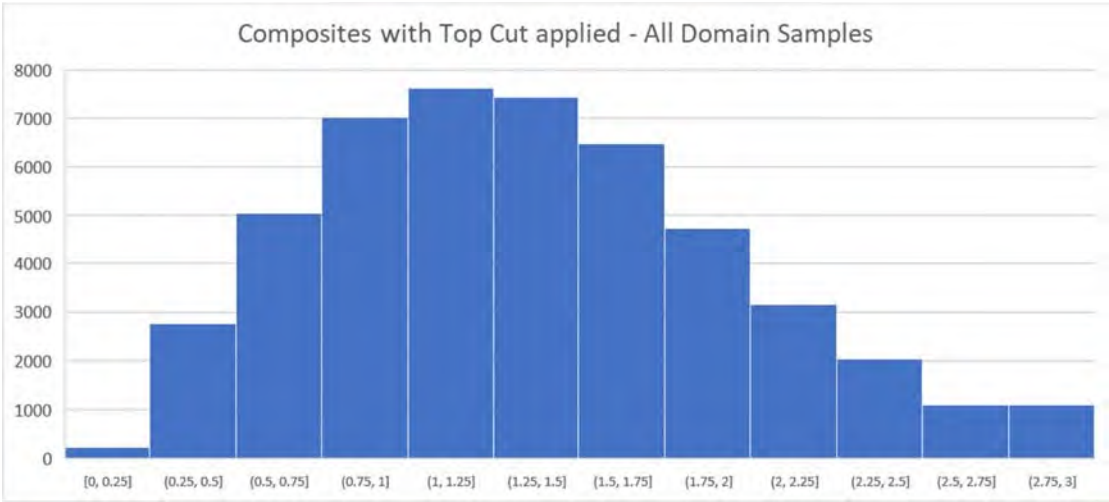


Figure 41 Histogram of Ni Grade with top cut applied

Composited, down hole statistics extracted by zone thickness and average nickel grades for Limonite and Saprolite were plotted on a map to identify the spatial distribution of each zone respectively as shown in figures 42 and 43 for Limonite and figures 44 and 45 for Saprolite.

Composite Limonite grades are highest in the Central West and Central East domain areas. Composite Saprolite grades tend to be highest in the Bete Bete and Central West areas.

From these plots it is observed that the lateral statistical distribution for both Limonite and Saprolite conform to several interpreted geological breaks that influence the laterization process from one location to another. The statistical analysis process was also split into the corresponding geological domains. These statistical subsets were constrained using hard polygon boundaries interpreted in Section 5.5 of this report.

For further details on downhole statistical analysis information please see Appendix 9.4.

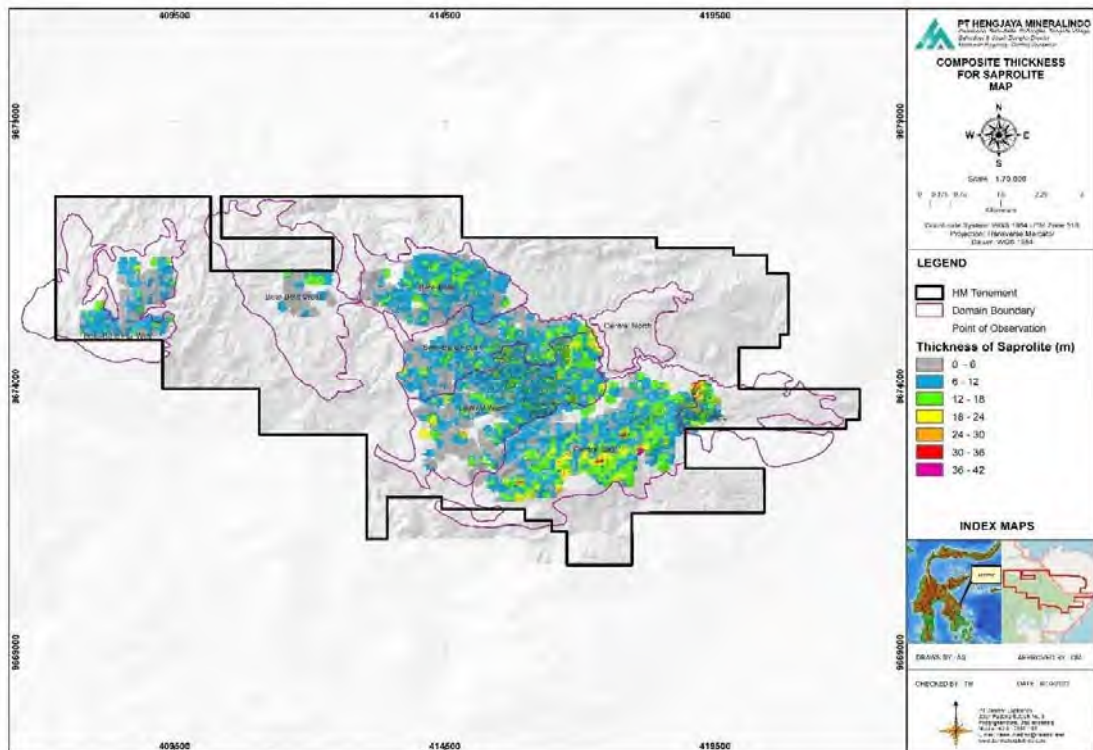


Figure 42 Composite Thickness for the Limonite zone based on drilling

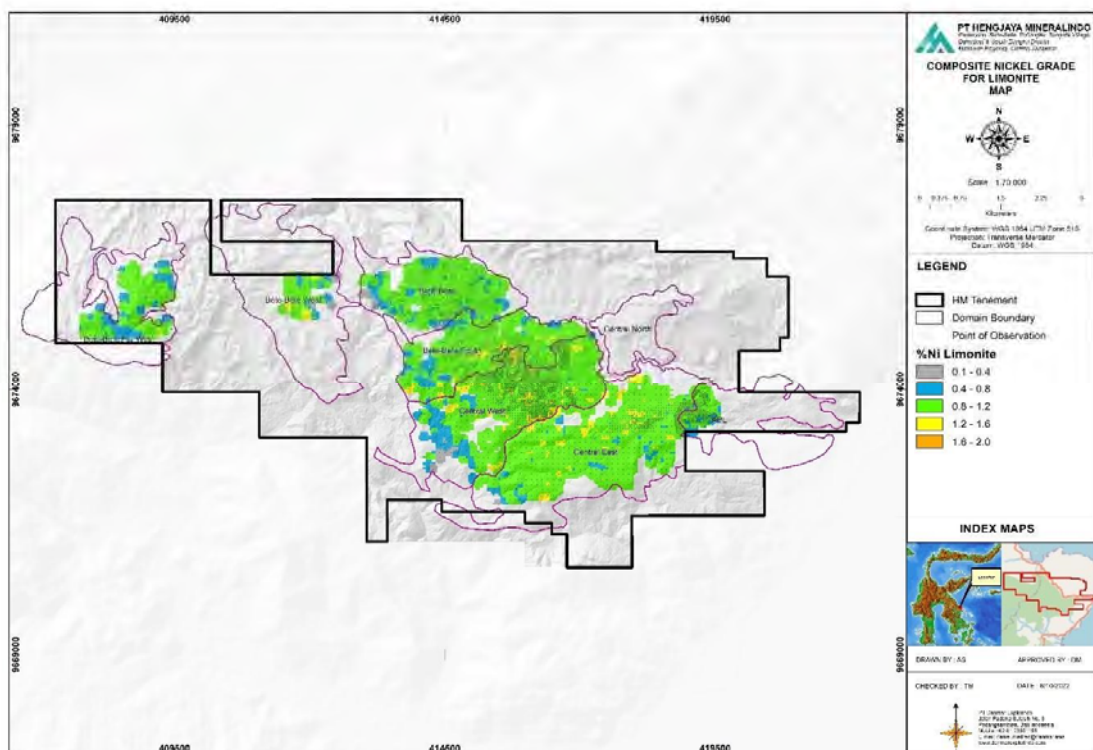


Figure 43 Composite nickel grade for the Limonite zone based on drilling

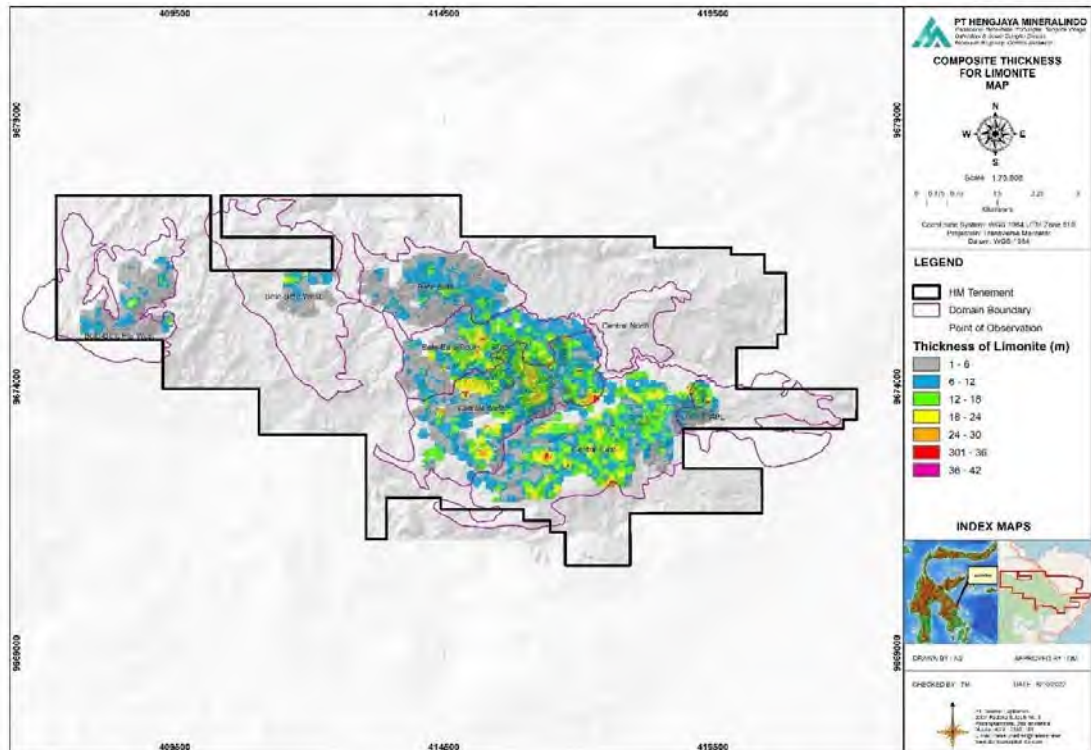


Figure 44 Composite thickness for the Saprolite zone based on drilling

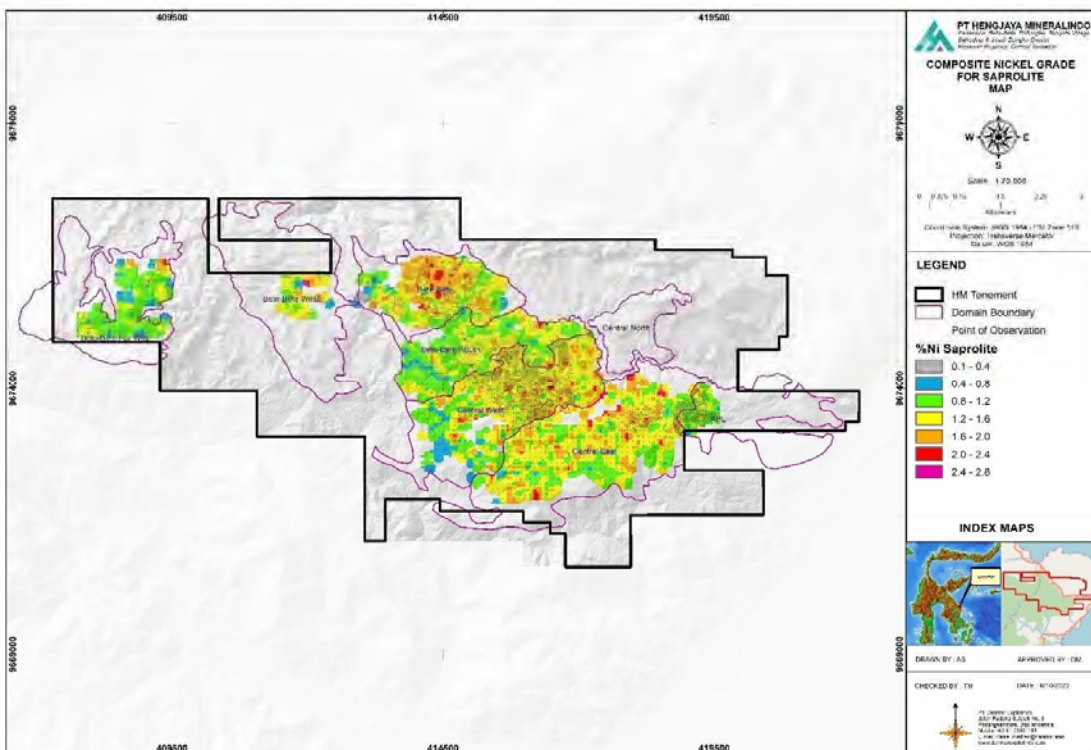


Figure 45 Composite nickel grade for the Saprolite zone based on drilling

5.7.6 GEOSTATISTICAL ANALYSIS

The continuity of the nickel mineralization within each domain was assessed using the spatial relationship between composites extracted from the validated database. This process is used to identify direction and continuity of the grades.

Geostatistical analysis was applied to the Ni value grades only for each of the geological domains for both Limonite and Saprolite layers. The purpose of this was to generate several semi variogram models so that these parameters could be used to input into the Kriging algorithms when populating the final models with interpolation of nickel grades.

These semi variogram ranges, based on the geostatistical analysis, were used to define the spatial continuity, direction and distances of search ellipsoids to be applied to the nickel Mineral Resource estimate as follows;

- determination of directional anisotropy of the mineralized zones
- estimation of spatial continuity of the grades aligned with the main directions determined by the anisotropy ratios, providing a distance for the search
- calculation of the Sill or Nugget effect and range to be used in the Kriging process

This process was conducted with many iterations until the model validation was checked to provide sufficient confidence for a Mineral Resource. Figure 46 shows the typical process flow used when completing the geostatistical analysis

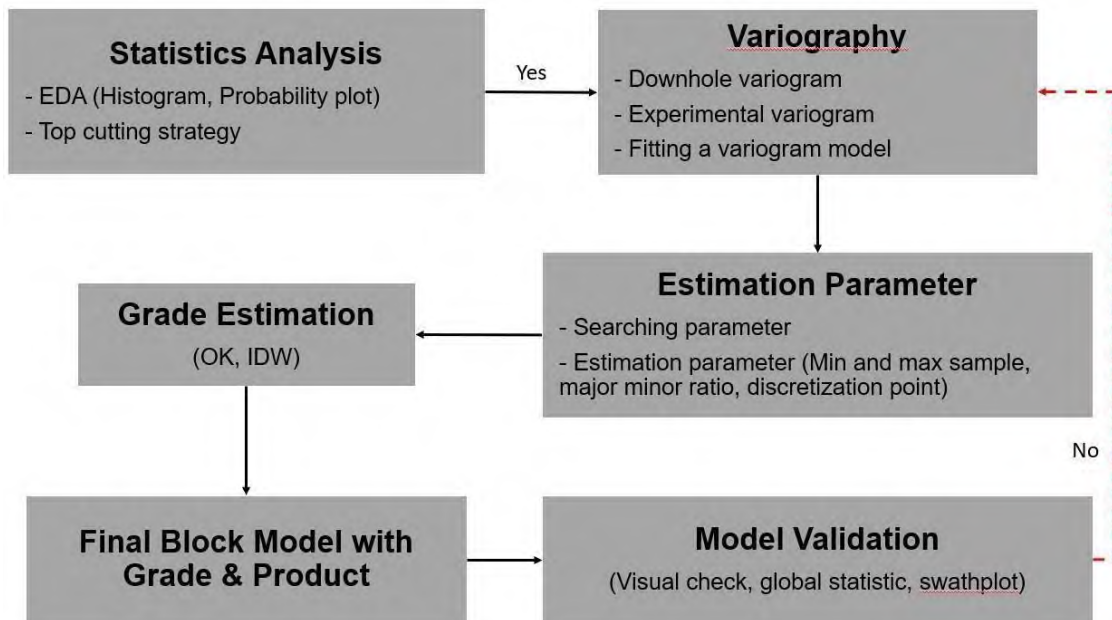


Figure 46 Geostatistical analysis process flow

All the semi variogram models for each domain were calculated using statistical top-cuts for Saprolite were applied to composites and constrained by hard boundary surfaces of the corresponding mineralized lithology zones for Limonite and Saprolite.

In general, the distribution of mineralization within the laterite was considered to be relatively flat lying, with no significant dip or plunge observed between points of observation the variograms were modeled as horizontal planes.

Variograms are first aligned along the major axis bearing which represents the main direction of mineralized continuity, with the semi-major axis direction aligned 90o to the first axis. A third axis (minor) represents the vertical search. The combination of these 3 axes, weighted by the anisotropy ratios, provide the guide for search ellipsoids to be applied to the model.

The result of the variogram models are summarized in Table 25.

Table 25 Summary Result of the variogram model created

Domain	Variogram model: Spherical								Anisotropy Factor	
	Experimental Variogram type: Standard								Major/ Semi-Major	Major/ Minor
	Profile	Element	Bearing	Plunge	Dip	Range	Nugget	Structure 1 (Sill)		
BBW, BB, BBS, CW, CE, APL	LIM	ni	120	0	0	71.409	0.006	0.067	1	9.18
	SAP	ni	105	0	0	52.35	0.067	0.3	1.01	7.14
BETE FAR WEST	LIM	ni	70	0	0	164.25	0.008	0.055	1	19.57
	SAP	ni	45	0	0	218.83	0.025	0.2	1.113	24.25

Figure 47 shows the semi variogram models produced for Bete Bete and Central domains for Ni in Limonite.

Figure 48 shows the semi variogram models produced for Bete Bete and Central domains for Ni in Saprolite.

Figure 49 shows the semi variogram models produced for Bete Bete Far West domain, Ni in Limonite.

Figure 50 shows the semi variogram models produced for Bete Bete Far West domain, Ni in Saprolite.

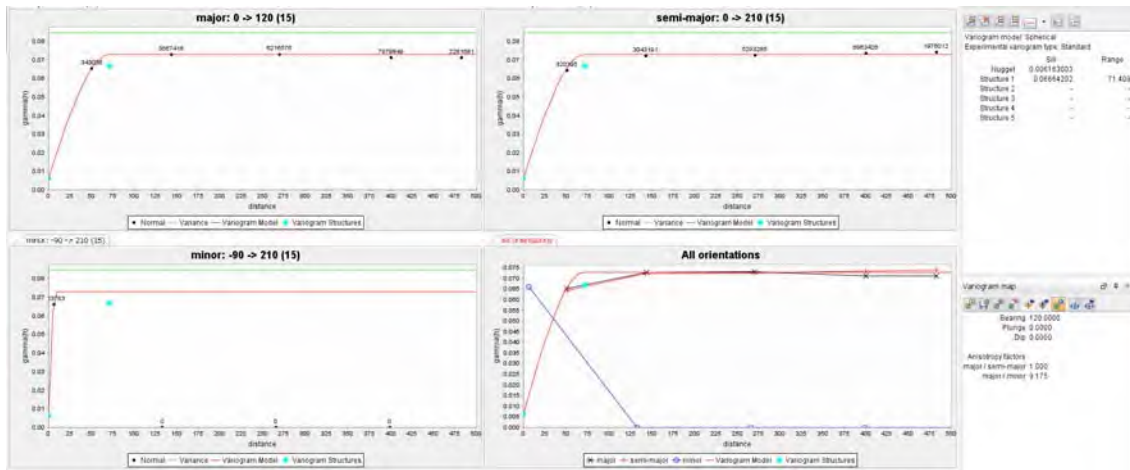


Figure 47 Semi variogram models for Bete Bete and Central domains, Ni in Limonite

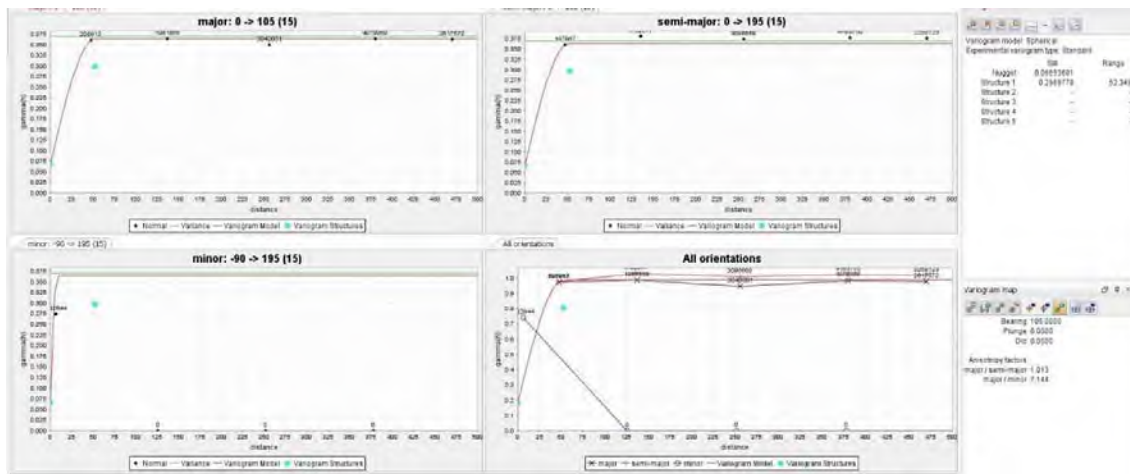


Figure 48 Semi variogram models for Bete Bete and Central domains, Ni in Saprolite

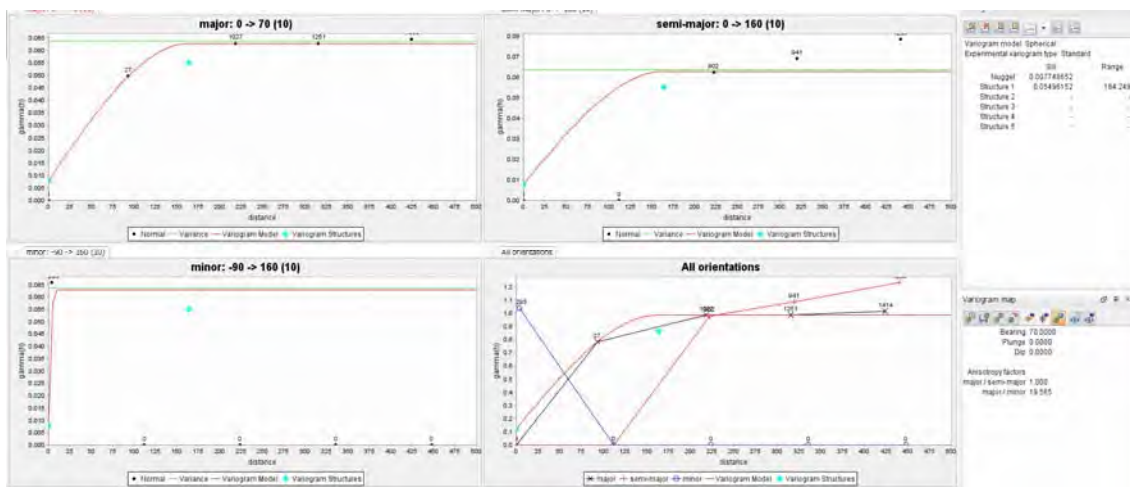


Figure 49 Semi variogram models for Bete Bete Far West domain, Ni in Limonite

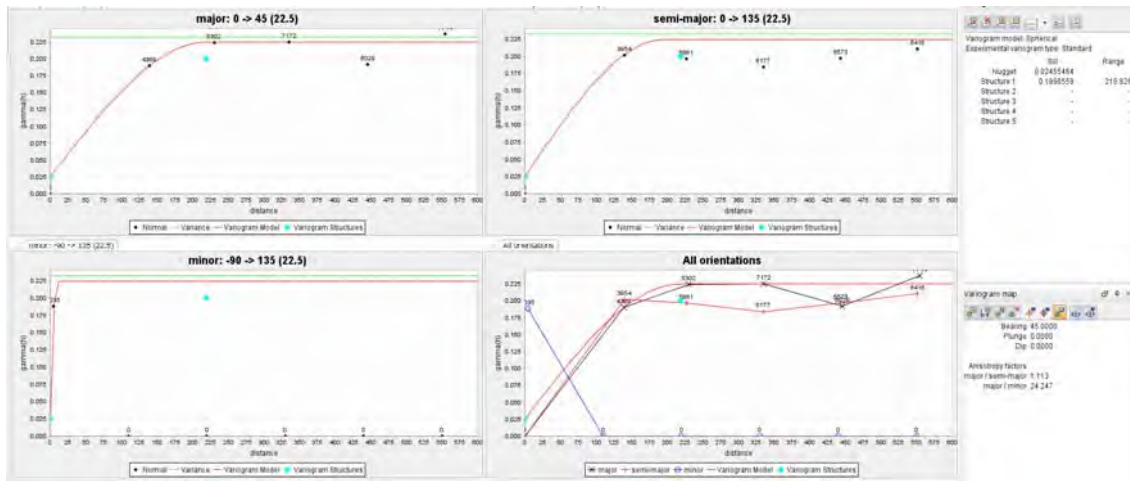


Figure 50 Semi variogram models for Bete Bete Far West domain, Ni in Saprolite

6 MINERAL RESOURCE ESTIMATE

This report is an update to the last Mineral Resource estimate dated 30 June 2020. Since that time an additional 2,909 drill holes have been completed with a total cumulative depth of 71,330m.

6.1 SOFTWARE

Geological modeling and Mineral Resource estimates were completed using GEOVIA Surpac® mining software (version 6.1). compilation, validation and correlation using Surpac® mining software with Microsoft® Access Relational Database Management System (RDBMS) providing the storage of collar, downhole survey, lithology and assay.

6.2 SURFACE GRIDDING & WIREFRAMING

Wireframing was set up on each drill line in both east-west & north-south directions to create a 10X10m grid over the entire database area. First digitized, the lines were then draped onto the LiDAR surface to develop a morphology wireframe. This was done to assess any aspect and slope angle weathering patterns obvious from the topography.

The wireframe sections were then generated into gridded surfaces from the drilling/assay database (points of observation). From this process 2 dominate horizons were interpreted;

- top of rocky Saprolite – contact zone between Limonite clay and rocky Saprolite
- top of Bedrock – contact zone between rocky Saprolite and bedrock

A third gridded surface was extracted from the top of the bedrock by dropping the elevation by 10m to represent the floor of bedrock in the model.

The gridded surfaces were produced to represent the roof and floor limits of limonite, saprolite and bedrock zones. 10m grids were set up and interpolation of the gridded points were using Inverse Distance Weighted Squared (IDW²) methods.

These final gridded surfaces were then checked visually using sections to the contact of the drilling database to correct any over-smoothing with the process. This visual check provided some small corrections to ensure the drilling intersected the surfaces with no interpretational errors.

6.3 ASSAY DATA AND COMPOSITING

Only assay data from the validated database from included holes (INCL) were extracted for use in the compositing process. Composite lengths of 1m were used, which correlates with the majority of the sample length records and within statistical ranges suggested by the variography modeling. Composites were split into 5 distinct zones:

- SOIL (OB-LIM)
- LIMONITE (ORE-LIM)
- SAPROLITE (ORE-SAP)
- ROCKY SAPROLITE (WST-SAP)
- BEDROCK (WST-BRK)

For each of the zones the following elements were composited from the assay results in the database as follows;

- Ni (%) – Nickel content
- Co (%) – Cobalt content
- Fe (%) – Iron content
- MgO (%) – Magnesium Oxide content
- SiO₂ (%) – Silica Oxide content
- Al₂O₃ (%) – Aluminum Oxide content
- CaO (%) – Calcium Oxide content
- Cr₂O₃ (%) – Chromite Oxide content
- MnO (%) – Manganese Oxide content
- Moisture Content (%)

Based on analysis of the downhole statistical data additional top and bottom cut constraints were applied to Ni% content to impose a domain limit of no greater than 2 standard deviations from the ORE-SAP average to avoid over-estimation of nickel content due to possible nugget effect. For this reason, all core sample measurements over statistical cuts (Ni) were assigned a default value. Table 26 shows the influence of the applied Ni top cuts to final composites for each domain.

Table 26 Ni % top cut applied to composites by domain

Domain	Nickel top cut (Ni%)			total assay
	Cut applied	No. assay	No. cut %	
BETE_FAR_WEST	2.58	8	0.37%	2,167
BETE_WEST	2.55	5	0.71%	704
BETE_BETE	2.83	80	0.71%	11,238
BETE_SOUTH	2.42	83	0.62%	13,292
CENTRAL_WEST	2.90	441	0.83%	53,198
CENTRAL_EAST	2.88	146	0.68%	21,441
APL	2.91	75	0.79%	9,550
TOTAL ADJUSTED ASSAY RECORDS		838	0.75%	111,590

In areas where Moisture content measurements were not available the domain default weighted average was applied to the corresponding composite zone. Moisture content for APL Zone was applied from Central East Domain sampling. Table 27 summarizes the number of composite samples that were used to estimate the domain weighted moisture content. Table 28 summarizes the number of composite samples that were used to estimate the domain weighted sample Moisture content.

Table 27 Moisture Content records domain averages applied to composites

Laterite Profile	Average Moisture Content %					
	Bete Far West	Bete West	Bete Bete	Bete South	Central West	Central East
SOIL	36.5%	35.5%	32.5%	35.5%	34.2%	35.4%
LIMONITE	40.1%	41.8%	40.2%	43.3%	41.2%	41.9%
SAPROLITE	24.3%	35.7%	31.8%	32.9%	31.5%	31.8%
BRK	6.6%	24.7%	13.3%	10.3%	9.8%	12.2%
Total Samples	2179	611	9867	12912	52514	15991

Table 28 Moisture Content records applied domain averages to composites

Domain	Moisture Content records using domain averages					
	OB-LIM	LIM	SAP	BRK	No.Assay	(%)
BETE_FAR_WEST	0	0	0	0	0	0.0%
BETE_WEST	17	0	28	41	86	12.2%
BETE_BETE	271	162	682	260	1,375	12.2%
BETE_SOUTH	84	43	159	52	338	2.5%
CENTRAL_WEST	201	104	355	43	703	1.3%
CENTRAL_EAST	1,675	656	2,633	577	5,541	25.8%
APL	2,091	1,198	4,918	1,343	9,550	100.0%
total adjusted records	4,339	2,163	8,775	2,316	17,593	15.8%
	3.9%	1.9%	7.9%	2.1%		

6.4 BULK DENSITY

Relative density was manually added to the composites based on the weighted average recorded for each zone within the corresponding domain (see Table 18). APL block was assumed to be similar in geological characteristics to Central East as they are located at the same area so the density was assumed to be the same as well.

6.5 BLOCK MODELING

A 3D block model was created covering the Mineral Resource area constrained using the final gridded surface models from the wireframing process to use as the base of volume estimation of the laterite zones of limonite, saprolite and bedrock. A total of 2 block models were created as follows;

- 1) Master model covering Bete Bete and Central domains
- 2) Bete Far West model

This division was done to reduce the size of the combined block model for practical use within computer processing capacity. Table 29 shows the block model dimensions and block sizes used during this process. The assumption of the block sizes was designed to match the composite sample lengths and practical mining bench dimensions for ongoing mine planning at the Hengjaya site.

Table 29 Block model dimensions

BETE BETE / CENTRAL MODEL				BETE FAR WEST MODEL			
Type	Y	X	Z	Type	Y	X	Z
Minimum Coordinates	9671600	411200	180	Minimum Coordinates	9674830	407500	450
Maximum Coordinates	9676840	419900	580	Maximum Coordinates	9676710	409700	860
User Block Size	20	20	2	User Block Size	20	20	2
Min. Block Size	10	10	1	Min. Block Size	10	10	1
Rotation	-	-	-	Rotation	-	-	-
Axis Length (m)	5240	8700	400	Axis Length (m)	1880	2200	410
Total Blocks	94498			Total Blocks	24495		
Storage Efficiency %	99.94			Storage Efficiency %	99.85		

Attribute Name	Type	Decimal	Background	Description
density	Real	2	-99	Insitu lab density measurement (wet s.g)
domain_id	Character	-	UNDEF	BETE BETE, BETE SOUTH, CENTRAL WEST, CENTRAL EAST, APL, BETE WEST, BETE FAR WEST
geology	Character	-	UNDEF	LATERITE=LIMONITE/SAPROLITE
grade	Real	2	0	1=LIM/RSAP/BRK
idw_al2o3	Real	2	-99	IDW Interpolated grades for Aluminium Oxide (Al2O3%)
idw_cao	Real	2	-99	IDW Interpolated grades for Calcium Oxide (CaO%)
idw_co	Real	2	-99	IDW Interpolated grades for Cobalt (Co%)
idw_cr2o3	Real	2	-99	IDW Interpolated grades for Chromite (Cr2O3%)
idw_fe	Real	2	-99	IDW Interpolated grades for Iron (Fe%)
idw_mgo	Real	2	-99	IDW Interpolated grades for Magnesium Oxide (MgO%)
idw_mno	Real	2	-99	IDW Interpolated grades for Manganese Oxide (MnO%)
idw_ni	Real	2	-99	IDW Interpolated grades for Nickel (Ni%)
idw_pass	Integer	-	0	Krigging Pass 0=Undefined, 1=Pass 1, 2=Pass 2, 3=Pass 3, 4=Pass 4
idw_sio2	Real	2	-99	IDW Interpolated grades for Silica (SiO2%)
lith_type	Character	-	UNDEF	LIM=Limonite, RSAP=Saprolite, BRK=Bedrock
material_class	Character	-	WASTE	OVERBURDEN=Limonite, ORE=Saprolite
moisture_content	Real	2	-99	Moisture content (%) of core sample
ni_keff	Real	2	-99	Krigging Efficiency
ni_kvar	Real	2	-99	Krigging Variance
ni_ok	Real	2	-99	Ordinary Kriging interpolation for Nickel (Ni%)
ni_ok_top_cut	Real	2	-99	Ordinary Kriging interpolation for Nickel (Ni%) with top cut applied
ni_pass	Integer	-	0	Krigging Pass 0=Undefined, 1=Pass 1, 2=Pass 2, 3=Pass 3, 4=Pass 4
res_class	Character	-	UNDEF	MEASURED, INDICATED, INFERRED

Constraints applied are all below the LiDAR topography surface and within the Resource boundary polygon limited to the edge of the domains and extent of the included drilling data. Further constraints to distinct laterite zones are;

- Limonite – above top of rocky saprolite
- Saprolite – below top of saprolite / above top of bedrock
- Bedrock – above floor of bedrock / below top of bedrock

6.6 GRADE INTERPOLATION

For the purpose of this report, Ordinary Kriging (OK) algorithm was used in the grade interpolation for nickel in limonite and saprolite zones. These surface constraints were applied as hard surface boundaries when estimating nickel in each domain.

In the absence of geostatistical analysis for other elements, Inverse Distance Weighted Squared (IDW²) methods were used to estimate the model grade interpolation for other elements including: Ni, Co, Fe, MgO & SiO₂, Al₂O₃, CaO, Cr₂O₃, MnO and Moisture Content. Population of the model used the same search ellipsoids and constrained passes as OK modeling for nickel.

The subsequent model validation process showed a similar Ni to volume ratio between OK and IDW² results, so it is not expected the other elements interpolated are biased combining the 2 methods together.

In total three main passes were applied to both the OK and IDW² methods when interpolating the model grades, with increasing search ellipsoid distances between drilling, a fourth pass was completed to ensure all blocks within the model are given a grade within the Mineral Resource area. Table 30 shows the summary of the final model search ellipsoids applied to the Mineral Resource.

Table 30 Summary search ellipsoids applied to the model

Lithology zone by Domain	Limonite								Saprolite							
	Bete Bete				Bete Far West				Bete-Bete				Bete Far West			
Search Type	Ellipsoid								Ellipsoid							
Bearing	120				70				105				45			
Plunge	0				0				0				0			
Dip	0				0				0				0			
Major-Semi Major Ratio	1				1				1.013				1.113			
Major-Minor Ratio	9.18				19.57				7.14				24.25			
Search Pass	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4
Max Search Radius (m)	37.5	75	150	300	37.5	75	150	300	37.5	75	150	300	37.5	75	150	300
Max Vertical Search Distance (m)	2	4	8	16	2	4	8	16	2	4	8	16	2	4	8	12
Minimum Samples	3	3	2	1	3	3	2	1	3	3	2	1	3	3	2	1
Maximum Samples	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Max. Samples per Hole	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Block Discretisation	3 X by 3 Y by 2 Z								3 X by 3 Y by 2 Z							

Each of the domain search ellipsoids applied to Limonite and Saprolite layers, both bearing and anisotropy factors were applied as recommended by the geostatistical study for the Kriging interpolation of nickel grades. However, based on the review of the suggested ranges and assessment of the regular drilling grid pattern, standard search radius was applied to all blocks at; 37.5m, 75m and 150m, representing the extrapolation distances between drilling grids of 25, 50 and 100 meters respectively. These passes were considered with reasonable tolerances and rechecked during the model validation process (see Table 25). Then they were used as a guide to the Resource categorization.

6.7 RESOURCE CLASSIFICATION STRATEGY

Determination of the Resource categories were applied to the Mineral Resource with a digitized polygon boundary based on the spatial continuity of each geological domain around regular spaced drilling grids of 25, 50, 100, 200m from included (INCL) points of observation in the final validated database. Also taken into account was the Ultra GPR data on 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 follows;

- **MEASURED** - Areas of 25-50m of drilling spacing on a continuous grid pattern, where significant influence from Pass 1 and 2 dominate the search ellipsoids, with no extrapolation from the last line of drilling
- **INDICATED** - Areas of 50-100m 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
- **INFERRED** - Areas of 100-200m of drilling spacing on a continuous grid pattern, where reasonable influence from Pass 1, 2 and 3 dominate the search ellipsoids, with 100m extrapolation from the last line of drilling. In some areas between holes greater than 200m the polygon was included into the Inferred category to allow for more practical polygon shape to fit to the model area

Bete Bete, APL and Central mine areas were given the Resource class MINED OUT as it is considered mining depletion has sterilized these areas. Figure 51 shows the polygons applied to the model to prepare the statement of Mineral Resource in this report.

Bete Bete Far West and Bete West matched drill spacing criteria for Indicated Resource but were downgraded to Inferred status because of insufficient drilling over the entire area to give confidence to the Resource continuity for both thickness and grade.

Table 31 shows the coverage area of influence of each assigned classification on the Mineral Resource within the model limits. The coverage areas (Ha) split by domain of the polygon boundaries are shown in Table 10 of this report.

Table 31 Coverage area of the Mineral Resource by classification

Mineral Resource Classification			
Classes Applied	DANMAR, June 2020 Area (Ha)	DANMAR, June 2022 Area (Ha)	Difference Areas (%)
MINED OUT	97	113	116%
MEASURED	121	425	352%
INDICATED	559	739	132%
INFERRED	453	620	137%
TOTAL CLASSED	1230	1897	154%
NOT CLASSED	241	330	137%
TOTAL MODEL AREA	1471	2226	151%

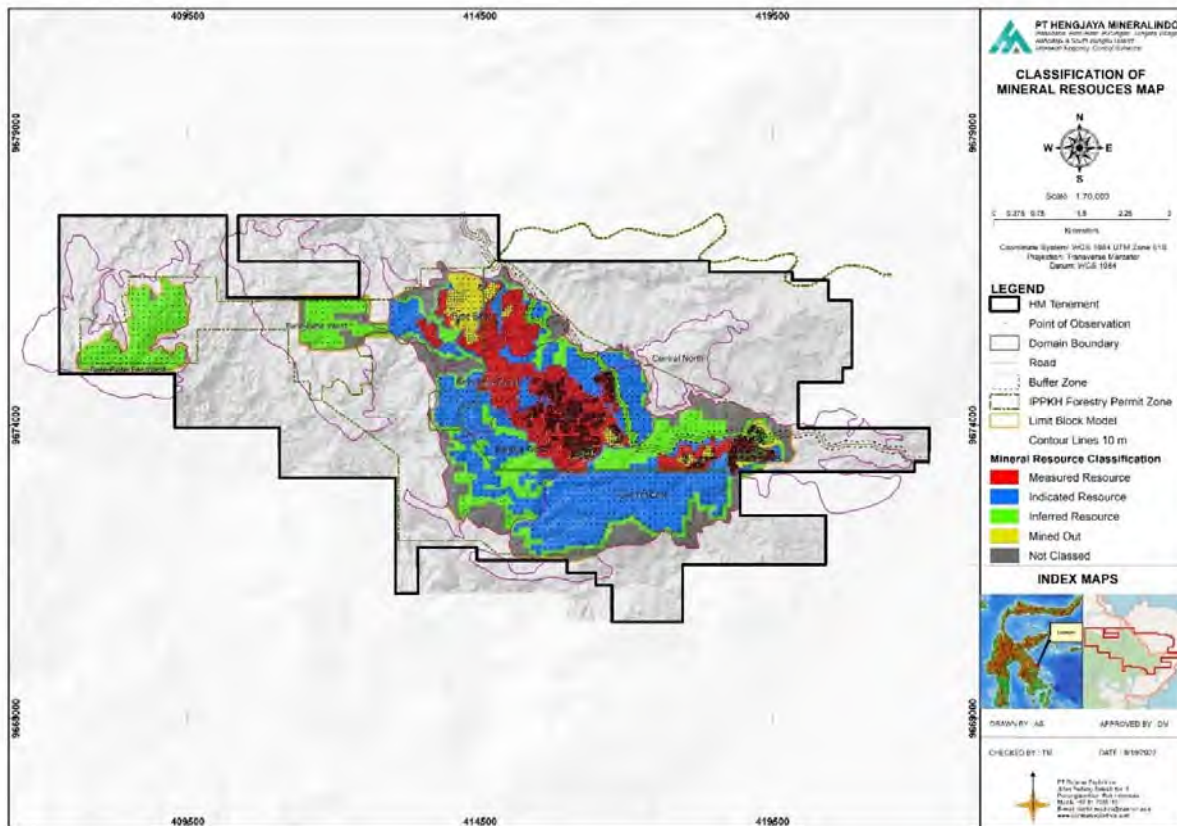


Figure 51 Resource classification boundaries

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. Table 32 shows the results of this validation process.

The results show that 98% of the blocks in the Measured class are interpolated by Pass 1 & 2 and the Indicated class is approximately 98% interpolated by Passes 1, 2 and 3. These results give sufficient confidence in the polygon strategy respectively. The lowest class of Inferred still has majority portions of the first 3 passes with 18% of pass 4 which is considered acceptable in this selection. Figure 52 shows the Resource classification boundaries overlay with the pass map.

Table 32 Interpolation pass influence on Resource classification

Resource class	Interpolation pass	Ton (Dry)	Influence (%)
MEASURED	PASS 1	67	79%
	PASS 2	17	19%
	PASS 3	2	2%
	PASS 4	0	0%
TOTAL PORTION OF MINERAL RESOURCE		85	28%
INDICATED	PASS 1	34	26%
	PASS 2	63	49%
	PASS 3	30	23%
	PASS 4	3	2%
TOTAL PORTION OF MINERAL RESOURCE		130	43%
INFERRED	PASS 1	9	11%
	PASS 2	22	26%
	PASS 3	39	46%
	PASS 4	15	18%
TOTAL PORTION OF MINERAL RESOURCE		85	28%
ALL	PASS 1	110	37%
	PASS 2	102	34%
	PASS 3	71	24%
	PASS 4	18	6%
total Mineral Resource >0.80% Ni		300	Million Ton (Dry)

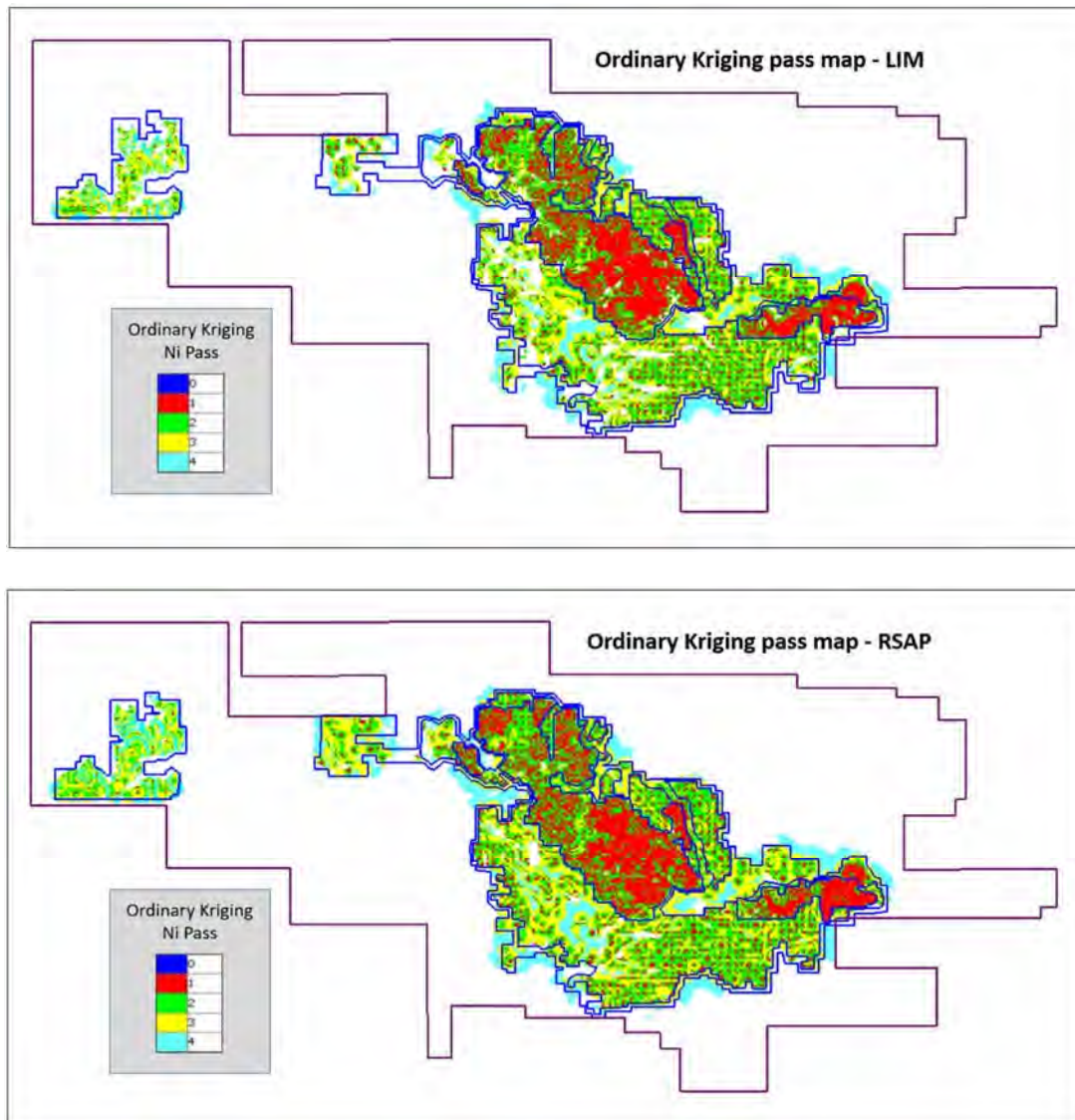


Figure 52 Resource classification boundaries overlay with Ordinary Kriging pass map

6.8 MODEL VALIDATION

Final block model and interpolated grades were validated using several visual and statistical techniques to gain further confidence in the Mineral Resource estimates stated in this report.

Firstly, visual inspection of the block models in plan and sectional views to assess the grade interpolations performed conform with the lithological wireframes, surface models and drilling database. For each domain several sections were reviewed along drilling grid lines both in North-South and East-West directions. Additional sections at approximately 45 degree angle to these directions were also viewed. Figure 53 shows section examples used for visual

validation of the model. Figure 54 shows plan views also used for visual validation of the model for each lithological layer.

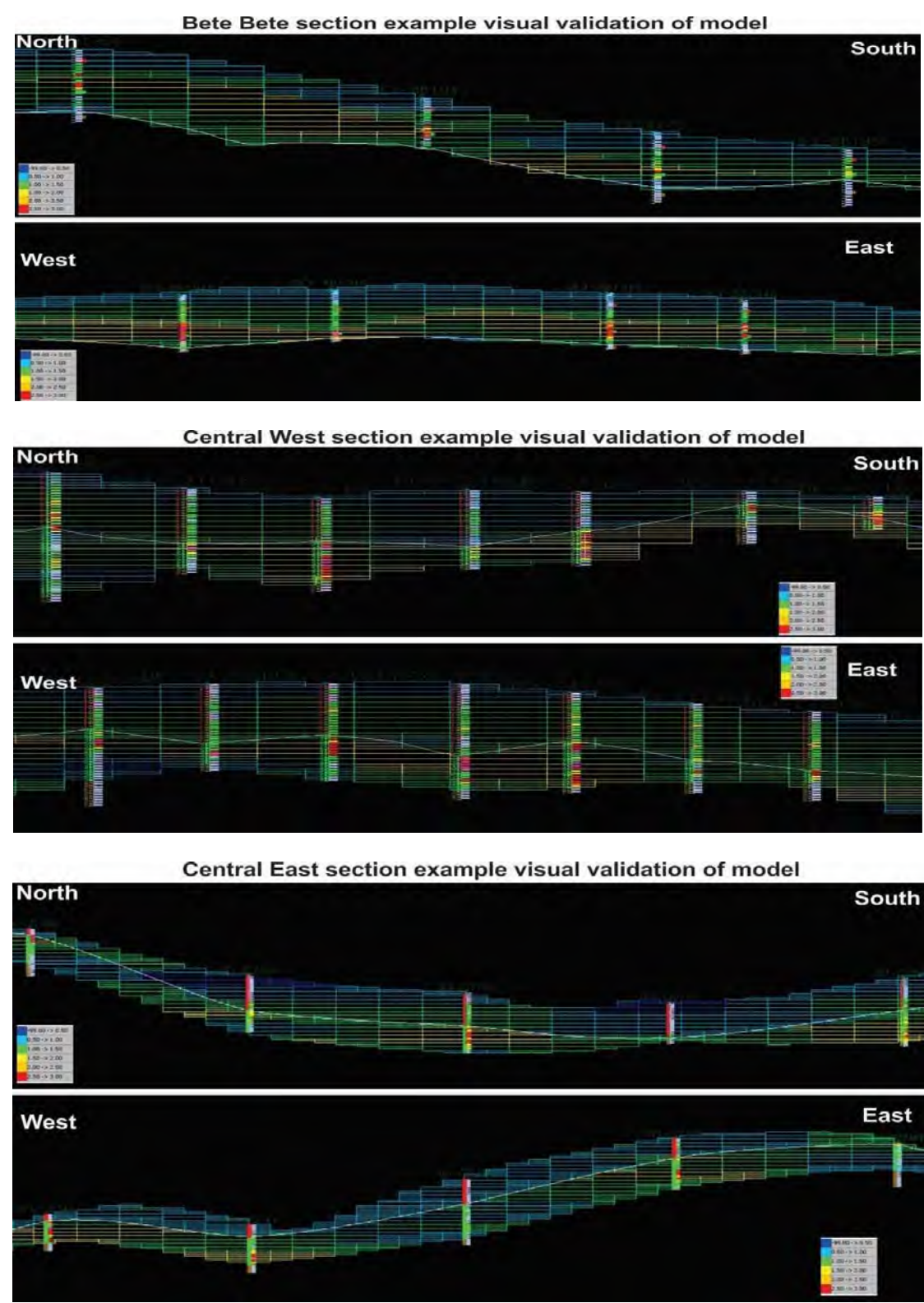


Figure 53 Section examples used for visual validation of the model

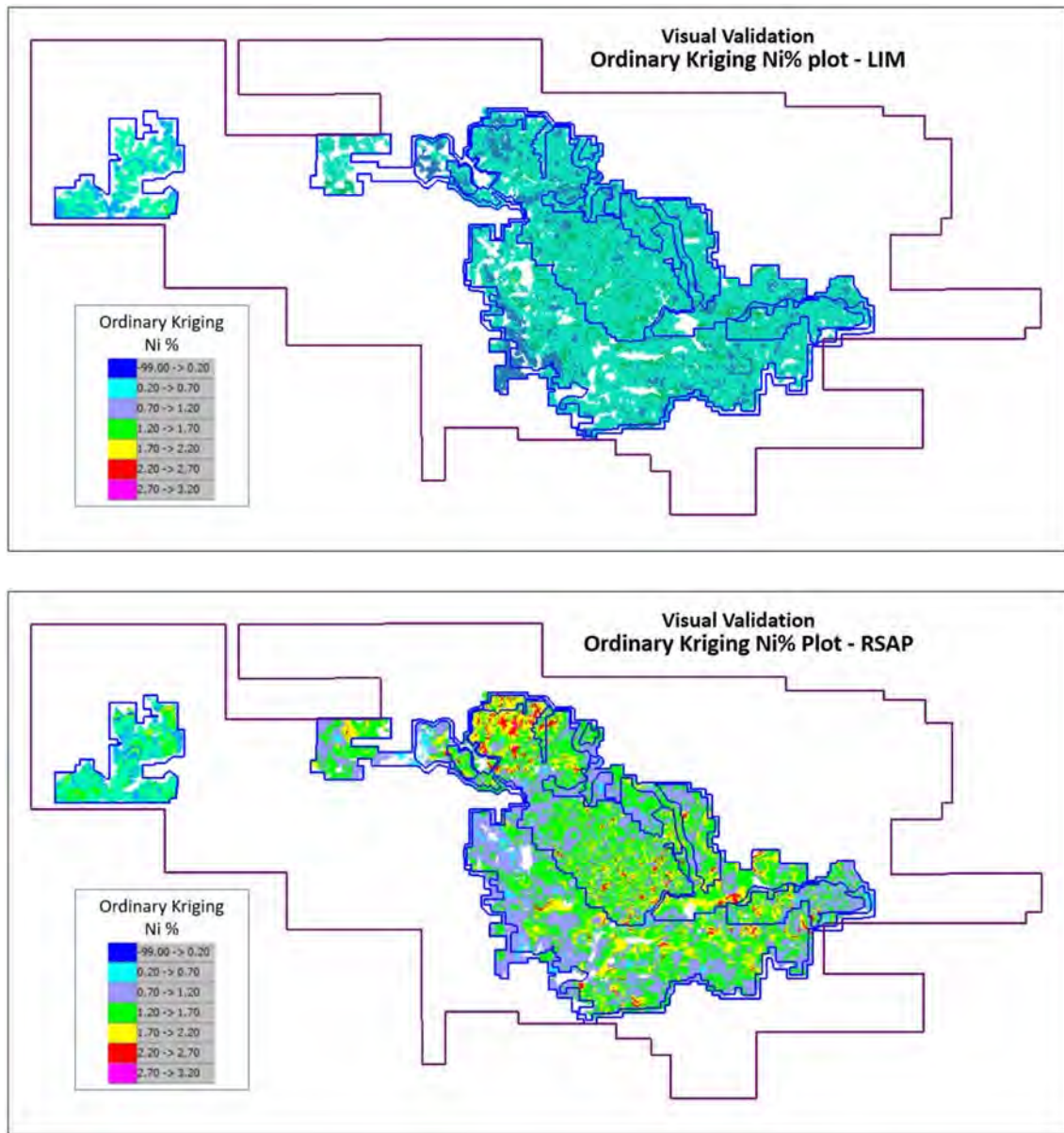


Figure 54 Plan view of the results of the Ordinary Kriging Ni grade model

Further statistical validation of the Nickel Resource estimate was completed by comparing global averages of the sample composites against the block model global averages. Both sample sets show very little difference between average grade values for nickel, cobalt and iron and within the standard deviation of the mean. Table 33 shows the sample populations for composites and assigned blocks within the model and average grades for nickel, cobalt and iron.

Table 33 Composite model against block model statistical validation

DOMAIN	LITHOLOGY TYPE	MEAN GRADE COMPOSITE				MEAN BLOCK MODEL			
		sample	Ni (%)	Co (%)	Fe (%)	sample	Ni (%)	Co (%)	Fe (%)
BETE FAR WEST	LIMONITE	675	0.89	0.14	44.16	79,813	0.89	0.14	44.62
	SAPROLITE	971	1.05	0.03	12.43	97,279	1.06	0.03	12.43
BETE WEST	LIMONITE	273	0.89	0.12	42.67	44,489	0.88	0.11	41.76
	SAPROLITE	260	1.36	0.04	17.03	42,574	1.39	0.04	17.18
BETE BETE	LIMONITE	4,005	0.95	0.13	46.68	157,149	0.92	0.13	46.62
	SAPROLITE	5,232	1.48	0.04	14.68	201,060	1.50	0.04	14.67
BETE SOUTH	LIMONITE	6,557	1.06	0.13	43.10	270,758	1.03	0.13	43.05
	SAPROLITE	5,390	1.22	0.04	16.55	229,974	1.18	0.04	16.75
CENTRAL WEST	LIMONITE	25,723	1.10	0.14	44.85	540,518	1.00	0.12	43.90
	SAPROLITE	22,108	1.45	0.04	14.86	415,756	1.38	0.04	15.02
CENTRAL EAST	LIMONITE	9,325	1.03	0.12	42.63	591,022	1.02	0.12	42.95
	SAPROLITE	9,853	1.34	0.04	14.82	557,492	1.36	0.04	15.03
APL	LIMONITE	3,289	0.93	0.11	38.03	41,454	0.97	0.11	38.73
	SAPROLITE	4,918	1.17	0.04	14.21	55,183	1.15	0.04	14.62

Swath plots were used as a final model validation tool to provide comparisons between sample composites and estimated block model values. This process identifies any bias towards under-estimation or overestimation or any smoothing in the results.

Figure 55 and 56 shows the Swath plots created to check the review of these plots show good correlation of the 1m down hole drilling composites selected for the interpolation process against the assigned block grades in the model.

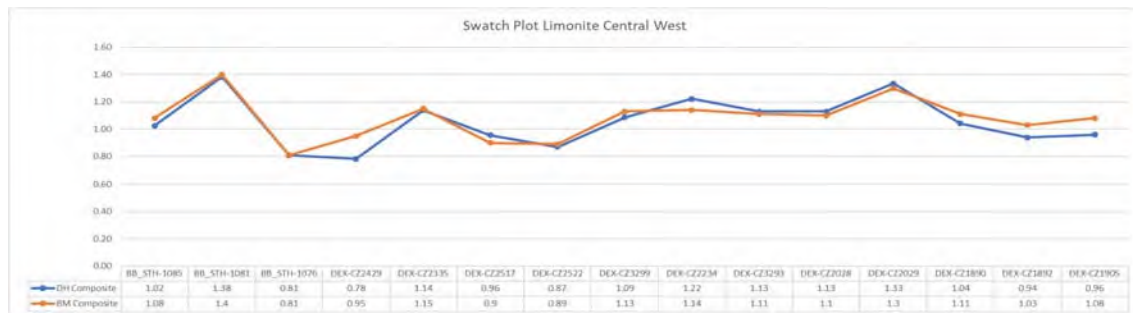


Figure 55 Swath plots of limonite for Central West

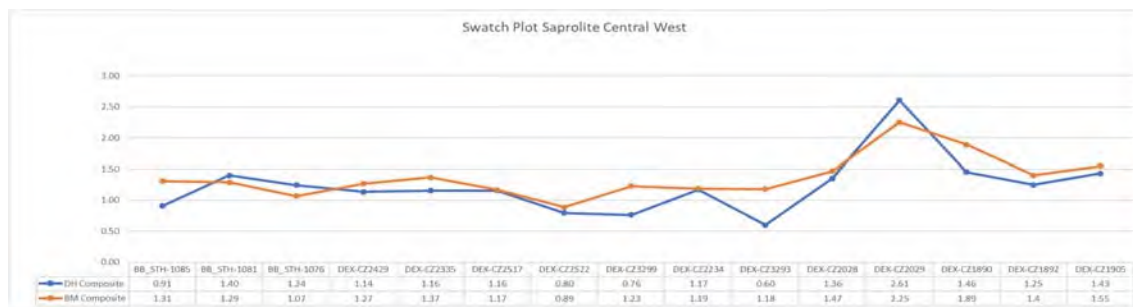


Figure 56 Swath plots of saprolite for Central West

See Appendix 9.4 for additional swath plots created to check each domain area.

6.9 RECONCILIATION OF PREDICTED GRADES WITH MINING

Mining first commenced in the Hengjaya concession in October 2012 and continued until the end of 2013. Most of the material produced, during this initial phase was from APL & Bete Bete domains, being direct shipped ore (DSO) to China. Shipping records show approximately 328,000Wmt at an average grade 1.97% nickel content was sold in seven shipments.

No production was recorded from Jan 2014 to June 2015 when direct shipment of nickel ore was banned by the Indonesian Government. Since then, Hengjaya recommenced mine production for monthly domestic supply to the nearby Indonesia Morowali Industrial Park (IMIP). All of this nickel ore production was from the Bete Bete domain, until March 2020 when mining moved to the new areas of Central East and Central West domains. During this second phase of production approximately 6,800,000 wmt at an average grade of 1.83% nickel content was sold. Table 34 shows a summary of ore production by year. Figure 57 shows the monthly production history.

Table 34 Life of Mine yearly production history updated to 30 June 2022

Year	Pit Area	Month	OB (wmt)	Ore Production (wmt)	Stripping Ratio	Ni (%)	Fe (%)
2012	APL	Jan - Dec	394,970	44,770	8.82	2.01	15.00
2013	APL	Jan - Jun	394,422	43,766	9.01	1.85	15.00
	Bete Bete	Jul-Dec	406,779	299,901	1.36	1.98	18.86
2014	No Production due to export ban						
2015	Bete Bete	June-Dec	50,579	12,735	3.97	2.05	18.86
2016	Bete Bete	Jan-Dec	217,600	377,020	0.58	2.05	18.86
2017	Bete Bete	Jan-Dec	517,367	431,344	1.20	2.14	18.58
2018	Bete Bete	Jan-Dec	603,878	374,346	1.61	2.10	21.39
2019	Bete Bete	Jan-Dec	1,097,669	630,350	1.74	1.82	20.88
2020	Bete Bete	Jan-Dec	902,441	277,962	3.25	1.86	21.93
	Central	Mar-Dec	1,774,932	543,608	3.27	1.83	19.83
2021	Bete Bete	Jan-Dec	2,524,048	1,178,454	2.14	1.81	20.81
	Central	Jan-Dec	4,585,042	1,080,740	4.24	1.72	17.87
2022	Bete Bete	Jan-Jun	1,088,341	1,008,534	1.08	1.77	21.24
	Central	Jan-Jun	1,414,337	516,705	2.74	1.78	19.41
Total Ore Production from Hengjaya			15,972,404	6,820,235	2.34	1.85	19.89

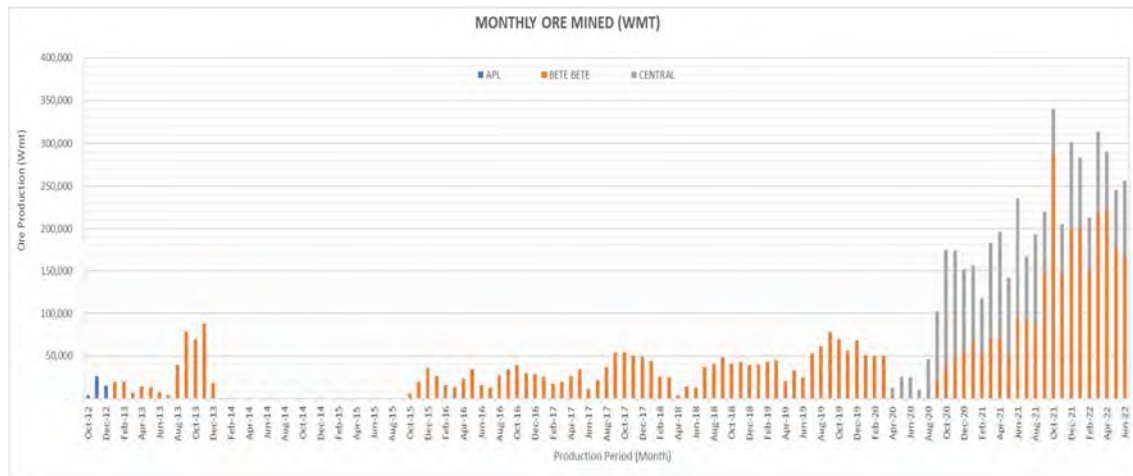


Figure 57 Monthly production history from the Hengjaya mine to 30 June 2022

Since mid-2019, the Hengjaya mine plan has commenced in pit stockpiling of Limonite ore (HGL, LGL) with Fe > 30%, Co > 0.1% & MgO < 5%, to be used for planned future ore sales to IMIP once the HPAL processing facility is completed. These volumes have not yet been added to the production records under Ore in this reconciliation. Limonite ore sales started in November 2021 and total sales of 357,000t of Limonite have been completed until 30 June 2022. Limonite inventory at 30th June 2022, is 3.3million tons.



Photo 28 Drone image of HM Port stockpile, 2022 (Source; Hengjaya)

A life of mine production reconciliation was performed on the mining survey surfaces for APL, Bete Bete and Central Pits. This process was conducted against the new model (OK) to check the predicted outcomes. Overall the results show good correlation between mining records for Ore (High grade saprolite) and Overburden (waste) over all pit areas. Table 35 shows the summary of the reconciliation of the life of mine production against the new Resource model with 70% recovery applied to the Ore volumes >1.5% Ni.

Table 35 Reconciliation of the life of mine production against the new resource model

Pit Areas	Waste (Wet ton)	Ore (Wet ton)	Stripping Ratio	Total Waste + Ore Volumes (Wet ton)
Production records Waste & Saprolite Ore				
APL	789,392	88,536	8.9	877,928
Bete bete	7,408,702	4,590,645	1.6	11,999,347
Central	7,774,311	2,141,053	3.6	9,915,364
Total by New Models	15,972,404	6,820,235	2.3	22,792,639
Model Prediction Waste & Saprolite Ore				
APL	811,288	95,143	8.5	906,431
Bete bete	8,180,808	4,500,854	1.8	12,681,662
Central	7,664,124	2,170,063	3.5	9,834,187
Total by New Models	16,656,220	6,766,060	2.5	23,422,280
Production v Model Variance Waste & Saprolite Ore				
APL	- 21,896	- 6,607	0.4	- 28,503
Bete bete	- 772,107	89,792	- 0.2	- 682,315
Central	110,187	- 29,010	0.1	81,177
Total by New Models	- 683,816	54,175	- 0.1	- 629,641
Production v Model (%) Waste & Saprolite Ore				
APL	97%	93%	105%	97%
Bete bete	91%	102%	89%	95%
Central	101%	99%	103%	101%
Total by New Models	96%	101%	95%	97%

The first comparison against the insitu model (100% recovery) was completed to assess the actual mining losses. This helps indicate what mining dilutions can be expected. Both APL & Bete Bete show more than 70% recovery of the high grade Saprolite Ore produced from the new model predictions.

A second comparison is using the recovery factors from the Hengjaya mine planning department applied to respective pit areas in the past to produce a predicted internal mine reserve, production scheduling and medium-term planning. These results for APL, Bete Bete and Central pits show good reconciliation of the mining recoveries of more than 90% against

the new model adjusted for mining (diluted). Figure 58 shows the location of active pits and dumps currently at the HM project.

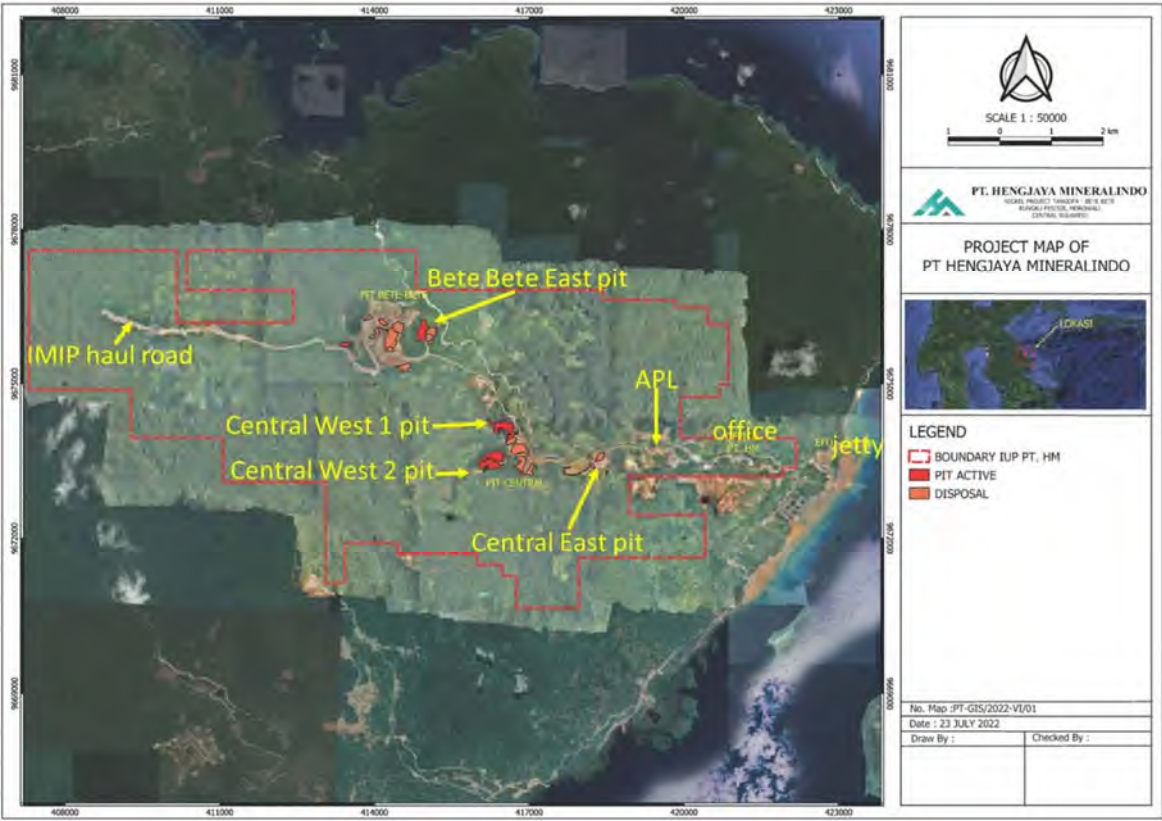


Figure 58 Hengjaya Mineralindo project situation map

Table 36 shows the mine production against the new model predictions for Bete Bete, Figure 59 shows the current mine survey situation of the Pit area in Bete Bete in June 2022.

Photo 29 shows drone image taken of the Bete Bete mine operation during 2019.

Photo 30 shows the Bete Bete mine rehabilitation progress and mining in 2022

Photo 31 shows Bete Bete East Pit Operation, 2022

Table 36 Bete Bete mine production reconciliation against new model prediction

Year	Month	OB (wmt)	Ore Production (wmt)	Stripping Ratio	Ni (%)	Fe (%)
2013	Jul-Dec	406,779	299,901	1.36	1.98	18.86
2014	No Production due to export ban	-	-	-	-	-
2015	June-Dec	50,579	12,735	3.97	2.05	18.86
2016	Jan-Dec	217,600	377,020	0.58	2.05	18.86
2017	Jan-Dec	517,367	431,344	1.20	2.14	18.58
2018	Jan-Dec	603,878	374,346	1.61	2.10	21.39
2019	Jan-Dec	1,097,669	630,350	1.74	1.82	20.88
2020	Jan-Dec	902,441	277,962	3.25	1.86	21.93
2021	Jan-Dec	2,524,048	1,178,454	2.14	1.81	20.81
2022	Jan-Jun	1,088,341	1,008,534	1.08	1.77	21.24
Total Production from Bete Bete		7,408,702	4,590,645	1.61	1.89	20.53
Total Predicted from insitu model		6,251,871	6,429,791	0.97	1.93	16.06
Variance Insitu Model		1,156,831	(1,839,146)	0.64	(0.04)	4.47
Variance %		119%	71%	166%	98%	128%
Total Predicted from 70% Diluted model		8,180,808	4,500,854	1.82	1.93	16.06
Variance 70% Diluted Model		(772,107)	89,792	(0.20)	(0.04)	4.47
Variance %		91%	102%	89%	98%	128%

* Ni Grade Based on Barge data *Ore Production Based on Weight Bridge *EoM surface 30 June 2022 MTD
 * OB removal Based on Truck Count *Ore grade cutoff applied > 1.5% Ni for ETO acceptance *Ore recovery 70% Ni for mine reserve

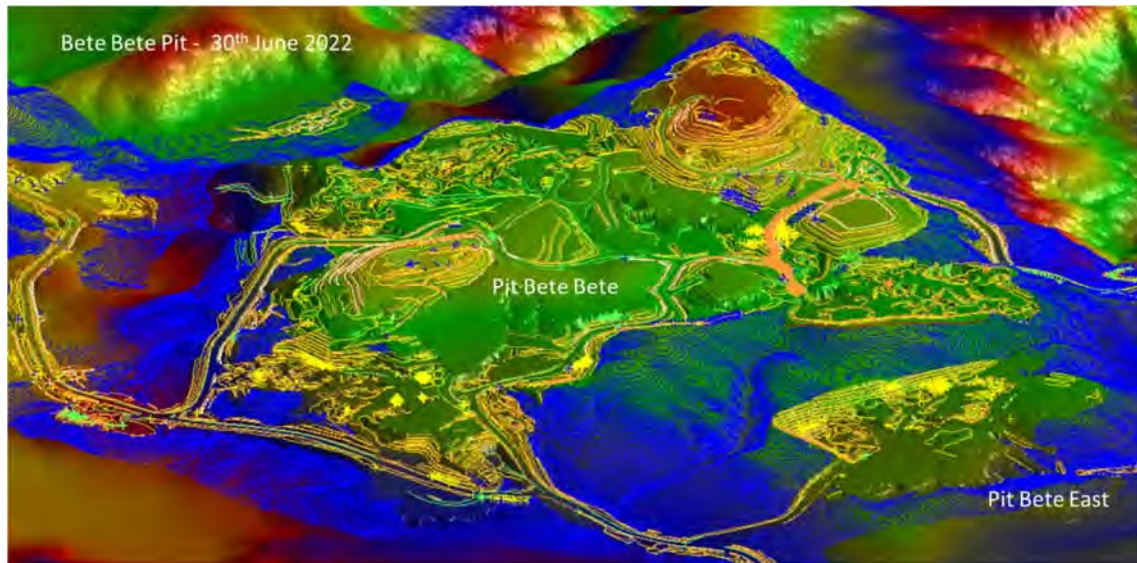


Figure 58 Bete Bete Mine situation – 30 June 2022



Photo 29 Drone Image of Bete Bete Pit in operation 2019 (Source; Hengjaya)



Photo 30 Bete Bete Pit rehabilitation, 2022 (Source; Hengjaya)



Photo 31 Bete Bete East pit operation, 2022 (Source; Hengjaya)

Table 37 shows the mine production against the new model predictions for APL. Figure 60 shows the current mine survey situation of the Pit area in APL. This mine area has been closed indefinitely and is now rehabilitated to comply with environmental requirements. Photo 32 shows mining operations at APL in Pit B1, 2013.

Table 37 APL mine production reconciliation against new model prediction

Year	Month	OB (WMT)	Ore Production (WMT)	Stripping Ratio	Ni (%)	Fe (%)
2012	Jan - Dec (APL)	394,970	44,770	8.82	2.01	15.00
2013	Jan - Jun (APL)	394,422	43,766	9.01	1.85	15.00
2014	No Production due to export ban	-	-	-	-	-
Total Production from APL		789,392	88,536	8.92	1.93	15.00
Total Predicted from insitu model		860,940	124,292	6.93	2.03	12.99
Variance Insitu Model		(71,548)	(35,756)	1.99	(0.10)	2.01
Variance %		92%	71%	129%	95%	116%
Total Predicted from 70% Diluted model		811,288	95,143	8.53	1.97	13.82
Variance 70% Diluted Model		(21,896)	(6,607)	0.39	(0.04)	1.18
Variance %		97%	93%	105%	98%	109%

* Ni Grade Based on Barge data
 * OB removal Based on Truck Count
 * Ore Production Based on Weight Bridge
 * Ore grade cutoff applied > 1.7% Ni for ETO acceptance
 * EoM surface July 2013 MTD
 * Ore recovery 70% Ni for mine reserve

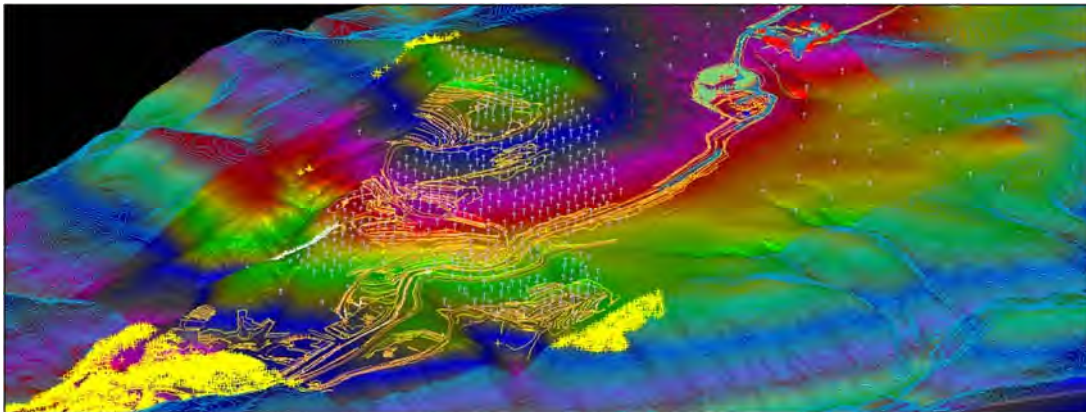


Figure 59 APL Mine situation – 20 April 2020



Photo 32 Mining operations APL in Pit B1, 2013 (Source; Hengjaya)

A more detailed mine reconciliation was possible in the Central East mine area as the production records are more complete. Table 38 shows the mine production against the new model predictions for Central East and West pits combined.

Figure 61 shows a graph of Central East mine production against new model compliance. These reconciliations show good correlation of the predicted Resource curve against the mining ores recovered along a similar curve of the graph. Figure 62 shows the current mine survey situation of the pit areas in Central East and Figure 63 shows the pit area in Central West. Photo 33 shows Central East Pit in 2022. Photo 34 shows Central West Pit progress in 2022.

Table 38 Central pits production reconciliation against new model (OK) prediction

Year	Month	OB (wmt)	Ore Production (wmt)	Stripping Ratio	Ni (%)	Fe (%)
2020	Mar-Dec	1,774,932	543,608	3.27	1.83	19.83
2021	Jan-Dec	4,585,042	1,080,740	4.24	1.72	17.87
2022	Jan-Jun	1,414,337	516,705	2.74	1.78	19.41
Total Production from Central		7,774,311	2,141,053	3.63	1.76	18.74
Total Predicted from insitu model		6,734,097	3,100,090	2.17	1.86	15.96
Variance Insitu Model		1,040,214	(959,037)	1.46	(0.10)	2.78
Variance %		115%	69%	167%	95%	117%
Total Predicted from 70% Diluted model		7,664,124	2,170,063	3.53	1.86	15.96
Variance 70% Diluted Model		110,187	(29,010)	0.10	(0.10)	2.78
Variance %		101%	99%	103%	95%	117%

* Ni Grade Based on Barge data * Ore Production Based on Weight Bridge * EoM surface 30 June 2022 MTD
 * OB removal Based on Truck Count * Ore grade cutoff applied > 1.5% Ni for ETO acceptance * Ore recovery 70% Ni for mine reserve

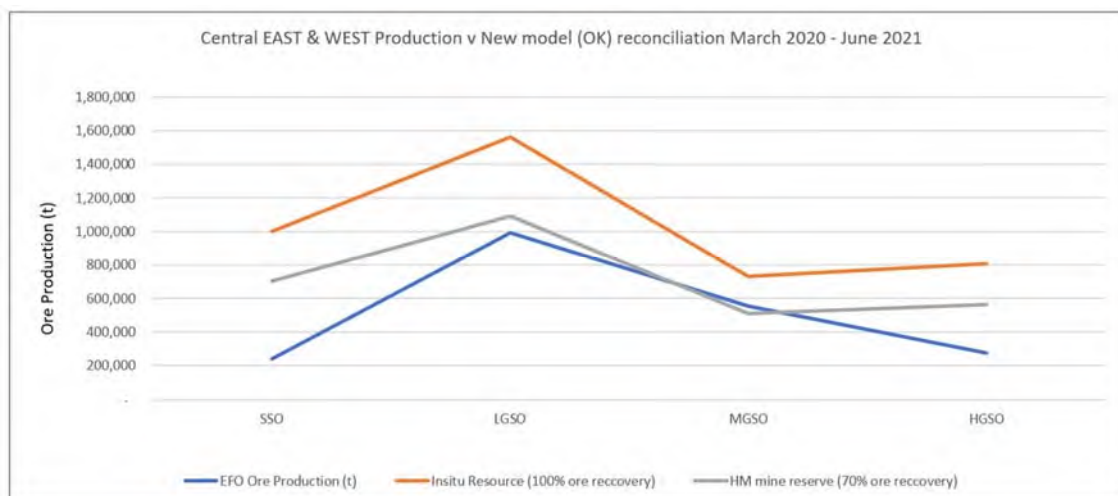


Figure 60 Central East mine production comparison with new model compliance

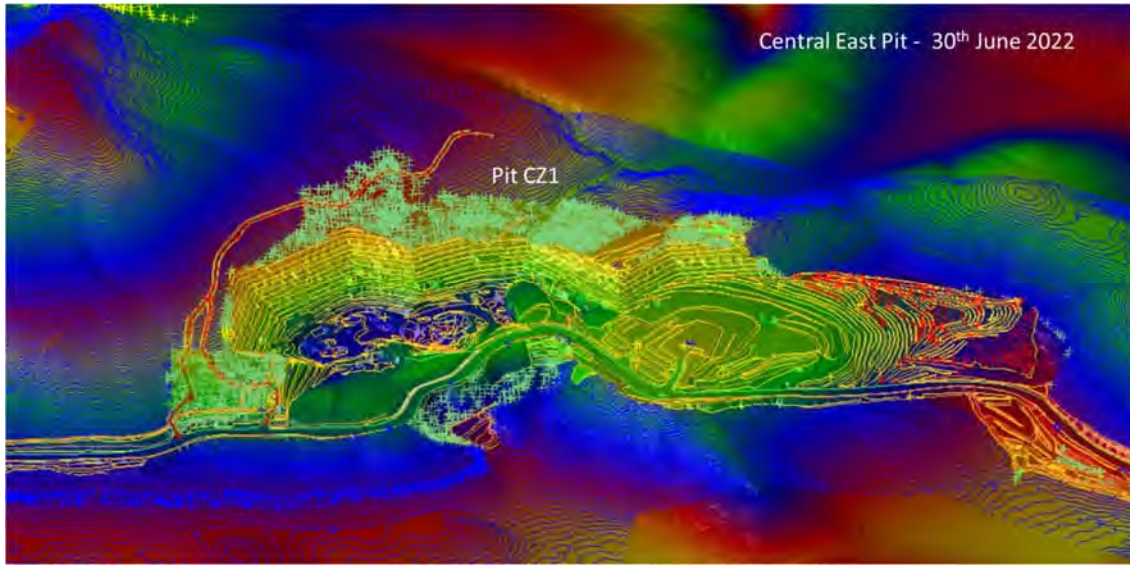


Figure 61 Central East Pit situation in 2022

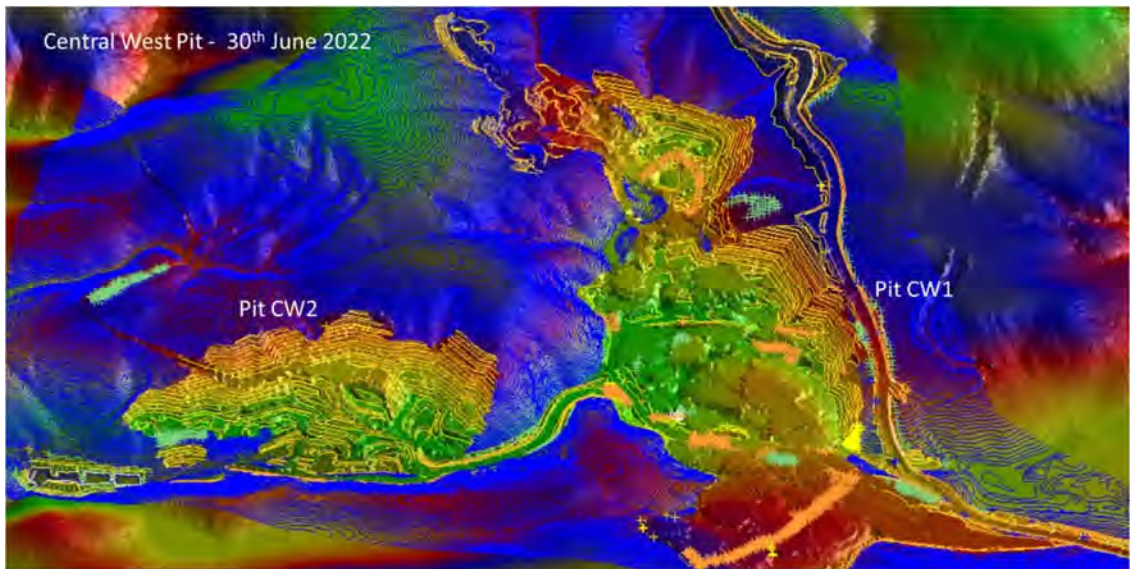


Figure 62 Central West CW 1 & CW 2 pit situation – 30 June 2022



Photo 33 Central East pit 2022 (Source; Hengjaya)



Photo 34 Central West (CW1) pit progress 2022 (Source; Hengjaya)



Photo 35 Central West (CW2) pit progress 2022 (Source; Hengjaya)

6.10 MINERAL RESOURCE STATEMENT

The Nickel Resource estimate for PT Hengjaya Mineralindo has been updated to the 30 June 2022.

It is considered, by the Competent Persons, that data and methodologies applied in the estimation process are appropriate for this type of deposit.

All results are represented as remaining volumes presented as millions of dry tons includes mining depletion excluded up to 30th June 2022. A rounding of the Resource estimate numbers has been applied to reflect the level of accuracy of the Mineral Resource estimate.

Photo 30 shows a drone image of the Bete Bete pit with IMIP in the distance.



Photo 36 Drone image of Bete mine with IMIP facility in background (Source; Hengjaya)

Table 39 below shows the Nickel Resource estimate with a cutoff $>0.80\%$ Ni content. Table 40 shows the global Mineral Resource shown at various Ni cutoffs. Figure 64 shows the global Mineral Resource tonnage and Ni% grade relationship.

Table 39 Nickel Mineral Resource Estimate

> 0.80% Ni CUT OFF APPLIED TO GLOBAL RESOURCE ESTIMATE (Ni OK)

MEASURED RESOURCE BY BLOCK	LIMONITE	XRF (DRY ANALYSIS)			SAPROLITE	XRF (DRY ANALYSIS)		
	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)
BETE FAR WEST								
BETE WEST								
BETE BETE	5.5	1.06	0.14	46.86	7.3	1.48	0.04	15.02
BETE SOUTH	10.8	1.12	0.14	43.37	8.6	1.29	0.05	17.33
CENTRAL WEST	21.1	1.13	0.14	45.11	19.2	1.49	0.05	15.44
CENTRAL EAST	5.4	1.09	0.12	43.96	5.9	1.39	0.04	14.85
APL	0.25	0.97	0.12	39.42	0.60	1.11	0.04	14.54
SUB TOTAL MEASURED	43	1.11	0.14	44.72	42	1.43	0.05	15.66
TOTAL MEASURED	85	1.27	0.09	30.44				

INDICATED RESOURCE BY BLOCK	LIMONITE	XRF (DRY ANALYSIS)			SAPROLITE	XRF (DRY ANALYSIS)		
	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)
BETE FAR WEST								
BETE WEST								
BETE BETE	1.6	0.96	0.12	46.05	3.5	1.40	0.04	15.08
BETE SOUTH	11.7	1.07	0.12	42.61	11.5	1.18	0.04	17.13
CENTRAL WEST	13.6	1.10	0.13	45.16	16.3	1.38	0.05	15.15
CENTRAL EAST	33.4	1.07	0.14	43.28	38.0	1.38	0.04	15.19
APL	0.15	0.88	0.10	38.43	0.40	1.23	0.03	13.55
SUB TOTAL INDICATED	60	1.07	0.13	43.63	70	1.35	0.04	15.49
TOTAL INDICATED	130	1.22	0.08	28.56				

INFERRED RESOURCE BY BLOCK	LIMONITE	XRF (DRY ANALYSIS)			SAPROLITE	XRF (DRY ANALYSIS)		
	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)
BETE FAR WEST	6.2	0.97	0.15	44.95	9.9	1.17	0.03	13.06
BETE WEST	3.4	0.99	0.12	44.20	3.9	1.40	0.04	17.17
BETE BETE	1.6	0.98	0.12	44.22	2.0	1.30	0.03	13.52
BETE SOUTH	2.1	1.04	0.13	43.98	2.7	1.21	0.04	16.06
CENTRAL WEST	11.6	1.05	0.12	44.13	10.8	1.32	0.04	15.18
CENTRAL EAST	15.1	1.09	0.11	43.48	12.7	1.46	0.04	15.68
APL	1.4	1.06	0.13	38.32	1.3	1.25	0.05	14.15
SUB TOTAL INFERRED	41	1.04	0.12	43.82	43	1.32	0.04	14.97
TOTAL INFERRED	85	1.19	0.08	29.07				

TOTAL COMBINED RESOURCE BY BLOCK	LIMONITE	XRF (DRY ANALYSIS)			SAPROLITE	XRF (DRY ANALYSIS)		
	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)
BETE FAR WEST	6.2	0.97	0.15	44.95	9.9	1.17	0.03	13.06
BETE WEST	3.4	0.99	0.12	44.20	3.9	1.40	0.04	17.17
BETE BETE	8.7	1.03	0.13	46.23	12.8	1.43	0.04	14.80
BETE SOUTH	24.6	1.09	0.13	43.06	22.8	1.23	0.04	17.08
CENTRAL WEST	46.3	1.10	0.13	44.88	46.3	1.41	0.05	15.28
CENTRAL EAST	53.9	1.08	0.13	43.40	56.6	1.40	0.04	15.26
APL	1.8	1.03	0.13	38.48	2.3	1.21	0.04	14.15
GRAND TOTAL RESOURCE	145	1.08	0.13	44.01	155	1.36	0.04	15.39
TOTAL Resource > 0.8% Ni	300	1.22	0.09	29.24				

TOTAL RESOURCE ALL	LIMONITE	XRF (DRY ANALYSIS)			SAPROLITE	XRF (DRY ANALYSIS)		
	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)
SUB TOTAL MEASURED	43	1.11	0.14	44.72	42	1.43	0.05	15.66
SUB TOTAL INDICATED	60	1.07	0.13	43.63	70	1.35	0.04	15.49
SUB TOTAL INFERRED	41	1.04	0.12	43.82	43	1.32	0.04	14.97
TOTAL RESOURCE ALL	145	1.08	0.13	44.01	155	1.36	0.04	15.39

TOTAL RESOURCE ALL	LATERITE	XRF (DRY ANALYSIS)		
	Million ton (Dry)	Ni (%)	Co (%)	Fe (%)
TOTAL MEASURED	85	1.27	0.09	30.44
TOTAL INDICATED	130	1.22	0.08	28.56
TOTAL INFERRED	85	1.19	0.08	29.07
TOTAL Resource > 0.8% Ni	300	1.22	0.09	29.24

Table 40 Mineral Resource shown at various cutoffs

LIMONITE - GLOBAL MINERAL RESOURCE ESTIMATE (OK 4 pass)													
GRADE CUT-OFF RANGE	MINERAL RESOURCE		XRF (DRY ANALYSIS)								Moisture Content (%)	Relative Density (sg Wet)	METAL CONTENT EQUIVALENT (Ni)
	MILLION TONNES (Wet)	MILLION TONNES (DRY)	Ni %	Co %	Fe %	MgO %	SiO2 %	SM Ratio	Al2O3 %	CaO %			
>0.8	242	146	1.08	0.13	43.96	1.56	8.75	5.62	9.02	0.07	39.95	1.87	1,574,099
>0.9	199	119	1.13	0.14	44.12	1.58	8.65	5.48	8.81	0.07	40.58	1.85	1,336,837
>1.0	151	89	1.18	0.14	44.25	1.61	8.56	5.32	8.69	0.06	41.36	1.84	1,048,723
>1.1	101	58	1.25	0.15	44.42	1.64	8.42	5.15	8.58	0.06	42.28	1.83	727,006
>1.2	58	33	1.32	0.16	44.47	1.71	8.47	4.96	8.43	0.06	43.15	1.82	434,180
>1.3	27	15	1.40	0.17	44.74	1.78	8.47	4.76	8.19	0.06	43.72	1.82	212,969
>1.4	11	6	1.49	0.18	45.17	1.75	8.31	4.75	7.80	0.05	44.34	1.82	87,422
>1.5	4	2	1.58	0.19	45.26	1.83	8.61	4.70	7.69	0.06	45.10	1.81	30,612
>1.6	1	1	1.68	0.18	44.90	2.12	9.25	4.36	7.69	0.07	45.72	1.81	8,480
>1.7	0.3	0.2	1.78	0.19	45.15	2.27	9.38	4.14	7.03	0.08	44.87	1.81	2,711
>1.8	0.1	0.04	1.89	0.21	46.70	3.04	11.06	3.64	3.93	0.09	42.56	1.81	809
>1.9	0.04	0.02	1.92	0.25	49.60	1.81	8.69	4.80	3.33	0.05	41.75	1.80	458
>2.0													

SAPROLITE - GLOBAL MINERAL RESOURCE ESTIMATE (OK 4 pass)													
GRADE CUT-OFF RANGE	MINERAL RESOURCE		XRF (DRY ANALYSIS)								Moisture Content (%)	Relative Density (sg Wet)	METAL CONTENT EQUIVALENT (Ni)
	MILLION TONNES (Wet)	MILLION TONNES (DRY)	Ni %	Co %	Fe %	MgO %	SiO2 %	SM Ratio	Al2O3 %	CaO %			
>0.8	230	155	1.37	0.04	15.55	19.69	37.31	1.89	3.12	0.77	33.18	1.70	2,124,652
>0.9	216	145	1.40	0.04	15.67	19.64	37.18	1.89	3.11	0.76	33.36	1.70	2,031,850
>1.0	196	131	1.45	0.05	15.81	19.62	37.01	1.89	3.08	0.73	33.55	1.70	1,888,958
>1.1	170	113	1.50	0.05	15.96	19.62	36.88	1.88	3.01	0.70	33.83	1.70	1,697,101
>1.2	144	95	1.57	0.05	16.13	19.63	36.68	1.87	2.96	0.66	34.12	1.71	1,486,745
>1.3	118	77	1.64	0.05	16.28	19.62	36.50	1.86	2.90	0.62	34.40	1.71	1,265,407
>1.4	94	62	1.71	0.05	16.39	19.67	36.34	1.85	2.79	0.58	34.63	1.71	1,052,942
>1.5	72	47	1.79	0.05	16.43	19.79	36.28	1.83	2.66	0.54	34.78	1.71	838,164
>1.6	53	34	1.87	0.05	16.42	19.97	36.23	1.81	2.53	0.49	35.01	1.71	642,176
>1.7	38	25	1.96	0.05	16.18	20.43	36.38	1.78	2.32	0.46	34.99	1.71	485,897
>1.8	27	18	2.04	0.06	16.12	20.62	36.43	1.77	2.17	0.43	35.21	1.71	360,574
>1.9	19	12	2.12	0.06	16.01	20.88	36.43	1.74	2.08	0.40	35.43	1.71	260,821
>2.0	12	8	2.22	0.06	15.73	21.04	36.70	1.74	2.02	0.38	35.74	1.71	173,857

LIMONITE & SAPROLITE - COMBINED GLOBAL MINERAL RESOURCE ESTIMATE (OK 4 pass)													
GRADE CUT-OFF RANGE	MINERAL RESOURCE		XRF (DRY ANALYSIS)								Moisture Content (%)	Relative Density (sg Wet)	METAL CONTENT EQUIVALENT (Ni)
	MILLION TONNES (Wet)	MILLION TONNES (DRY)	Ni %	Co %	Fe %	MgO %	SiO2 %	SM Ratio	Al2O3 %	CaO %			
>0.8	473	300	1.22	0.09	30.11	10.39	22.66	2.18	6.15	0.41	36.65	1.79	3,674,261
>0.9	415	263	1.27	0.09	29.31	10.97	23.49	2.14	5.84	0.43	36.82	1.78	3,347,265
>1.0	347	219	1.33	0.09	28.20	11.77	24.61	2.09	5.52	0.44	36.95	1.77	2,919,609
>1.1	271	171	1.41	0.09	26.56	12.92	26.28	2.03	5.09	0.46	36.98	1.75	2,410,101
>1.2	201	128	1.50	0.08	24.27	14.48	28.58	1.97	4.53	0.49	36.71	1.74	1,911,516
>1.3	145	93	1.59	0.07	21.61	16.28	31.25	1.92	3.89	0.52	36.15	1.73	1,473,358
>1.4	105	68	1.68	0.06	19.30	17.86	33.51	1.88	3.30	0.53	35.61	1.72	1,138,291
>1.5	75	49	1.78	0.06	17.78	18.94	34.98	1.85	2.90	0.51	35.27	1.72	868,037
>1.6	54	35	1.87	0.06	16.91	19.66	35.77	1.82	2.62	0.49	35.20	1.71	650,468
>1.7	38	25	1.95	0.06	16.38	20.30	36.19	1.78	2.36	0.45	35.06	1.71	488,560
>1.8	27	18	2.04	0.06	16.21	20.57	36.36	1.77	2.17	0.43	35.23	1.71	361,375
>1.9	19	12	2.12	0.06	16.08	20.84	36.37	1.75	2.08	0.40	35.45	1.71	261,273
>2.0	12	8	2.22	0.06	15.73	21.04	36.70	1.74	2.02	0.38	35.74	1.71	173,857

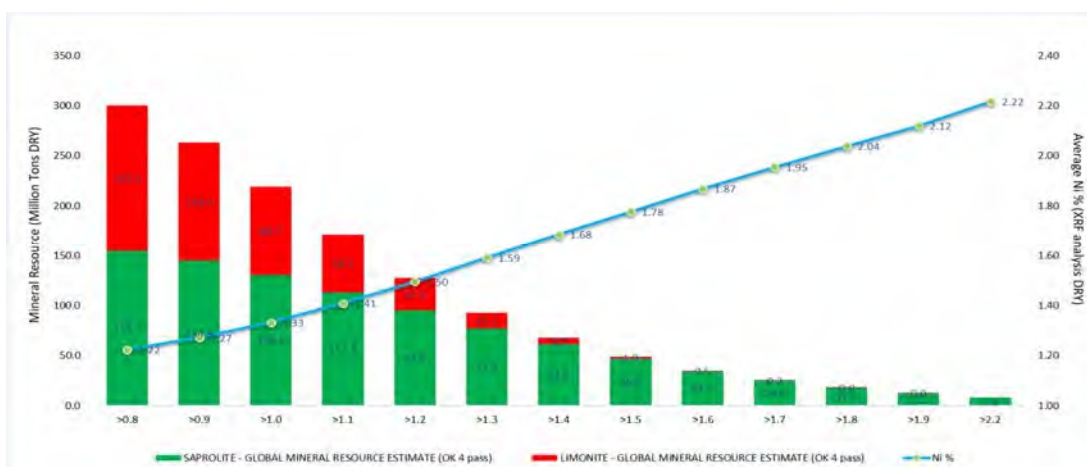


Figure 63 Global Mineral Resource tonnage (dry) and Ni% grade relationship

6.11 COMPARISONS TO PREVIOUS ESTIMATES

In 2012, 2015 and 2018 GMT consultants prepared Mineral Resource estimates using the JORC Code 2004 and 2012 respectively. A comparison of the new updates were conducted to validate the materiality of the volumes stated in this report against the updated DANMAR estimate in July 2022, Table 41 shows the comparison of estimates by classification. The results show a significant increase for the total volume of Nickel Resource, including significant upgrades of Measured and Indicated Resource categories from the Inferred class in the 2020 Resource estimate. This is primarily due to the ongoing infill drilling in the Bete Bete & Central areas since March 2019.

Table 41 Nickel Resource comparison by classification

RESOURCE COMPARISON Ni 0.8% CUTOFF 2020 REPORT FOR COMPARISON 2022 RESOURCE UPDATE (million ton Dry)				
BLOCK-ID	MEASURED	INDICATED	INFERRED	TOTAL
BETE FAR WEST	-	-	-	-
BETE WEST	-	-	6	6
BETE BETE	6	15	3	24
BETE SOUTH	2	34	13	48
CENTRAL WEST	1	54	11	66
CENTRAL EAST	10	6	22	39
APL	-	-	-	-
Total Resource 2020 Ni >0.8%	20	109	56	184
Total Resource 2022 Ni >0.8%	85	130	85	300
INCREASE (Million ton Dry)	65	21	29	116
PERCENTAGE INCREASE	333%	20%	53%	63%

Other major differences in estimates are:

- The mining depletion from Bete Bete and Central pits, approx. 4,700,000t of Ore Production and;
- An estimated 57% increase in areal extent of the previous Resource class polygon area of influence.
- The exclusion of most of APL Resource due to downgrading over poor data records & mine rehabilitation.

Table 42 shows the global Mineral Resource comparisons from the most recent DANMAR report dated July, 2020 to the current results in this report. Overall, the new estimates show significantly more tonnage below the 1.7% Nickel cut off. This variance is assumed to be the influence of the 57% increase of previous Resource class polygon area. Above this cut-off range the 4,800,000t mining depletion of High grade saprolite since July, 2020 has influenced the reduction of these ranges.

Figure 65 shows the overlay of the 2018 resource polygon on the new Resource boundaries.

Table 42 Global Nickel Resource comparison

GRADE CUT-OFF RANGE	MINERAL RESOURCE COMPARISONS GLOBAL ESTIMATES Ni > 0.80%				
	DANMAR,2020 (OK)		DANMAR,2022 (OK-TC)		DANMAR, 2020 VARIANCE (%)
	MILLION TONNES (DRY)	Ni %	MILLION TONNES (DRY)	Ni %	
>0.8	184	1.28	300	1.22	63.4%
>0.9	167	1.32	263	1.27	57.8%
>1.0	144	1.38	219	1.33	52.5%
>1.1	118	1.45	171	1.41	45.1%
>1.2	93	1.53	128	1.50	37.0%
>1.3	71	1.62	93	1.59	29.7%
>1.4	53	1.71	68	1.68	26.8%
>1.5	39	1.80	49	1.78	24.0%
>1.6	30	1.89	35	1.87	17.9%
>1.7	22	1.97	25	1.95	13.9%
>1.8	16	2.06	18	2.04	11.7%
>1.9	11	2.14	12	2.12	7.6%
>2.0	8	2.22	8	2.22	-4.4%

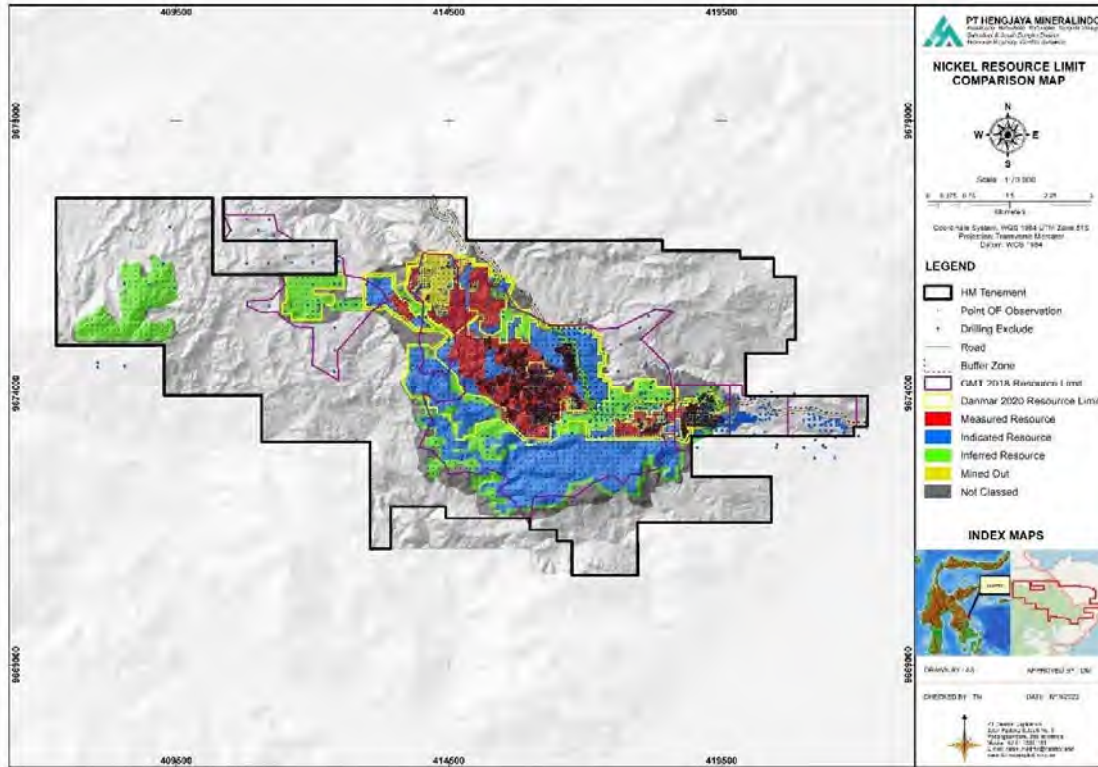


Figure 64 Nickel Resource limit comparison map

6.12 RISKS AND OPPORTUNITIES

Close spaced, systematic drilling since April 2019 and the supportive data provided by Ultra GPR surveys on the same drilling grid, has greatly enhanced the confidence in the geological interpretation and resulting geological model at Hengjaya Mineralindo.

The database, although containing some historic data, has been validated and rechecked for errors. Holes with GPS coordinates, used in the geological model, are considered to have a low risk of introducing bias or lowering accuracy as they are surrounded by numerous new points of observation with similar assay results, surveyed location and relatively high confidence.

The final geological models for Limonite, Saprolite and Bedrock 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.

High confidence in the laboratory analysis results is supported by rigorous quality assurance and quality control protocols including, sample blanks, sample standards, duplicate samples, interlaboratory replicates. Mining reconciliations of predicted tonnage and grades to actual ore recovered provides further evidence for the reliability of the assay results used in this study. Product sales to IMIP totaling 4.5million wet tons since 2020, have met the required specification for grade with Certificate of Analyses showing close correlation with Hengjaya internal lab assay results.

Reconciliation of the predicted Resource in mining production since June 2020 shows relatively good correlation between the Resource prediction and actual recovery in mining. This adds confidence to the current Resource estimate.

Check modeling internally at Danmar using the same Resource boundaries adds confidence to the reliability of the Nickel Resource estimate.

The planned haul road to IMIP provides an opportunity for alternative transportation options to enhance the economics of the western part of the HM project area and increased production of particularly limonite ore which could reach around 6 million tons per annum for HPAL processing.

6.13 EXPLORATION TARGETS

Exploration Targets, where nickel laterite has been identified by surface mapping, historical drilling and Ultra GPR surveys, are located in the Central North (proposed IPPKH 5A) area, the area at Bete Bete West, Bete Bete North (proposed IPPKH 5B) and Bete Bete Far West. Figure 66 below shows the Exploration Targets areas which are outside the coloured Resource areas. These Exploration Targets are in addition to the current Nickel Resource. Nickel laterite ore grade targets of between 25-50 million tons are postulated. These have been estimated using the statistical conversion rate of laterite to Nickel Resources per hectare in other blocks already explored throughout the HM project area. Although it must be stated that at this time the potential quantity and grade is conceptual in nature and that there has been insufficient exploration to estimate a Mineral Resource. Although it is uncertain if further exploration will result in a Mineral Resource, the historical mapping and Ultra GPR surveys within these Exploration Target areas provides greater confidence that with further drilling and assay results will upgrade these areas for future Resource estimates. Table 43 shows the details of the Exploration Target areas.

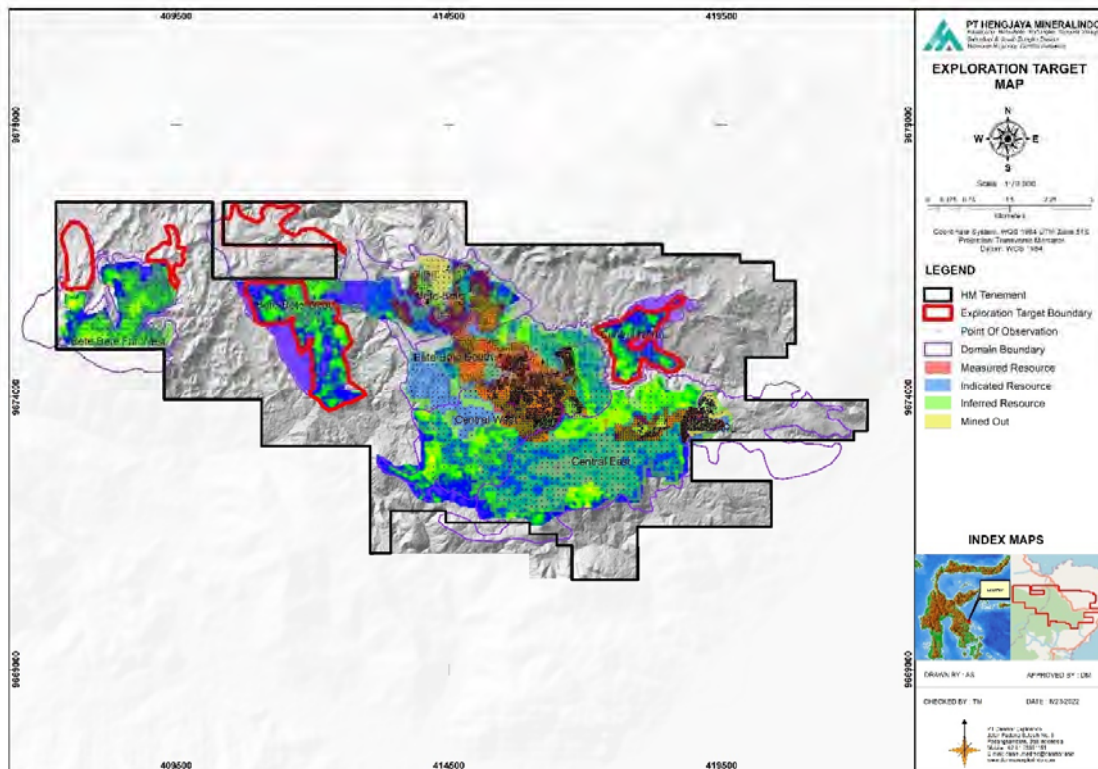


Figure 65 Exploration Target areas are shown as within domain boundaries and outside the shaded Resource areas

Table 43 Exploration Targets in addition to the HM Nickel Resource Areas

Domain	Target Area (Ha)	Material Type	Laterite WetTonnes
BETE WEST	215	Limonite (LIM)	5.0 - 10.0
		Rocky Saprolite (RSAP)	6.0 - 12.0
Sub Total		TOTAL LATERITE	10.0 - 20.0
IPPKH5 - A	105	Limonite (LIM)	2.0 - 4.0
		Rocky Saprolite (RSAP)	3.0 - 6.0
Sub Total		TOTAL LATERITE	5.0 - 10.0
IPPKH5 - B	95	Limonite (LIM)	2.0 - 4.0
		Rocky Saprolite (RSAP)	3.0 - 6.0
Sub Total		TOTAL LATERITE	5.0 - 10.0
BETE FAR WEST	85	Limonite (LIM)	2.0 - 4.0
		Rocky Saprolite (RSAP)	3.0 - 6.0
Sub Total		TOTAL LATERITE	5.0 - 10.0
ALL	500	Limonite (LIM)	10.0 - 20.0
		Rocky Saprolite (RSAP)	15.0 - 30.0
Grand Total Laterite Exploration Target			25.0 - 50.0

7 CONCLUSIONS AND RECOMMENDATIONS

This Mineral Resource covering 2,226ha has been reported in compliance with the JORC Code of 2012.

The geology at the Hengjaya Mineralindo project is ideal for the formation of thick and relatively high grade nickel laterite. At least 7 separate domain areas have been identified where the laterite varies in both physical and chemical characteristics.

Drilling, Points of Observation are systematically and relatively evenly spread across current Resource areas. 51% of the drilling is spaced less than 50m apart. Drill data is well documented, most drill collars accurately surveyed and checked. For this reason, the drill data used in this report, is considered to be of high quality and reliability and appropriate for use in this Mineral Resource estimation.

Quality Assurance and Quality Control team at the HM Sample Prep Lab and Assay Lab is also of Good Quality and Fit for Purpose, with the precision and accuracy within acceptable limits that is suitable for inclusion in this estimation of Mineral Resources for the JORC Compliant Report for PT Hengjaya Mineralindo.

Offtake agreements to provide Saprolite and Limonite ore to the nearby IMIP smelter ensures economic extraction of nickel ore into the foreseeable future from the project area.

Exploration Targets covering more than 500ha have potential for 25-50 million wet metric tons of additional laterite product in a similar geological environment. Although it is uncertain if further exploration will result in a Mineral Resource, the historical mapping and Ultra GPR surveys in these areas gives confidence that future exploration will upgrade at least some of these areas for future estimates.

To maximize the nickel resource potential of the Hengjaya project a combination of Ultra GPR surveys followed by systematic drilling, optimized to focus on the GPR targets, is recommended to cover the entire nickel laterite deposit in the area.

8 REFERENCES

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9 APPENDIX

9.1 TABLE 1 OF THE JORC COMMITTEE

9.2 PT HENGJAYA MINERALINDO LEGAL DOCUMENTATION

9.3 ENVIRONMENT SOCIAL AND GOVERNANCE REPORTS

9.4 HENGJAYA STATISTICAL ANALYSIS

9.5 HENGJAYA LABORATORY REPORTS; PROCEDURES & QA/QC

9.6 GEOTECHNICAL & HYDROGEOLOGICAL REPORT

9.7 RESUME: DANIEL MADRE, CHARLES WATSON, TOBIAS MAYA

Appendix 1
JORC Code, 2012 Edition
Table 1 Report

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 new core since April, 2019 photographed - Drill on systematic 100 X 100m grid over GPR targets for Indicated Resource and 50X50m and 25X25m grid for Measured Resource - Since April 2019, all core photographed and described by well site geologists as well as sample preparation and moisture determination follow the Japanese Industrial Standard, Method for Sampling and the Determination of Moisture Content of Garnieritic Nickel Ore, 1996 - 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. A complete report on this is provided in the Appendix 9.5 Mining reconciliations of predicted tonnage and grades to actual ore recovered provides further evidence for the reliability of the assay results used in this study.
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	- Full coring used and core recovery data collected for all runs since 2019 (4009 holes), 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 but overall drilling conditions are relatively good and recoveries remain consistently high

Criteria	JORC Code explanation	Commentary
	<i>loss/gain of fine/coarse material.</i>	- Historic data has less core recovery information; depths and assay results can be checked against GPR and assay using statistical methods - Most historic assays were done at external certified laboratories
Logging	<i>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.</i> <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i> <i>The total length and percentage of the relevant intersections logged.</i>	100% of laterite layers drilled have been logged and photographed in drilling since 2019 - Logging includes core recoveries and core swelling measurements - Since April 2019, all holes have 1 density sample (700-800g of solid core) taken from each stratigraphic layer to give representative density data throughout the deposit - Every meter of the core is logged and sampled separately
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i> <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i> <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i> <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i> <i>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.</i> <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	- 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. - 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. - Sample sizes are according to JIS M-8109-1996 Industry Standard and have shown to be effective re accuracy and precision during life of project to date.
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i> <i>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.</i> <i>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.</i>	- Industry standard laboratory sample preparation methods suitable for nickel laterite mineralization style and involve drying, crushing, incremental splitting & 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
		Sample sizes are according to JIS M-8109-1996 Industry Standard and have shown to be effective re accuracy and precision during life of project to date.
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. - Database checked and rechecked for errors and anomalies - Based on analysis of the downhole statistical data additional top and bottom cut constraints were applied to Ni% content to impose a domain limit of no greater than 2 standard deviations from the ORE-SAP average, to avoid over-estimation of nickel content due to possible nugget effect.
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 - From a total of holes 120 holes had GPS coordinates only. These holes were used because they had a complete drill log, analysis data, GPR data supporting laterite thickness and were surrounded by numerous holes with ground survey. It is considered appropriate to use these holes as their depth match the surrounding holes and the assay results. It is considered to have low potential to introduce a bias to the nickel grades - UTM (Universal Traverse Mercator) Projection; WGS 1984 UTM Zone 51S grid is being applied in the Resource estimation - LiDAR topographic surface was used - Average mis-close between the LiDAR and drill collar survey is - 0.01m
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.	- Random spacing of old data used for Exploration Targets only 100-200m grid drilling used for Inferred Resource, 50-100m grid for Indicated Resources and 25-50m for Measured Resources to match previous Resource estimate from 2020 - Geostatistical analysis of Ni mineralization was used to confirm the direction and distances to be applied to the Nickel Resource model - Reconciliation of predicted grades and volumes have been recovered in actual mining confirming data reliability - Semi-variogram models for each domain were calculated using statistical top-cuts applied to composites and constrained by hard boundary surfaces of Limonite and Saprolite lithologies to prevent over-estimation of nickel grades

Criteria	JORC Code explanation	Commentary
<i>Orientation of data in relation to geological structure</i>	- Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. - If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	- Vertical drilling is appropriate for nickel laterite as the laterite is relatively horizontal so the drilling intersects a true thickness - No bias is considered to be introduced as a result of the drilling orientation
<i>Sample security</i>	The measures taken to ensure sample security.	- Samples left in the field are properly stored, covered and guarded by night security at each rig - Sample stores are locked and continuously guarded
<i>Audits or reviews</i>	The results of any audits or reviews of sampling techniques and data.	Sampling review was carried out by the Competent Person and regular (monthly) progress reports were provided by the onsite lab documenting improvements and forward planning

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	- 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.001/DESDM/VI/2011. The area covers 5,893Ha and gives HM the right to mine nickel and its associated minerals. The IUPOP was granted by the Regent of Morowali in 2011 and is valid until 26th May 2031. The Operation Production IUP may be renewed twice, each for a period of 10 years. - Two Forestry permits (IPPKH) to allow open cut mining within a 1845Ha area have been granted by the Minister of Forestry, the mining permits doesn't overlap with any protected forests or nature reserves - A third Forestry Permit for exploration covering 984Ha is valid until 9 Sept 2023
<i>Exploration done by other parties</i>	Acknowledgment and appraisal of exploration by other parties.	- The exploration work has been carried out over various stages since 2007 until 2017, under the direction of experienced nickel laterite geologists. All the historic data, (pre April 2019) relating to the project was obtained from HM for the purpose of this study. - Exploration of the area began in 2007 when the state owned

Criteria	JORC Code explanation	Commentary
		minerals company, PT Aneka Tambang, explored the nickel potential of a broad area which included the location of where the HM project is located today. The work included mapping and wide spaced drilling. The data is poorly documented with many holes having ambiguous hole identification, coordinate location and or no analysis information. • HM started drilling in 2010. At least 3 separate phases of drilling were implemented. Initially wide spaced drilling on a 400m X 400m grid was conducted followed by 200 X 200m spacing and eventually 25 X 25m grids in subsequent mining areas.
Geology	• <i>Deposit type, geological setting and style of mineralisation.</i>	• Laterization of Ophiolite bedrocks, 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 associated metals are common
Drill hole Information	• <i>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:</i> ○ <i>easting and northing of the drill hole collar</i> ○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i> ○ <i>dip and azimuth of the hole</i> ○ <i>down hole length and interception depth</i> ○ <i>hole length.</i> • <i>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.</i>	• The drill database at HM contains 5,412 holes with a cumulative total depth of 125,996m. Assays total 127,503 • It is not practical or relevant to include these individual results to understand this report because; • Ni laterite deposits are at relatively low concentrations (1.2% 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 isopacs and thickness isopacs, 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	• <i>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.</i> • <i>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.</i> • <i>The assumptions used for any reporting of metal equivalent values</i>	• Only assay data from the validated database from included holes (INCL) were extracted for use in the compositing process. Composite lengths of 1m were used, which correlates with the majority of the sample length records and within statistical ranges suggested by the variography modeling. Composites were split into 5 lithologies • Based on analysis of the downhole statistical data additional top and bottom cut constraints were applied to Ni% content to ensure grades were not over estimated

Criteria	JORC Code explanation	Commentary
	<i>should be clearly stated.</i>	metal equivalents for Nickel content were shown in the Resource table with ore grades as wet and dry tons
<i>Relationship between mineralisation widths and intercept lengths</i>	<i>These relationships are particularly important in the reporting of Exploration Results.</i> <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i> <i>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').</i>	- 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 GPR surfaces to target at least 2-3m of bedrock was intersected at the end of each hole
<i>Diagrams</i>	<i>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.</i>	Diagrams, maps, sections are all included in the body of the report
<i>Balanced reporting</i>	<i>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.</i>	- 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 the open cut mining operation
<i>Other substantive exploration data</i>	<i>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.</i>	- Approx. 900km of ground penetrating radar (UltraGPR) survey lines were completed since Jan 2019, 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 - Reconciliation of mining production in several ongoing mine areas, providing additional information of ore characteristic's, materials handling, densities, recoveries and dilution of grades
<i>Further work</i>	<i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	- Plans for infill drilling in Indicated and Inferred Resource areas - Exploration Target and extension areas will first be surveyed using Ultra GPR and then drilled to focus on the thickest laterite areas. - 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 of both these datasets 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 - If these errors could not be fixed to a suitable level of confidence or failed to meet the accuracy standards during the validation process they were removed from the dataset. Approximately 98% of the excluded data was from the historical records supplied by Hengjaya.
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.	- Numerous site visits by all the CP's have been completed since the end of 2018 to review exploration progress; drilling, and sampling procedures, review sample handling, preparation and analyses, including monitoring Mine planning and reconciliations of ore production against predicted Resource modelling - All the CP's for this work have an intimate knowledge of the HM site
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 very large systematic drill program on the same grid as more than 800km of UltraGPR survey, allows for a relatively high confidence in geological interpretation of the Hengjaya nickel laterite deposit. Historical records for surface mapping, drilling, assay & mine production combined with the more recent UltraGPR survey traverse on 50-100m spaced infill grids over more than 90% of the Resource area provides good correlation and understanding if the laterization distribution, bulk volumes and mineralization. Considered sufficient in statement 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 Limonite, Saprolite & Bedrock lithology zones - Use of Ground Penetrating Radar (UltraGPR) interpretative data

Criteria	JORC Code explanation	Commentary
		source was used in combination with points of observations from the validated database in extrapolating between holes • Laterite grades are not laterally or vertically persistent and tend to be relatively random distributed through the leaching of minerals during the laterization process. The inclusion of the GPR interpretive data provides increased confidence of the geological model controls between points of observation for transition contacts between Limonite-Saprolite-Bedrock • Geological structure and bedrock topology, which are often displayed on Ultra-GPR interpretations, helped to target thick, high grade laterite areas
Dimensions	• <i>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.</i>	• Resource dimensions; approximately 8000m in length, 4000m in width, laterization thickness for up to 40m to bedrock in some places • Limonite thickness varies from 4-9m and saprolite thickness is consistently 8-10m • laterization of ophiolite formations occurs between an elevation range of 300 – 600 meters above mean sea level
Estimation and modelling techniques	• <i>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.</i> • <i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i> • <i>The assumptions made regarding recovery of by-products.</i> • <i>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</i> • <i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i> • <i>Any assumptions behind modelling of selective mining units.</i> • <i>Any assumptions about correlation between variables.</i>	• Modelling techniques & assumptions applied were considered appropriate for estimation of Mineral Resource for this style of Nickel laterite deposit based on the CP's experience. Key assumption's include; • Domaining by elevation, laterite thickness and Ni grade, mineralogical, characteristics, distinct statistical population & geological environment, no unfolding was preformed • Downhole and spatial geo-statistical analysis of the data & domain sub-sets of data providing search ellipsoids ranges for grade interpolation and maximum extrapolation distances for Ni between data points • Geological modelling and Mineral Resource estimates were completed using GEOVIA Surpac® mining software (version 6.1). Ordinary Kriging (OK) algorithm was used in the grade interpolation for nickel grades for limonite and saprolite laterite zones. In the absence of detailed geostatistical analysis for other elements Inverse Distance Weighted Squared (IDW²) methods were used to estimate the model grade interpolation for other elements Co, Fe, MgO, SiO₂, Al₂O₃, CaO and moisture content. • A comparison against previous Mineral Resource estimates from 30 June 2020 were conducted to validate the materiality of the volumes

Criteria	JORC Code explanation	Commentary
	• <i>Description of how the geological interpretation was used to control the resource estimates.</i> • <i>Discussion of basis for using or not using grade cutting or capping.</i> • <i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i>	stated in this report, further life of mine production reconciliation of historical mine areas of Bete Bete & APL pits were completed, showing reasonable correlation of the model prediction's to actual ore recovery • Since Jan 2020, limonite (by product of mining high grade saprolite ores) was stockpiles in expectation for supply to HPAL processing facilities at IMIP. Limonite shipments have started since Nov 2021 • Deleterious elements or acid drainage of the mineral resource was not considered in the model at time of Mineral Resource estimation as pits are shallow, backfilled and rehabilitated progressively • Block size selected 20m x 20m x 2m (sub-block 10m x10 x 1m) were considered appropriate for the style of mineralization reported. The assumption of the block sizes was designed to match the division of drilling spacing grids, composite sample lengths, geostatistical studies and practical mining bench dimensions for ongoing mine planning at the Hengjaya site • Wireframing was set up on each drill line in both east-west and north-south directions to create a 10X10m grid over the entire database to develop a morphology wireframe. From these wireframes, gridded surfaces were produced to represent the roof and floor limits of limonite, saprolite and bedrock zones. 10m grids were set up and interpolation of the gridded points was conducted using Inverse Distance Weighted (IDW²) methods. • Based on analysis of the downhole statistical data additional constraints were applied to Ni% content to impose top cuts to avoid over-estimation of nickel content due to possible nugget effect. For this reason, all core sample measurements were subjected to a top cut for(Ni) estimated for each domain using downhole statistics • Final block model and interpolated grades were validated using several visual and geostatistical techniques to gain further confidence in the Mineral Resource estimates stated in this report. visual inspection of the block models in plan and sectional views to assess the grade interpolations performed conform with the lithological wireframes, surface models and drilling database. Further statistical validation, including swath plots of the Nickel Resource estimate was completed by comparing global averages of the sample composites against the block model global averages.
Moisture	• <i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i>	• Since April, 2019 a total 94,074 Moisture measurements were performed every 1m drill core sample using the Japanese Industrial

Criteria	JORC Code explanation	Commentary
		Standard (JIS M8109-1996IS). - 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 - Moisture content were used to adjust Wet to Dry tonnage for mineral Resource estimates
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on statistical analysis of the domain databases & ongoing ore mining operations a 0.80% cutoff 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 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. - assumptions for open cut mining operation similar to current production and supply agreements with nearby IMIP smelter provide sufficient evidence for determination of reasonable prospects of eventual economic extraction of the Hengjaya Mineral Resource - proximity to the smelter and the prospect of direct haul road access in addition to barging 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	- Environmental Impact studies were completed as part of the mining operation permitting process, - Limits of the 2 IPPKH forestry land borrow permits were reviewed when selecting the data, most holes outside these permits were excluded from the model estimation - Top soil composites were extracted separately and considered overburden waste for future mine planning & rehabilitation of ex-

Criteria	JORC Code explanation	Commentary
	<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>	opencast pit areas, usually represented as the first 1-4meters from surface below grade cutoff ranges and not included in the Mineral Resource
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Since April 2019 a total of 13,004 density measurements on drill core samples have been performed. Bulk density was measured on solid core from each stratigraphic layer in every bore hole. Density was measured by measuring the volume by displacement of water and the weight of the fresh sample • Insitu density used in the Resource estimate was the weighted average laboratory core density for each particular lithology for that particular domain.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Determination of the Resource classes, were applied to the Mineral Resource with a digitized polygon boundary based on the spatial continuity of each geological domain around regular spaced drilling grids of 25, 50, 100, 200m from included points of observation in the final validated database. Also taken into account was the 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 follows; • MEASURED - Areas of 25-50m of drilling spacing on a continuous grid pattern, where significant influence from Pass 1 dominate the search ellipsoids, with no extrapolation from the last line of drilling. • INDICATED - Areas of 50-100m of drilling spacing on a continuous grid pattern, where significant influence from Pass 1 and 2 dominate the search ellipsoids, with 50m extrapolation from the last line of drilling. • INFERRED - Areas of 100-200m of drilling spacing on a continuous grid pattern, where significant influence from Pass 1, 2 and 3 dominate the search ellipsoids, with 100m extrapolation from the last line of drilling. In some areas between holes greater than 200m the polygon was included

Criteria	JORC Code explanation	Commentary
		into the Inferred category to allow for more practical polygon shape fit to the model area. • Bete Bete and APL mine areas were given the Resource class MINED OUT as it is considered mining depletion has sterilized these areas. • 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 90% of the blocks in Measured class are interpolated by Pass 1 & 2 and the Indicated class is approximately 90% interpolated by Passes 1, 2 and 3. These results give sufficient confidence in the polygon strategy respectively. The lowest class of Inferred still has majority portions of the first 3 passes with 30% of pass 4 which is considered acceptable in this selection • Bete Bete Far West and Bete West matched drill spacing criteria for Indicated Resource but were downgraded to Inferred status because of insufficient drilling over the entire area to give confidence to the Resource continuity for both thickness and grade.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• No external audits or reviews were done before release of the Mineral Resource statement for Nickel, dated 30th Aug 2022 • Charles Watson and Tobias Maya provided several peer review during the report drafting process in collaboration with principle author Daniel Madre
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	• Sufficient exploration has been carried out at the Hengjaya project to delineate a significant deposit of laterite nickel. The drilling used for the Mineral Resource estimate is based on systematic drill grids ranging from 25 to 50 to 100m apart. The resource classifications are based on this spacing of points of observation. According to the geostatistical analysis, provides sufficient detail for the purpose of this report. • It is likely with further infill and exploration drilling in all domains the Mineral Resources estimated in this report will increase • Confidence of these estimates are greatly improved with the reconciliation of the historical mining of the same laterite nickel deposit since 2013. These comparisons show good correlation of

Criteria	JORC Code explanation	Commentary
	<i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i>	actual produced ores of high grade saprolite and predicted Resources. Long term supply contracts to refining facilities already in operation nearby significantly increase the potential for eventual economic extraction of the Hengjaya 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
<i>Mineral Resource estimate for conversion to Ore Reserves</i>	<i>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</i> <i>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</i>	Insert your commentary here...
<i>Site visits</i>	<i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i> <i>If no site visits have been undertaken indicate why this is the case.</i>	
<i>Study status</i>	<i>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</i> <i>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.</i>	
<i>Cut-off parameters</i>	<i>The basis of the cut-off grade(s) or quality parameters applied.</i>	
<i>Mining factors or assumptions</i>	<i>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).</i> <i>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.</i> <i>The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.</i> <i>The major assumptions made and Mineral Resource model used for</i>	

Criteria	JORC Code explanation	Commentary
	<i>pit and stope optimisation (if appropriate).</i> • <i>The mining dilution factors used.</i> • <i>The mining recovery factors used.</i> • <i>Any minimum mining widths used.</i> • <i>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</i> • <i>The infrastructure requirements of the selected mining methods.</i>	
Metallurgical factors or assumptions	• <i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</i> • <i>Whether the metallurgical process is well-tested technology or novel in nature.</i> • <i>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</i> • <i>Any assumptions or allowances made for deleterious elements.</i> • <i>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.</i> • <i>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</i>	•
Environmental	• <i>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.</i>	•
Infrastructure	• <i>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.</i>	•
Costs	• <i>The derivation of, or assumptions made, regarding projected capital costs in the study.</i> • <i>The methodology used to estimate operating costs.</i> • <i>Allowances made for the content of deleterious elements.</i> • <i>The source of exchange rates used in the study.</i> • <i>Derivation of transportation charges.</i> • <i>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</i>	•

Criteria	JORC Code explanation	Commentary
	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.	
Classification	- The basis for the classification of the Ore Reserves into varying confidence categories. - Whether the result appropriately reflects the Competent Person's	

Criteria	JORC Code explanation	Commentary
	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

License Documents



PEMERINTAH PROVINSI SULAWESI TENGAH
DINAS PENANAMAN MODAL DAN
PELAYANAN TERPADU SATU PINTU

Jalan : Cik Ditiro No 29 Palu - Telp. (0451) 4017755 - Kode Pos.94111

KEPUTUSAN GUBERNUR SULAWESI TENGAH
NOMOR : 540/345/IUP-OP-PENCIUTAN/DPMPTSP/2020

TENTANG

PENCIUTAN WILAYAH IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI
PT. HENGJAYA MINERALINDO BERDASARKAN KEPUTUSAN BUPATI MOROWALI
NOMOR : 540.3/SK.001/DESDM/VI/2011 TENTANG PERSETUJUAN
PENINGKATAN IZIN USAHA PERTAMBANGAN EKSPLORASI MENJADI IZIN USAHA
PERTAMBANGAN OPERASI PRODUKSI KEPADA
PT. HENGJAYA MINERALINDO

GUBERNUR SULAWESI TENGAH,

- Menimbang : a. Bahwa berdasarkan pasal 74 ayat (1) Peraturan Pemerintah Nomor 23 Tahun 2010 tentang Pelaksanaan Kegiatan Usaha Pertambangan Mineral dan Batu Bara, Pemegang IUP sewaktu-waktu dapat mengajukan Permohonan kepada Gubernur untuk menciutkan sebagian atau mengembalikan seluruh WIUP;
- b. bahwa dengan memperhatikan Surat Tim Teknis Dinas Energi dan Sumber Daya Mineral Provinsi Sulawesi Tengah Nomor : 540/9519/VI/BID.MINERBA/2020 Tanggal 23 Juni 2020, Perihal Pertimbangan Teknis Penciutan Wilayah IUP Operasi Produksi PT. Hengjaya Mineralindo telah memenuhi syarat untuk diberikan Penciutan IUP Operasi Produksi;
- c. bahwa berdasarkan Pasal 173 C ayat (1) Undang-Undang Nomor 3 Tahun 2020 tentang perubahan atas Undang-Undang Nomor 4 Tahun 2009 tentang Pertambangan Mineral dan Batubara menyebutkan "Pelaksanaan kewenangan pengelolaan pertambangan mineral dan batubara oleh pemerintah provinsi yang telah dilaksanakan berdasarkan Undang-Undang Nomor 4 Tahun 2009 tentang Pertambangan Mineral dan Batubara (Lembaran Negara Republik Indonesia Tahun 2009 Nomor 4, Tambahan Lembaran Negara Republik Indonesia Nomor 4959) dan Undang-Undang lain yang mengatur tentang Kewenangan Pemerintah Daerah dibidang Pertambangan Mineral dan Batubara tetap berlaku untuk jangka waktu paling lama 6 (enam) bulan terhitung sejak Undang-Undang ini mulai berlaku atau sampai dengan diterbitkannya Peraturan Pelaksanaan Undang-Undang ini;
- d. bahwa berdasarkan pertimbangan sebagaimana dimaksud huruf a, huruf b dan huruf c, perlu menetapkan Keputusan Gubernur tentang Penciutan Wilayah Izin Usaha Pertambangan Operasi Produksi PT. Hengjaya Mineralindo Berdasarkan Keputusan Bupati Morowali Nomor 540.3/SK.001/DESDM/VI/2011 Tentang Persetujuan Peningkatan Izin Usaha Pertambangan Eksplorasi Menjadi Izin Usaha Pertambangan Operasi Produksi Kepada PT. Hengjaya Mineralindo;

- Mengingat : 1. Undang-Undang Nomor 13 Tahun 1964 tentang Penetapan Peraturan Pemerintah Pengganti Undang-Undang Nomor 2 Tahun 1964 tentang Pembentukan Daerah Tingkat I Sulawesi Tengah dan Daerah Tingkat I Sulawesi Tenggara dengan mengubah Undang-Undang Nomor 47 Prp Tahun 1960 tentang Pembentukan Daerah Tingkat I Sulawesi Utara-Tengah dan Daerah Tingkat I Sulawesi Selatan-Tenggara (Lembaran Negara Republik Indonesia Tahun 1964 Nomor 07), Menjadi Undang-Undang (Lembaran Negara Republik Indonesia Tahun 1964 Nomor 94, Tambahan Lembaran Negara Republik Indonesia Nomor 2687);
2. Undang-Undang Nomor 4 Tahun 2009 tentang Pertambangan Mineral dan Batubara (Lembaran Negara Republik Indonesia Tahun 2009 Nomor 4, Tambahan Lembaran Negara Republik Indonesia Nomor 4959) sebagaimana telah diubah dengan Undang-Undang Nomor 03 Tahun 2020 tentang Perubahan atas Undang-Undang Nomor 4 Tahun 2009 tentang Pertambangan Mineral dan Batubara (Lembaran Negara Republik Indonesia Tahun 2020 Nomor 147, Tambahan Lembaran Negara Republik Indonesia Nomor 6525);
3. Undang-Undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 244, Tambahan Lembaran Negara Republik Indonesia Nomor 5587) sebagaimana telah diubah terakhir dengan Undang-Undang Nomor 9 Tahun 2015 tentang Perubahan Kedua atas Undang-Undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah (Lembaran Negara Republik Indonesia Tahun 2015 Nomor 58, Tambahan Lembaran Negara Republik Indonesia Nomor 5679);
4. Peraturan Pemerintah Nomor 22 Tahun 2010 tentang Wilayah Pertambangan (Lembaran Negara Republik Indonesia Tahun 2010 Nomor 28, Tambahan Lembaran Negara Republik Indonesia Nomor 5110);
5. Peraturan Pemerintah Nomor 23 Tahun 2010 tentang Pelaksanaan Kegiatan Usaha Pertambangan Mineral dan Batubara (Lembaran Negara Republik Indonesia Tahun 2010 Nomor 29, Tambahan Lembaran Negara Republik Indonesia Nomor 5111), sebagaimana telah diubah terakhir dengan Peraturan Pemerintah Nomor 77 Tahun 2014 tentang Perubahan Ketiga atas Peraturan Pemerintah Nomor 23 Tahun 2010 tentang Pelaksanaan Kegiatan Usaha Pertambangan Mineral dan Batubara (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 263, Tambahan Lembaran Negara Republik Indonesia Nomor 5597);
6. Peraturan Pemerintah Nomor 55 Tahun 2010 tentang Pembinaan dan Pengawasan Penyelenggaraan Pengelolaan Usaha Pertambangan Mineral dan Batubara (Lembaran Negara Republik Indonesia Tahun 2010 Nomor 138, tambahan lembaran Negara Republik Indonesia Nomor 5172);
7. Peraturan Pemerintah Nomor 78 Tahun 2010 tentang Reklamasi dan Pascatambang (Lembaran Negara Republik Indonesia Tahun 2010 Nomor 138, Tambahan Lembaran Negara Republik Indonesia Nomor 5172);

8. Peraturan Pemerintah Nomor 9 Tahun 2012 tentang Jenis dan Tarif Atas Jenis Penerimaan Negara Bukan Pajak Yang Berlaku Pada Kementerian Energi dan Sumber Daya Mineral (Lembaran Negara Republik Indonesia Tahun 2012 Nomor 16, Tambahan Lembaran Negara Republik Indonesia Nomor 5276);
9. Peraturan Presiden Nomor 97 Tahun 2014 tentang Penyelenggaraan Pelayanan Terpadu Satu Pintu;
10. Peraturan Menteri Energi dan Sumber Daya Mineral Nomor 7 Tahun 2020 Tentang Tata Cara Pemberian Wilayah, Perizinan, dan Pelaporan Pada Kegiatan Usaha Pertambangan Mineral dan Batubara;
11. Peraturan Daerah Nomor 08 Tahun 2016 tentang pembentukan dan Susunan Perangkat Daerah Provinsi;
12. Peraturan Daerah Nomor 02 Tahun 2018 tentang Pengelolaan Pertambangan Mineral dan Batubara;
13. Peraturan Gubernur Sulawesi Tengah Nomor 71 Tahun 2016 tentang Tugas, Fungsi dan Tatacara Kerja Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi;
14. Peraturan Gubernur Sulawesi Tengah Nomor 43 Tahun 2016 tentang Kedudukan dan Susunan Organisasi Dinas Daerah;
15. Peraturan Gubernur Sulawesi Tengah Nomor 26 Tahun 2018 tentang Pendelegasian Kewenangan Penerbitan dan Penandatanganan Perizinan dan Non Perizinan;

- Memperhatikan :
1. Keputusan Menteri Energi dan Sumber Daya Mineral Nomor : 2737.K/30/MEM/2013 tentang Penetapan Wilayah Pertambangan Pulau Sulawesi;
 2. Surat Edaran Menteri Dalam Negeri Republik Indonesia Nomor: 120/253/Sj tentang Penyelenggaraan Urusan Pemerintahan Setelah Ditetapkan Undang-Undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah;
 3. Surat Direktorat Jenderal Mineral dan Batubara Kementerian Energi dan Sumber Daya Mineral Republik Indonesia Nomor : 321/06/SDB/2015 Perihal Pelayanan Urusan ESDM setelah Pemberlakuan UU 23 Tahun 2014;
 4. Keputusan Bupati Morowali Nomor : 540.3/SK.001/DESDM/VI/2011 Tanggal 16 Juni 2011 Tentang Persetujuan Peningkatan Izin Usaha Pertambangan Eksplorasi Menjadi Izin Usaha Pertambangan Operasi Produksi Kepada PT. Hengjaya Mineralindo;
 5. Keputusan Kepala Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Sulawesi Tengah Nomor 800/09.90.A/DPMPTSP Tanggal 28 Juni 2018 tentang Standar Pelayanan dan Standar Operasional Prosedur Perizinan dan Non Perizinan.
 6. Surat Tim Teknis Dinas Energi dan Sumber Daya Mineral Provinsi Sulawesi Tengah Nomor : 540/9519/VI/BID.MINERBA/2020 Tanggal 23 Juni 2020, Perihal Pertimbangan Teknis Penciutan Wilayah IUP Operasi Produksi PT. Hengjaya Mineralindo;
 7. Surat Permohonan Direktur Utama PT. Hengjaya Mineralindo Nomor : 020/LGD.DIR-HM/II/2020 Tanggal 17 Februari 2020, Perihal Permohonan Penciutan Areal IUP Operasi Produksi PT. Hengjaya Mineralindo;

8. Surat Direktur Utama PT. Hengjaya Mineralindo Nomor : 035/LGD.DIR-HM/IV/2020 Tanggal 23 April 2020 Perihal Pemenuhan Persyaratan Penciutan Areal IUP-OP;

MEMUTUSKAN:

- Menetapkan : KEPUTUSAN GUBERNUR SULAWESI TENGAH TENTANG PENCIUTAN WILAYAH IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI PT. HENGJAYA MINERALINDO BERDASARKAN KEPUTUSAN BUPATI MOROWALI NOMOR 540.3/SK.001/DESDM/VI/2011 TENTANG PERSETUJUAN PENINGKATAN IZIN USAHA PERTAMBANGAN EKSPLORASI MENJADI IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI KEPADA PT. HENGJAYA MINERALINDO
- KESATU : Melakukan Penciutan Wilayah Izin Usaha Pertambangan (IUP) Operasi Produksi PT. Hengjaya Mineralindo Berdasarkan Keputusan Bupati Morowali Nomor 540.3/SK.001/DESDM/VI/2011 Tentang Persetujuan Peningkatan Izin Usaha Pertambangan Eksplorasi Menjadi Izin Usaha Pertambangan Operasi Produksi Kepada PT. Hengjaya Mineralindo.
- KEDUA : Penciutan sebagaimana dimaksud dalam dictum KESATU adalah dari luas Wilayah semula 6.249 Ha (Enam Ribu Dua Ratus Empat Puluh Sembilan) menjadi 5.983 Ha (Lima Ribu Sembilan Ratus Delapan Puluh Tiga) yang menjadi Wilayah Izin Usaha Pertambangan Operasi Produksi setelah dilakukan Penciutan, sesuai dengan Peta dan Daftar Koordinat sebagaimana tercantum dalam lampiran I dan lampiran II yang merupakan bagian tidak terpisahkan dari Keputusan Gubernur ini.
- KETIGA : Hak dan kewajiban pemegang IUP Operasi Produksi PT. Hengjaya Mineralindo tetap berpedoman pada Ketentuan Peraturan Perundang-Undangan yang Berlaku.
- KEEMPAT : Keputusan Gubernur ini mulai berlaku pada tanggal ditetapkan.

Ditetapkan di : Palu
pada tanggal : 10 Juli 2020

**a.n GUBERNUR SULAWESI TENGAH
KEPALA DINAS PENANAMAN MODAL DAN
PELAYANAN TERPADU SATU PINTU
PROVINSI SULAWESI TENGAH**


Ir. CHRISTINA SHANDRA TOBONDO, MT
Pembina Utama Madya
NIP. 19670526 199203 2 006

Tembusan Yth. :

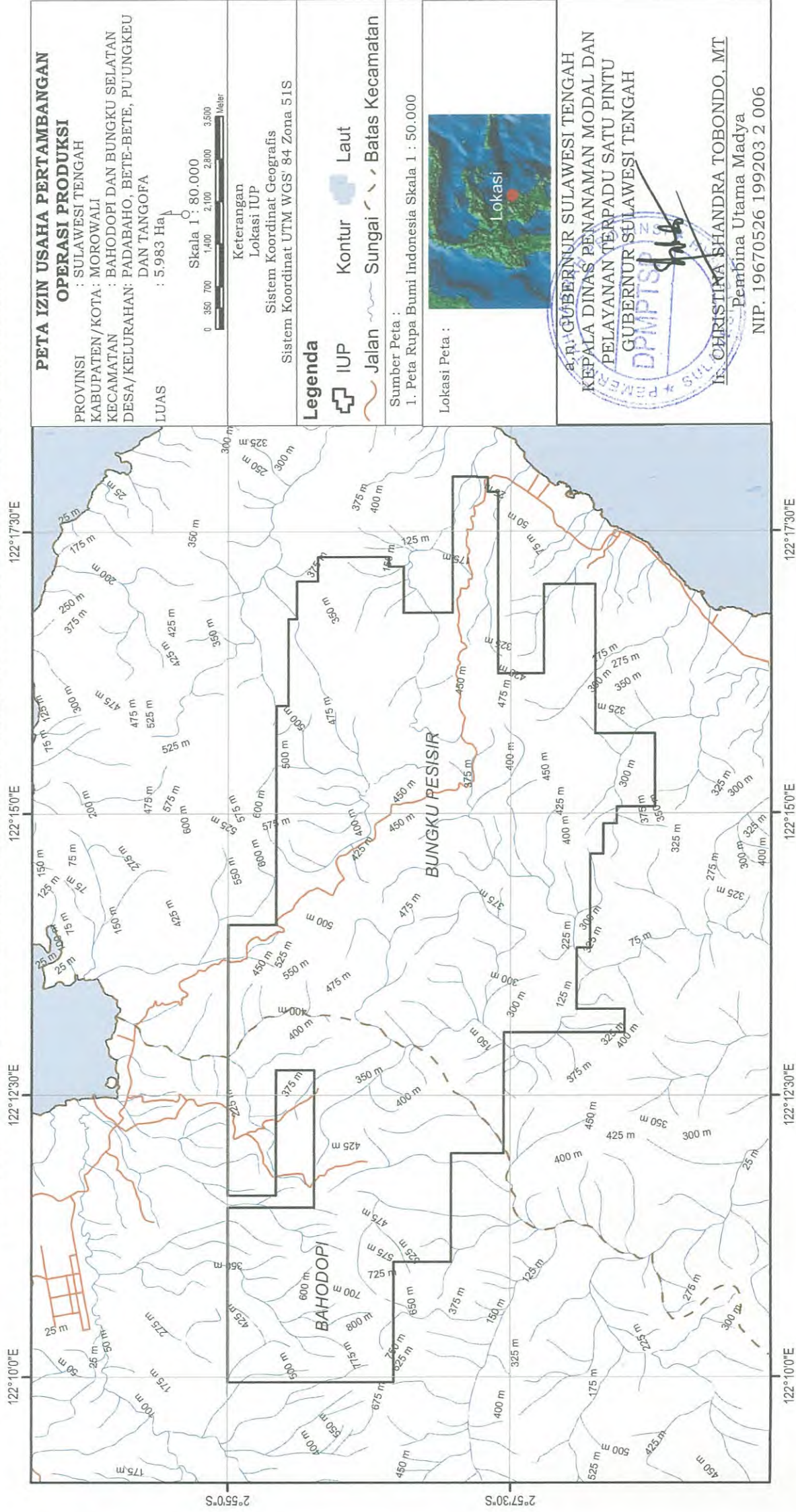
1. Gubernur Sulawesi Tengah (sebagai laporan) di Palu;
2. Sekretaris Daerah Provinsi Sulawesi Tengah di Palu;
3. Bupati Morowali di Bungku;
4. Kepala Dinas ESDM Provinsi Sulawesi Tengah di Palu;
5. Kepala Badan Pendapatan Daerah Provinsi Sulawesi Tengah di Palu;
6. Kepala Dinas PM-PTSP Kabupaten Morowali di Bungku;
7. Direktur Utama PT. HENGJAYA MINERALINDO.

KEPUTUSAN GUBERNUR SULAWESI TENGAH

NOMOR : 540/345/1up-gp - pencasila (pnp) 1015p/2020

TENTANG : PENCIUTAN WILAYAH IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI PT. HENGJAYA MINERALINDO BERDASARKAN KEPUTUSAN BUPATI MOROWALI NOMOR: 540.3/SK.001/DESDM/VI/2011 TENTANG PERSETUJUAN PENINGKATAN IZIN USAHA PERTAMBANGAN EKSPLORASI MENJADI IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI KEPADA PT. HENGJAYA MINERALINDO

PETA LOKASI IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI PT. HENGJAYA MINERALINDO



LAMPIRAN II
KEPUTUSAN GUBERNUR SULAWESI TENGAH
NOMOR : 540/345/140-00-Per/ciutan/00mptsp/2020
TANGGAL : 14/10 Juli 2020
TENTANG : PENCIUTAN WILAYAH IZIN USAHA PERTAMBANGAN OPERASI
PRODUKSI PT. HENGJAYA MINERALINDO BERDASARKAN
KEPUTUSAN BUPATI MOROWALI NOMOR: 540.3/SK.001/
DESDM/VI/2011 TENTANG PERSETUJUAN PENINGKATAN IZIN
USAHA PERTAMBANGAN EKSPLORASI MENJADI IZIN USAHA
PERTAMBANGAN OPERASI PRODUKSI KEPADA PT. HENGJAYA
MINERALINDO

KOORDINAT IZIN USAHA PERTAMBANGAN OPERASI PRODUKSI
PT. HENGJAYA MINERALINDO

LOKASI
DESA : PADABAHO, BETE-BETE, PU'UNGKEU DAN TANGOFA
KECAMATAN : BAHODOPI DAN BUNGKU SELATAN
KABUPATEN : MOROWALI
PROVINSI : SULAWESI TENGAH
LUAS : 5.983 Ha

NO	BUJUR TIMUR			LINTANG SELATAN		
	°	'	"	°	'	"
1	122	15	3.21	2	58	46.15
2	122	15	3.21	2	58	25.82
3	122	14	54.21	2	58	25.82
4	122	14	54.21	2	58	18.74
5	122	14	38.25	2	58	18.74
6	122	14	38.25	2	58	11.84
7	122	13	48.27	2	58	11.84
8	122	13	48.27	2	58	4.76
9	122	13	15.69	2	58	4.76
10	122	13	15.69	2	58	30.21
11	122	13	3.34	2	58	30.21
12	122	13	3.34	2	57	26.14
13	122	11	59.03	2	57	26.14
14	122	11	59.03	2	56	58.25
15	122	11	1.10	2	56	58.25
16	122	11	1.10	2	56	27.81
17	122	9	57.11	2	56	27.81
18	122	9	57.11	2	54	59.84
19	122	11	29.99	2	54	59.84
20	122	11	29.99	2	55	45.58
21	122	12	43.24	2	55	45.58
22	122	12	43.24	2	55	25.34
23	122	11	36.37	2	55	25.34
24	122	11	36.37	2	54	59.84
25	122	14	0.47	2	54	59.84
26	122	14	0.47	2	55	25.18
27	122	15	57.13	2	55	25.18
28	122	15	57.13	2	55	31.55

29	122	16	43.09	2	55	31.55
30	122	16	43.09	2	55	36.02
31	122	17	3.20	2	55	36.02
32	122	17	3.20	2	55	47.17
33	122	17	16.12	2	55	47.17
34	122	17	16.12	2	56	24.78
35	122	17	11.01	2	56	24.78
36	122	17	11.01	2	56	32.75
37	122	16	46.44	2	56	32.75
38	122	16	46.44	2	56	58.73
39	122	17	58.99	2	56	58.73
40	122	17	58.99	2	57	11.48
41	122	17	58.73	2	57	11.48
42	122	17	58.73	2	57	17.38
43	122	17	50.75	2	57	17.38
44	122	17	50.75	2	57	22.80
45	122	16	14.20	2	57	22.80
46	122	16	14.20	2	57	47.18
47	122	17	1.60	2	57	47.18
48	122	17	1.60	2	58	14.43
49	122	15	42.29	2	58	14.43
50	122	15	42.29	2	58	46.15

a.n. GUBERNUR SULAWESI TENGAH
KEPALA DINAS PENANAMAN MODAL DAN
PELAYANAN TERPADU SATU PINTU
PROVINSI SULAWESI TENGAH



Ir. CHRISTINA SHANDRA TOBONDO, MT
Pembina Utama Madya
NIP. 19670526 199203 2 006



**MENTERI KEHUTANAN
REPUBLIK INDONESIA**

KEPUTUSAN MENTERI KEHUTANAN REPUBLIK INDONESIA

NOMOR : SK.443/Menhut-II/2013

TENTANG

IZIN PINJAM PAKAI KAWASAN HUTAN UNTUK KEGIATAN OPERASI PRODUKSI NIKEL DAN SARANA PENUNJANGNYA PADA KAWASAN HUTAN PRODUKSI TERBATAS ATAS NAMA PT. HENGJAYA MINERALINDO, YANG TERLETAK DI KECAMATAN BAHODOPI DAN KECAMATAN BUNGKU SELATAN, KABUPATEN MOROWALI, PROVINSI SULAWESI TENGAH SELUAS 851,22 (DELAPAN RATUS LIMA PULUH SATU DAN DUA PULUH DUA PERSERATUS) HEKTAR

MENTERI KEHUTANAN REPUBLIK INDONESIA,

- Menimbang : a. bahwa berdasarkan surat Menteri Kehutanan Nomor S.2/Menhut-VII/2013 tanggal 4 Januari 2013, PT. Hengjaya Mineralindo mendapat persetujuan prinsip penggunaan kawasan hutan untuk kegiatan operasi produksi nikel dan sarana penunjangnya seluas 862 (delapan ratus enam puluh dua) hektar, pada Kawasan Hutan Produksi Terbatas, terletak di Kabupaten Morowali, Provinsi Sulawesi Tengah, dengan kompensasi membayar Penerimaan Negara Bukan Pajak (PNBP) Penggunaan Kawasan Hutan dan melakukan penanaman dalam rangka rehabilitasi daerah aliran sungai dengan ratio 1 : 1 ditambah dengan luas rencana areal terganggu dengan kategori L3;
- b. bahwa PT. Hengjaya Mineralindo telah memenuhi kewajiban sebagaimana surat Menteri Kehutanan Nomor S.2/Menhut-VII/2013 tanggal 4 Januari 2013, serta Peraturan Menteri Kehutanan Nomor P.18/Menhut-II/2011 tentang Pedoman Pinjam Pakai Kawasan Hutan, sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Menteri Kehutanan Nomor P.14/Menhut-II/2013, yaitu:
1. Melaksanakan inventarisasi tegakan sesuai Berita Acara Supervisi Inventarisasi Tegakan Hutan pada Areal Izin Persetujuan Prinsip Penggunaan Kawasan Hutan Produksi, Untuk Kegiatan Operasi Produksi Nikel dan Sarana Penunjangnya pada Kawasan Hutan Produksi Terbatas atas nama PT. Hengjaya Mineralindo, di Kabupaten Morowali, Provinsi Sulawesi Tengah, tanggal 28 Januari 2013;
 2. Melaksanakan tata batas sesuai dengan Berita Acara Pelaksanaan Tata Batas Persetujuan Prinsip Penggunaan Kawasan Hutan Untuk Operasi Produksi Nikel dan Sarana Penunjangnya pada Kawasan Hutan Produksi Terbatas atas nama PT. Hengjaya Mineralindo, Kelompok Hutan Bungku Selatan, Kecamatan Bungku Pesisir, Kabupaten Morowali, Provinsi Sulawesi Tengah, yang disetujui dan disahkan oleh Kepala Balai Pemantapan Kawasan Hutan Wilayah XVI Palu tanggal 25 Pebruari 2013, seluas 851,22 (delapan ratus lima puluh satu dan dua puluh dua perseratus) hektar;

3. Pernyataan ...

3. Pernyataan Direktur PT. Hengjaya Mineralindo di hadapan Ferry Gustiawan, SH, Notaris di Bekasi sesuai Akta Nomor 2 tanggal 5 April 2013, sanggup:
 - a) Melaksanakan reklamasi dan revegetasi pada kawasan hutan yang sudah tidak dipergunakan tanpa menunggu selesainya jangka waktu pinjam pakai kawasan hutan;
 - b) Melaksanakan perlindungan hutan sesuai ketentuan peraturan perundang-undangan;
 - c) Memberikan kemudahan bagi aparat kehutanan baik pusat maupun daerah pada saat melakukan monitoring dan evaluasi di lapangan;
 - d) Menanggung seluruh biaya sebagai akibat adanya pinjam pakai kawasan hutan;
 - e) Membayar Penerimaan Negara Bukan Pajak (PNBP) Penggunaan Kawasan Hutan dan melakukan penanaman dalam rangka rehabilitasi Daerah Aliran Sungai;
 - f) Membayar Provisi Sumber Daya Hutan (PSDH), Dana Reboisasi (DR), dan penggantian nilai tegakan, dan kewajiban keuangan lainnya sesuai dengan ketentuan peraturan perundang-undangan;
 - g) Mengembangkan ekonomi berkelanjutan masyarakat lingkaran tambang dan memberdayakan masyarakat di sekitar areal;
4. Menyampaikan beseline penggunaan kawasan hutan;
5. Menyampaikan Revisi Rencana Kerja yang disesuaikan dengan hasil tata batas;
6. Menyampaikan rencana reklamasi dan revegetasi;
7. Memiliki Policy Advisor dan Tenaga Teknis Bidang Kehutanan;
8. Akta Pendirian Perusahaan, profil perusahaan, Nomor Pokok Wajib Pajak, dan Neraca Keuangan yang diaudit oleh Akuntan Publik;
- c. bahwa berdasarkan Pasal 1 ayat (1) Peraturan Pemerintah Nomor 2 Tahun 2008 tentang Jenis dan Tarif Atas Jenis Penerimaan Negara Bukan Pajak yang Berasal dari Penggunaan Kawasan Hutan untuk Kepentingan Pembangunan di Luar Kegiatan Kehutanan yang Berlaku pada Departemen Kehutanan, Jenis Penerimaan Negara Bukan Pajak dalam Peraturan Pemerintah ini adalah Penerimaan Negara Bukan Pajak yang berasal dari penggunaan kawasan hutan untuk kepentingan pembangunan di luar kegiatan kehutanan yang luas kawasan hutannya di atas 30% (tiga puluh persen) dari daerah aliran sungai dan/atau pulau;
- d. bahwa berdasarkan Pasal 7 ayat (2) huruf b angka 2 Peraturan Menteri Kehutanan Nomor P.18/Menhut-II/2011 tentang Pedoman Pinjam Pakai Kawasan Hutan, sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Menteri Kehutanan Nomor P.14/Menhut-II/2013, izin pinjam pakai kawasan hutan pada provinsi yang luas kawasan hutannya di atas 30% (tiga puluh perseratus) dari luas daerah aliran sungai, pulau, dan/atau provinsi, dengan ketentuan penggunaan untuk komersial dikenakan kompensasi membayar Penerimaan Negara Bukan Pajak Penggunaan Kawasan Hutan dan melakukan penanaman dalam rangka rehabilitasi daerah aliran sungai dengan ratio 1:1 ditambah dengan luas rencana areal terganggu dengan kategori L3;
- e. bahwa ...

- e. bahwa berdasarkan Pasal 13 Peraturan Pemerintah Nomor 24 Tahun 2010 tentang Penggunaan Kawasan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 61 Tahun 2012, dalam hal pemegang persetujuan prinsip telah memenuhi seluruh kewajiban Menteri menerbitkan izin pinjam pakai kawasan hutan;
 - f. bahwa berdasarkan surat Direktur Jenderal Planologi Kehutanan Nomor S.769/VII-PKH/2013 tanggal 3 Juni 2013, sesuai Peta Indikatif Penundaan Izin Baru Lampiran Keputusan Direktur Jenderal Planologi Kehutanan atas nama Menteri Kehutanan Nomor SK.6315/Menhut-VII/ IPSDH/2012 tentang Penetapan Peta Indikatif Penundaan Izin Baru Pemanfaatan Hutan, Penggunaan Kawasan Hutan, dan Perubahan Peruntukan Kawasan Hutan dan Areal Penggunaan Lain (Revisi III), Kawasan Hutan Produksi Terbatas yang terletak di Kabupaten Morowali, Provinsi Sulawesi Tengah seluas 851,22 (delapan ratus lima puluh satu dan dua puluh dua perseratus) hektar untuk kegiatan operasi produksi nikel dan sarana penunjangnya atas nama PT. Hengjaya Mineralindo, tidak terindikasi sebagai hutan alam primer dan lahan gambut, sehingga tidak termasuk dalam wilayah penundaan pemberian izin baru;
 - g. bahwa berdasarkan pertimbangan sebagaimana dimaksud di atas, perlu menetapkan Keputusan Menteri Kehutanan tentang Izin Pinjam Pakai Kawasan Hutan Untuk Kegiatan Operasi Produksi Nikel dan Sarana Penunjangnya pada Kawasan Hutan Produksi Terbatas atas nama PT. Hengjaya Mineralindo, yang Terletak di Kecamatan Bahodopi dan Bungku Selatan, Kabupaten Morowali, Provinsi Sulawesi Tengah seluas 851,22 (delapan ratus lima puluh satu dan dua puluh dua perseratus) hektar;
- Mengingat :
- 1. Undang-Undang Nomor 41 Tahun 1999 tentang Kehutanan, sebagaimana telah diubah dengan Undang-Undang Nomor 19 Tahun 2004;
 - 2. Undang-Undang Nomor 32 Tahun 2004 tentang Pemerintahan Daerah, sebagaimana telah beberapa kali diubah terakhir dengan Undang-Undang Nomor 12 Tahun 2008;
 - 3. Undang-Undang Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup;
 - 4. Peraturan Pemerintah Nomor 44 Tahun 2004 tentang Perencanaan Kehutanan;
 - 5. Peraturan Pemerintah Nomor 45 Tahun 2004 tentang Perlindungan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 60 Tahun 2009;
 - 6. Peraturan Pemerintah Nomor 6 Tahun 2007 tentang Tata Hutan dan Penyusunan Rencana Pengelolaan Hutan, serta Pemanfaatan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 3 Tahun 2008;
 - 7. Peraturan Pemerintah Nomor 38 Tahun 2007 tentang Pembagian Urusan Pemerintahan antara Pemerintah, Pemerintahan Daerah Provinsi dan Pemerintahan Daerah Kabupaten/Kota;
 - 8. Peraturan Pemerintah Nomor 76 Tahun 2008 tentang Rehabilitasi dan Reklamasi Hutan;

9. Peraturan Pemerintah Nomor 15 Tahun 2010 tentang Penyelenggaraan Penataan Ruang;
10. Peraturan Pemerintah Nomor 24 Tahun 2010 tentang Penggunaan Kawasan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 61 Tahun 2012;
11. Peraturan Presiden Nomor 47 Tahun 2009 tentang Pembentukan dan Organisasi Kementerian Negara, sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Presiden Nomor 91 Tahun 2011;
12. Keputusan Presiden Nomor 84/P Tahun 2009 tentang Pembentukan Kabinet Indonesia Bersatu II, sebagaimana telah diubah dengan Keputusan Presiden Nomor 59/P Tahun 2011;
13. Peraturan Presiden Nomor 24 Tahun 2010 tentang Kedudukan, Tugas dan Fungsi Kementerian Negara serta Susunan Organisasi, Tugas dan Fungsi Eselon I, sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Presiden Nomor 92 Tahun 2011;
14. Instruksi Presiden Nomor 6 Tahun 2013 tentang Penundaan Pemberian Izin Baru dan Penyempurnaan Tata Kelola Hutan Alam Primer dan Lahan Gambut;
15. Peraturan Menteri Kehutanan Nomor P.18/Menhut-II/2007 tentang Petunjuk Teknis Tata Cara Pengenaan, Pemungutan dan Pembayaran Provisi Sumber Daya Hutan (PSDH) dan Dana Reboisasi (DR);
16. Peraturan Menteri Kehutanan Nomor P.56/Menhut-II/2008 tentang Tata Cara Penentuan Luas Areal Terganggu dan Areal Reklamasi dan Revegetasi untuk Perhitungan Penerimaan Negara Bukan Pajak Penggunaan Kawasan Hutan;
17. Peraturan Menteri Kehutanan Nomor P.60/Menhut-II/2009 tentang Pedoman Penilaian Keberhasilan Reklamasi Hutan;
18. Peraturan Menteri Keuangan Nomor 91/KMK.02/2009 tentang Tata Cara Pengenaan, Pemungutan dan Penyetoran Penerimaan Negara Bukan Pajak yang Berasal dari Penggunaan Kawasan Hutan untuk Kepentingan Pembangunan di Luar Kegiatan Kehutanan;
19. Peraturan Menteri Kehutanan Nomor P.40/Menhut-II/2010 tentang Organisasi dan Tata Kerja Kementerian Kehutanan, sebagaimana telah diubah dengan Peraturan Menteri Kehutanan Nomor P.33/Menhut-II/2012;
20. Peraturan Menteri Kehutanan Nomor P.14/Menhut-II/2011 tentang Izin Pemanfaatan Kayu, yang telah diubah dengan Peraturan Menteri Kehutanan Nomor P.20/Menhut-II/2013;
21. Peraturan Menteri Kehutanan Nomor P.18/Menhut-II/2011 tentang Pedoman Pinjam Pakai Kawasan Hutan, sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Menteri Kehutanan Nomor P.14/Menhut-II/2013;
22. Peraturan Menteri Kehutanan Nomor P.63/Menhut-II/2011 tentang Pedoman Penanaman Bagi Pemegang Izin Pinjam Pakai Kawasan Hutan Dalam Rangka Rehabilitasi Daerah Aliran Sungai;
23. Keputusan Direktur Jenderal Planologi Kehutanan atas nama Menteri Kehutanan Nomor SK.2796/Menhut-VII/IPSDH/2013 tentang Penetapan Peta Indikatif Penundaan Izin Baru Pemanfaatan Hutan, Penggunaan Kawasan Hutan, dan Perubahan Peruntukan Kawasan Hutan dan Areal Penggunaan Lain (Revisi IV);

Memperhatikan : ...

- Memperhatikan:
1. Keputusan Bupati Morowali Nomor 540.3/SK.001/DESDM/VI/2011 tanggal 16 Juni 2011, tentang Persetujuan Izin Usaha Pertambangan Operasi Produksi kepada PT. Hengjaya Mineralindo, untuk jangka waktu 30 (tiga puluh) tahun sampai dengan tanggal 16 Juni 2031;
 2. Surat Menteri Kehutanan Nomor S.2/Menhut-VII/2013 tanggal 4 Januari 2013, hal Pemberian Persetujuan Prinsip Penggunaan Kawasan Hutan atas nama PT. Hengjaya Mineralindo untuk Kegiatan Operasi Produksi Nikel dan Sarana Penunjangnya di Kabupaten Morowali, Provinsi Sulawesi Tengah;
 3. Berita Acara Supervisi Inventarisasi Tegakan Hutan pada Areal Izin Persetujuan Prinsip Penggunaan Kawasan Hutan Produksi, Untuk Kegiatan Operasi Produksi Nikel dan Sarana Penunjangnya pada Kawasan Hutan Produksi Terbatas atas nama PT. Hengjaya Mineralindo, di Kabupaten Morowali, Provinsi Sulawesi Tengah, tanggal 28 Januari 2013;
 4. Berita Acara Pelaksanaan Tata Batas Persetujuan Prinsip Penggunaan Kawasan Hutan Untuk Operasi Produksi Nikel dan Sarana Penunjangnya pada Kawasan Hutan Produksi Terbatas atas nama PT. Hengjaya Mineralindo, Kelompok Hutan Bungku Selatan, Kecamatan Bungku Pesisir, Kabupaten Morowali, Provinsi Sulawesi Tengah, yang disetujui dan disahkan oleh Kepala Balai Pemantapan Kawasan Hutan Wilayah XVI Palu tanggal 25 Pebruari 2013;
 5. Pernyataan Direktur PT. Hengjaya Mineralindo di hadapan Ferry Gustiawan, SH, Notaris di Bekasi sesuai Akta Nomor 2 tanggal 5 April 2013;

MEMUTUSKAN :

Menetapkan : **KEPUTUSAN MENTERI KEHUTANAN TENTANG IZIN PINJAM PAKAI KAWASAN HUTAN UNTUK KEGIATAN OPERASI PRODUKSI NIKEL DAN SARANA PENUNJANGNYA PADA KAWASAN HUTAN PRODUKSI TERBATAS ATAS NAMA PT. HENGJAYA MINERALINDO YANG TERLETAK DI KECAMATAN BAHODOPI DAN KECAMATAN BUNGKU SELATAN, KABUPATEN MOROWALI, PROVINSI SULAWESI TENGAH SELUAS 851,22 (DELAPAN RATUS LIMA PULUH SATU DAN DUA PULUH DUA PERSERATUS) HEKTAR.**

KESATU : Memberikan izin pinjam pakai kawasan hutan untuk kegiatan operasi produksi nikel dan sarana penunjangnya pada Kawasan Hutan Produksi Terbatas atas nama PT. Hengjaya Mineralindo yang terletak di Kecamatan Bahodopi dan Kecamatan Bungku Selatan, Kabupaten Morowali, Provinsi Sulawesi Tengah seluas 851,22 (delapan ratus lima puluh satu dan dua puluh dua perseratus) hektar, sebagaimana Peta Lampiran Keputusan ini, dengan rincian penggunaan sebagai berikut :

- a. Areal penambangan, seluas 751,45 (tujuh ratus lima puluh satu dan empat puluh lima perseratus) hektar;
- b. Sarana dan prasarana, seluas 62,69 (enam puluh dua dan enam puluh sembilan perseratus) hektar, dengan rincian :
 1. Disposal, seluas 54,70 (lima puluh empat dan tujuh puluh perseratus) hektar;
 2. Mess, seluas 2,76 (dua dan tujuh puluh enam perseratus) hektar;
 3. Stockpile, seluas 5,23 (lima dan dua puluh tiga perseratus) hektar;

c. Jalan ...

- c. Jalan angkutan tambang seluas 37,08 (tiga puluh tujuh dan delapan perseratus) hektar, terdiri dari:
1. Jalan tambang di dalam areal tambang, seluas 19,33 (sembilan belas dan tiga puluh tiga perseratus) hektar;
 2. Jalan angkutan tambang di luar areal tambang, seluas 17,75 (tujuh belas dan tujuh puluh lima perseratus) hektar.

KEDUA : Pemberian izin pinjam pakai kawasan hutan sebagaimana dimaksud dalam Amar KESATU adalah untuk pelaksanaan kegiatan operasi produksi nikel dan sarana penunjangnya, bukan untuk kegiatan lain serta arealnya tetap berstatus sebagai kawasan hutan.

KETIGA : PT. Hengjaya Mineralindo, berhak :

- a. berada, menempati dan mengelola serta melakukan kegiatan-kegiatan yang meliputi kegiatan operasi produksi nikel dan sarana penunjangnya, serta melakukan kegiatan-kegiatan lainnya yang berhubungan dengan itu dalam kawasan hutan yang dipinjam pakai;
- b. memanfaatkan hasil kegiatan yang dilakukan sehubungan dengan kegiatan operasi produksi nikel dan sarana penunjangnya pada kawasan hutan yang dipinjam pakai;
- c. melakukan penebangan pohon dalam rangka pembukaan lahan dengan membayar penggantian nilai tegakan dan Provisi Sumber Daya Hutan (PSDH) dan/atau Dana Reboisasi (DR) sesuai dengan ketentuan peraturan perundang-undangan.

KEEMPAT : PT. Hengjaya Mineralindo, wajib:

- a. membayar Penerimaan Negara Bukan Pajak Penggunaan Kawasan Hutan dan melakukan penanaman dalam rangka rehabilitasi daerah aliran sungai dengan ratio 1:1 ditambah dengan luas rencana areal terganggu dengan kategori L3;
- b. menyampaikan Bank Garansi dari bank pemerintah yang besarnya 3/12 (tiga per dua belas) dari taksiran volume tebangan berdasarkan rekapitulasi LHC;
- c. melaksanakan reklamasi dan revegetasi pada kawasan hutan yang sudah tidak dipergunakan, menggunakan bibit tanaman jenis pioner dan unggulan setempat tanpa menunggu selesainya jangka waktu izin pinjam pakai kawasan hutan;
- d. membayar penggantian nilai tegakan dan PSDH dan DR serta kewajiban keuangan lainnya sesuai peraturan perundang-undangan, dengan mempekerjakan Tenaga Teknis Pengelolaan Hutan Produksi Lestari Pengujian Kayu Bulat Rimba (GANISPHPL- PKB-R);
- e. melakukan pemeliharaan batas pinjam pakai kawasan hutan;
- f. melaksanakan perlindungan hutan sesuai peraturan perundang-undangan;
- g. memberdayakan masyarakat setempat melalui Program Bina Desa Hutan dan mempekerjakan Tenaga Teknis Pengelolaan Hutan Produksi Lestari Kelola Sosial (GANISPHPL-KESOS);
- h. membangun sistem informasi kepada publik yang berkaitan dengan kerusakan lingkungan hidup dan pemberdayaan masyarakat;

i. menanggung ...

- i. menanggung seluruh biaya sebagai akibat adanya pinjam pakai kawasan hutan;
- j. melakukan koordinasi dengan instansi kehutanan provinsi dan kabupaten paling lambat 1 (satu) bulan sejak tanggal izin pinjam pakai kawasan hutan ini ditetapkan;
- k. memberikan kemudahan bagi aparat kehutanan baik pusat maupun daerah pada saat melakukan monitoring dan evaluasi di lapangan;
- l. menyerahkan rencana kerja pemenuhan kewajiban sebagaimana dimaksud pada huruf a sampai dengan huruf h kepada Menteri Kehutanan, selambat-lambatnya 100 (seratus) hari kerja setelah ditetapkan Keputusan Izin Pinjam Pakai Kawasan Hutan;
- m. membuat laporan secara berkala setiap 6 (enam) bulan sekali kepada Menteri Kehutanan mengenai penggunaan kawasan hutan yang dipinjam pakai, dengan tembusan :
 1. Direktur Jenderal Planologi Kehutanan;
 2. Direktur Jenderal Bina Usaha Kehutanan;
 3. Direktur Jenderal Perlindungan Hutan dan Konservasi Alam;
 4. Direktur Jenderal Bina Pengelolaan Daerah Aliran Sungai dan Perhutanan Sosial;
 5. Kepala Dinas Kehutanan Provinsi Sulawesi Tengah;
 6. Kepala Dinas Kehutanan Kabupaten Morowali;
 7. Kepala Balai Pemantapan Kawasan Hutan Wilayah XVI Palu; dan
 8. Kepala Balai Pengelolaan Daerah Aliran Sungai Palu Poso;Laporan memuat :
 1. rencana dan realisasi penggunaan kawasan hutan;
 2. rencana dan realisasi reklamasi dan revegetasi;
 3. pemenuhan kewajiban membayar Penerimaan Negara Bukan Pajak Penggunaan Kawasan Hutan;
 4. rencana dan realisasi penanaman dalam wilayah daerah aliran sungai sesuai peraturan perundang-undangan; dan
 5. pemenuhan kewajiban lainnya sesuai izin pinjam pakai kawasan hutan;
- n. membuat laporan dalam bentuk laporan keuangan yang diaudit oleh akuntan publik, khusus untuk kewajiban huruf a sampai dengan huruf h dan kewajiban sebagaimana dimaksud dalam Amar KEENAM setiap 6 (enam) bulan dengan dilampiri pos biaya kewajiban kepada Menteri Kehutanan dengan tembusan kepada Sekretaris Jenderal Kementerian Kehutanan dan Direktur Jenderal Planologi Kehutanan.

KELIMA : Ketentuan untuk melakukan penanaman dalam rangka rehabilitasi Daerah Aliran Sungai (DAS) sebagaimana dimaksud dalam Amar KEEMPAT huruf a mengacu pada Peraturan Menteri Kehutanan Nomor P.63/Menhut-II/2011.

KEENAM : Ketentuan untuk melakukan rehabilitasi, reklamasi dan/atau revegetasi pada kawasan hutan yang dipinjam pakai sebagaimana dimaksud dalam Amar KEEMPAT huruf a dan huruf c wajib mempekerjakan Tenaga Teknis Pengelolaan Hutan Produksi Lestari Rehabilitasi dan Reklamasi Pertambangan (GANISPHPL-REHAREKTAM) dan dilaksanakan sesuai dengan ketentuan peraturan perundang-undangan.

KETUJUH : ...

KETUJUH : PT. Hengjaya Mineralindo, dilarang:

- a. memindahtangankan izin pinjam pakai kawasan hutan kepada pihak lain atau pengubahan nama perusahaan tanpa persetujuan Menteri Kehutanan;
- b. menjaminkan atau mengagunkan areal izin pinjam pakai kawasan hutan kepada pihak lain;
- c. melakukan penebangan pohon dalam kawasan hutan dengan radius atau jarak sampai dengan:
 1. 200 (dua ratus) meter dari tepi mata air dan kiri kanan sungai di daerah-rawa;
 2. 100 (seratus) meter dari kiri kanan tepi sungai;
 3. 50 (lima puluh) meter dari kiri kanan tepi anak sungai.

KEDELAPAN : Apabila di dalam kawasan hutan yang dipinjam pakai terdapat hak-hak pihak ketiga, penyelesaiannya menjadi tanggung jawab PT. Hengjaya Mineralindo yang dikoordinasikan oleh pemerintah daerah setempat.

KESEMBILAN : Apabila pemegang izin melakukan pelanggaran atas ketentuan-ketentuan sebagaimana dimaksud dalam izin ini, maka izin dicabut dan pemegang izin dikenakan sanksi sesuai dengan peraturan perundang-undangan, setelah diberi peringatan oleh Direktur Jenderal Planologi Kehutanan paling banyak 3 (tiga) kali dengan tenggang waktu masing-masing paling sedikit 30 (tiga puluh) hari kerja sejak diterimanya surat peringatan sebelumnya dan pemegang izin tidak melakukan usaha perbaikan dalam waktu 30 (tiga puluh) hari kerja sejak diterimanya surat peringatan yang ketiga.

KESEPULUH : Izin pinjam pakai kawasan hutan ini berlaku dan melekat sebagai izin pemanfaatan kayu, serta izin pemasukan dan penggunaan peralatan.

KESEBELAS : Penentuan areal terganggu, reklamasi dan revegetasi serta tata cara pengenaan, pemungutan dan penyeteran PNPB Penggunaan Kawasan Hutan berpedoman pada Peraturan Menteri Kehutanan Nomor P.56/Menhut-II/2008 dan Peraturan Menteri Keuangan Nomor 91/KMK.02/2009 sebagai tindak lanjut Peraturan Pemerintah Nomor 2 Tahun 2008.

KEDUA BELAS: a. Permohonan perpanjangan dilakukan oleh Pemegang Izin paling lambat 6 (enam) bulan sebelum berakhirnya jangka waktu izin;

b. Untuk perpanjangan izin sebagaimana dimaksud pada huruf a, Instansi Kehutanan melakukan evaluasi atas :

1. Kawasan hutan yang dipinjam pakai masih dipergunakan untuk operasi produksi nikel dan sarana penunjangnya oleh pemegang izin atau afiliasinya atau oleh pihak yang diperbolehkan berdasarkan ketentuan peraturan perundang-undangan;

2. Tidak ...

2. Tidak ada pelanggaran yang dilakukan oleh pemegang izin terhadap ketentuan-ketentuan dalam izin ini;
3. Telah memenuhi semua kewajiban dalam Keputusan ini.

KETIGA BELAS: Keputusan ini mulai berlaku pada tanggal ditetapkan dengan jangka waktu paling lama sampai dengan tanggal 16 Juni 2031, apabila dalam jangka waktu 2 (dua) tahun sejak ditetapkannya Keputusan ini tidak ada kegiatan nyata di lapangan, maka Keputusan ini batal dengan sendirinya.

Ditetapkan di Jakarta
pada tanggal 20 Juni 2013

Salinan sesuai dengan aslinya

KEPALA BIRO HUKUM DAN ORGANISASI,

**MENTERI KEHUTANAN
REPUBLIK INDONESIA,**

ttd

KRISNA RYA

ZULKIFLI HASAN

Salinan Keputusan ini disampaikan kepada Yth. :

1. Menteri Energi dan Sumber Daya Mineral;
2. Sekretaris Jenderal Kementerian Kehutanan;
3. Direktur Jenderal Planologi Kehutanan;
4. Direktur Jenderal Bina Usaha Kehutanan;
5. Direktur Jenderal Bina Pengelolaan DAS dan Perhutanan Sosial;
6. Direktur Jenderal Perlindungan Hutan dan Konservasi Alam;
7. Direktur Jenderal Mineral dan Batubara;
8. Gubernur Sulawesi Tengah;
9. Bupati Morowali;
10. Kepala Dinas Kehutanan Provinsi Sulawesi Tengah;
11. Kepala Dinas Pertambangan Provinsi Sulawesi Tengah;
12. Kepala Dinas Kehutanan Kabupaten Morowali;
13. Kepala Dinas Pertambangan Kabupaten Morowali;
14. Kepala Balai Pemantapan Kawasan Hutan Wilayah XVI Palu;
15. Kepala Balai Pemantauan Pemanfaatan Hutan Produksi Wilayah XIV Palu;
16. Kepala Balai Pengelolaan Daerah Aliran Sungai Ake Malamo;
17. Direktur Utama PT. Hengjaya Mineralindo.



BADAN KOORDINASI PENANAMAN MODAL

**KEPUTUSAN KEPALA BADAN KOORDINASI PENANAMAN MODAL
NOMOR : 3 / 1 / IPPKH / PMA / 2018**

TENTANG

IZIN PINJAM PAKAI KAWASAN HUTAN UNTUK KEGIATAN OPERASI PRODUKSI NIKEL DAN SARANA PENUNJANGNYA ATAS NAMA PT. HENGJAYA MINERALINDO SELUAS $\pm$ 994,32 (SEMBILAN RATUS SEMBILAN PULUH EMPAT DAN TIGA PULUH DUA PERSERATUS) HEKTAR PADA KAWASAN HUTAN PRODUKSI TERBATAS DI KABUPATEN MOROWALI, PROVINSI SULAWESI TENGAH

KEPALA BADAN KOORDINASI PENANAMAN MODAL,

- Menimbang : a. bahwa PT. Hengjaya Mineralindo merupakan pemegang izin usaha pertambangan operasi produksi sesuai Keputusan Bupati Morowali Nomor 540.3/SK.001/DESDM/VI/2011 tanggal 16 Juni 2011 seluas $\pm$ 6.249 Hektar di Kabupaten Morowali, Provinsi Sulawesi Tengah, dengan masa berlaku 20 (dua puluh) tahun sampai dengan tanggal 26 Mei 2031;
- b. bahwa Direktur Utama PT. Hengjaya Mineralindo sesuai surat Nomor 21.1/HM-IPPKH-BKPM/XI/2015 tanggal 13 November 2015 dan Nomor 18.1/HM-IPPKH-BKPM/II/2017 tanggal 20 Februari 2017 mengajukan permohonan Izin Pinjam Pakai Kawasan Hutan untuk kegiatan operasi produksi Nikel dan sarana penunjangnya seluas $\pm$ 994,32 Hektar di Kabupaten Morowali, Provinsi Sulawesi Tengah;
- c. bahwa sesuai surat Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan Nomor S.1715/PKTL/REN/PLA.0/12/2017 tanggal 28 Desember 2017, Permohonan izin pinjam pakai kawasan hutan untuk kegiatan operasi produksi nikel dan sarana penunjangnya a.n. PT. Hengjaya Mineralindo telah memenuhi persyaratan sesuai dengan ketentuan dalam Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.50/Menlhk/Setjen/Kum.1/6/2016 tentang Pedoman Pinjam Pakai Kawasan Hutan dan telah memenuhi ketentuan teknis seluas $\pm$ 994,32 Hektar yang seluruhnya berada pada kawasan Hutan Produksi Terbatas serta tidak dibebani izin pemanfaatan hutan di Kabupaten Morowali, Provinsi Sulawesi Tengah;



- d. bahwa berdasarkan pertimbangan tersebut huruf a sampai dengan huruf c, perlu menetapkan Keputusan Kepala Badan Koordinasi Penanaman Modal tentang Izin Pinjam Pakai Kawasan Hutan untuk Kegiatan Operasi Produksi Nikel dan Sarana Penunjangnya atas nama PT. Hengjaya Mineralindo seluas ± 994,32 (Sembilan Ratus Sembilan Puluh Empat dan Tiga Puluh Dua Perseratus) Hektar Pada Kawasan Hutan Produksi Terbatas di Kabupaten Morowali, Provinsi Sulawesi Tengah;

Mengingat

- : 1. Undang-Undang Nomor 5 Tahun 1990 tentang Konservasi Sumberdaya Alam Hayati dan Ekosistemnya;
2. Undang-Undang Nomor 41 Tahun 1999 tentang Kehutanan, sebagaimana telah diubah dengan Undang-Undang Nomor 19 Tahun 2004;
3. Undang-Undang Nomor 26 Tahun 2007 tentang Penataan Ruang;
4. Undang-Undang Nomor 18 Tahun 2013 tentang Pencegahan dan Pemberantasan Perusakan Hutan;
5. Undang-Undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah sebagaimana telah beberapa kali di ubah terakhir dengan Undang-Undang Nomor 9 Tahun 2015;
6. Peraturan Pemerintah Nomor 44 Tahun 2004 tentang Perencanaan Kehutanan;
7. Peraturan Pemerintah Nomor 45 Tahun 2004 tentang Perlindungan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 60 Tahun 2009;
8. Peraturan Pemerintah Nomor 6 Tahun 2007 tentang Tata Hutan dan Penyusunan Rencana Pengelolaan Hutan Serta Pemanfaatan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 3 Tahun 2008;
9. Peraturan Pemerintah Nomor 26 Tahun 2008 tentang Rencana Tata Ruang Wilayah Nasional;
10. Peraturan Pemerintah Nomor 76 Tahun 2008 tentang Rehabilitasi dan Reklamasi Hutan;
11. Peraturan Pemerintah Nomor 24 Tahun 2010 tentang Penggunaan Kawasan Hutan, sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Pemerintah Nomor 105 Tahun 2015;
12. Peraturan Pemerintah Nomor 12 Tahun 2014 tentang Jenis dan Tarif Atas Jenis Penerimaan Negara Bukan Pajak Yang Berlaku Pada Kementerian Kehutanan;
13. Peraturan Pemerintah Nomor 33 Tahun 2014 tentang Jenis dan Tarif Atas Jenis Penerimaan Negara Bukan Pajak Yang Berasal Dari Penggunaan Kawasan Hutan Untuk Kepentingan Pembangunan di Luar Kegiatan Kehutanan Yang Berlaku Pada Kementerian Kehutanan;
14. Peraturan Pemerintah Nomor 104 Tahun 2015 tentang Tata Cara Perubahan Peruntukan dan Fungsi Kawasan Hutan;



15. Peraturan Presiden Nomor 97 Tahun 2014 tentang Penyelenggaraan Pelayanan Terpadu Satu Pintu;
16. Peraturan Presiden Nomor 165 Tahun 2014 tentang Penataan Tugas dan Fungsi Kabinet Kerja;
17. Peraturan Presiden Nomor 7 Tahun 2015 tentang Organisasi Kementerian Negara;
18. Peraturan Presiden Nomor 16 Tahun 2015 tentang Kementerian Lingkungan Hidup dan Kehutanan;
19. Peraturan Presiden Nomor 44 Tahun 2016 tentang Daftar Bidang Usaha Yang Tertutup dan Bidang Usaha Yang Terbuka Dengan Persyaratan di Bidang Penanaman Modal;
20. Instruksi Presiden Nomor 6 Tahun 2017 tentang Penundaan dan Penyempurnaan Tata Kelola Pemberian Izin Baru Hutan Alam Primer dan Lahan Gambut;
21. Peraturan Menteri Kehutanan Nomor P.56/Menhut-II/2008 tentang Tata Cara Penentuan Luas Areal Terganggu dan Areal Reklamasi dan Revegetasi Untuk Perhitungan Penerimaan Negara Bukan Pajak Penggunaan Kawasan Hutan, sebagaimana telah diubah dengan Peraturan Menteri Kehutanan Nomor P.84/Menhut-II/2014;
22. Peraturan Menteri Kehutanan Nomor P.60/Menhut-II/2009 tentang Pedoman Penilaian Keberhasilan Reklamasi Hutan;
23. Peraturan Menteri Keuangan Nomor 91/PMK.02/2009 tentang Tata Cara Pengenaan, Pemungutan dan Penyetoran Penerimaan Negara Bukan Pajak Yang Berasal Dari Penggunaan Kawasan Hutan Untuk Kepentingan Pembangunan di Luar Kegiatan Kehutanan;
24. Peraturan Menteri Kehutanan Nomor P.44/Menhut-II/2012 tentang Pengukuhan Kawasan Hutan, sebagaimana telah diubah dengan Peraturan Menteri Kehutanan Nomor P.62/Menhut-II/2013;
25. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.97/Menhut-II/2014 tentang Pendelegasian Wewenang Pemberian Perizinan dan Non Perizinan di Bidang Lingkungan Hidup dan Kehutanan Dalam Rangka Pelaksanaan Pelayanan Terpadu Satu Pintu Kepada Kepala Badan Koordinasi Penanaman Modal, sebagaimana telah diubah dengan Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.1/Menhut-II/2015;
26. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.18/Menlhk-II/2015 tentang Organisasi dan Tata Kerja Kementerian Lingkungan Hidup dan Kehutanan;
27. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.43/MenLHK-Setjen/2015 tentang Penatausahaan Hasil Hutan Kayu Yang Berasal Dari Hutan Alam sebagaimana telah diubah dengan Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.60/MenLHK/Setjen/Kum.1 /7/2016;



28. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.62/MenLHK-Setjen/2015 tentang Izin Pemanfaatan Kayu;
29. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.29/Menlhk/Setjen/PHPL.3/2/2016 tentang Pembatalan Pengenaan, Pemungutan dan Penyetoran Penggantian Nilai Tegakan;
30. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.32/MenLHK/Setjen/Kum.1/3/2016 tentang Pengendalian Kebakaran Hutan dan Lahan;
31. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.50/Menlhk/Setjen/Kum.1/6/2016 tentang Pedoman Pinjam Pakai Kawasan Hutan;
32. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.71/MenLHK/Setjen/HPL.3/8/2016 tentang Tata Cara Pengenaan, Pemungutan, dan Penyetoran Provisi Sumber Daya Hutan dan Dana Reboisasi, Ganti Rugi Tegakan, Denda Pelanggaran Eksploitasi Hutan dan Iuran Izin Usaha Pemanfaatan Hutan;
33. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.89/Menlhk/Setjen/Kum.1/11/2016 tentang Pedoman Penanaman Bagi Pemegang Izin Pinjam Pakai Kawasan Hutan Dalam Rangka Rehabilitasi Daerah Aliran Sungai;
34. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.93/Menlhk/Setjen/Kum.1/12/2016 tentang Panitia Tata Batas Kawasan Hutan;
35. Keputusan Menteri Lingkungan Hidup dan Kehutanan Nomor SK.6559/MenLHK-PKTL/PSDH/PLA.1/12/2017 tanggal 4 Desember 2017 tentang Penetapan Peta Indikatif Penundaan Pemberian Izin Baru Pemanfaatan Hutan, Penggunaan Kawasan Hutan dan Perubahan Peruntukan Kawasan Hutan dan Areal Penggunaan Lain (Revisi XIII);

- Memperhatikan :
1. Keputusan Bupati Morowali Nomor 660.1/71.A/KHL/2011 tanggal 13 Juni 2011 tentang Kelayakan Lingkungan Kegiatan Penambangan Bijih Nikel di Kabupaten Morowali Provinsi Sulawesi Tengah oleh PT. Hengjaya Mineralindo;
 2. Surat Gubernur Sulawesi Tengah Nomor 522/13/DISHUTDA tanggal 05 Maret 2015 hal Rekomendasi Ijin Pinjam Pakai Kawasan Hutan untuk Kegiatan Operasi Produksi a.n. PT. Hengjaya Mineralindo di Desa Tangofa Kecamatan Bungku Pesisir Kabupaten Morowali Provinsi Sulawesi Tengah;
 3. Akta Pernyataan Direktur PT. Hengjaya Mineralindo Nomor 02 tanggal 21 September 2015 yang dibuat dihadapan Ferry Gustiawan, S.H Notaris di Kota Bekasi;
 4. Surat Direktur Jenderal Mineral dan Batubara Nomor 2023/30/DJB/2015 tanggal 5 Nopember 2015 hal Pertimbangan Teknis Pinjam Pakai Kawasan Hutan untuk Kegiatan Operasi Produksi a.n. PT. Hengjaya Mineralindo (PT. HM);



MEMUTUSKAN :

- Menetapkan : **KEPUTUSAN KEPALA BADAN KOORDINASI PENANAMAN MODAL TENTANG IZIN PINJAM PAKAI KAWASAN HUTAN UNTUK KEGIATAN OPERASI PRODUKSI NIKEL DAN SARANA PENUNJANGNYA ATAS NAMA PT. HENGJAYA MINERALINDO SELUAS $\pm$ 994,32 (SEMBILAN RATUS SEMBILAN PULUH EMPAT DAN TIGA PULUH DUA PERSERATUS) HEKTAR PADA KAWASAN HUTAN PRODUKSI TERBATAS DI KABUPATEN MOROWALI, PROVINSI SULAWESI TENGAH.**
- KESATU : Memberikan Izin Pinjam Pakai Kawasan Hutan dengan kompensasi membayar Penerimaan Negara Bukan Pajak penggunaan kawasan hutan dan melakukan penanaman dalam rangka rehabilitasi Daerah Aliran Sungai, untuk kegiatan operasi produksi Nikel dan sarana penunjangnya atas nama PT. Hengjaya Mineralindo seluas $\pm$ 994,32 (sembilan ratus sembilan puluh empat dan tiga puluh dua perseratus) Hektar pada kawasan Hutan Produksi Tetap di Kabupaten Morowali, Provinsi Sulawesi Tengah, sebagaimana Peta Lampiran Keputusan ini.
- KEDUA : Pemberian izin sebagaimana dimaksud dalam amar KESATU adalah untuk operasi produksi Nikel dan sarana penunjangnya, bukan untuk kegiatan lain serta arealnya tetap berstatus sebagai kawasan hutan.
- KETIGA : Dalam jangka waktu paling lama 1 (satu) tahun setelah terbit Izin Pinjam Pakai Kawasan Hutan ini, PT. Hengjaya Mineralindo wajib:
- menyelesaikan tata batas areal izin pinjam pakai kawasan hutan dengan supervisi oleh Balai Pemantapan Kawasan Hutan Wilayah XVI Palu;
 - menyampaikan *baseline* penggunaan kawasan hutan sesuai dengan hasil tata batas;
 - menyampaikan peta lokasi rencana penanaman dalam rangka rehabilitasi daerah aliran sungai;
 - menyampaikan pernyataan dalam bentuk akta notariil bersedia mengganti biaya investasi pengelolaan/pemanfaatan hutan kepada pengelola/pemegang izin usaha pemanfaatan hutan sesuai ketentuan peraturan perundang-undangan;
 - menyampaikan revisi rencana kerja penggunaan kawasan hutan sesuai dengan hasil tata batas.
- KEEMPAT : Dalam hal PT. Hengjaya Mineralindo tidak memenuhi kewajiban sebagaimana dimaksud pada Amar KETIGA, Izin Pinjam Pakai Kawasan Hutan menjadi batal dan dinyatakan tidak berlaku.



- KELIMA : Penetapan areal kerja Izin Pinjam Pakai Kawasan Hutan oleh Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan atas nama Menteri Lingkungan Hidup dan Kehutanan dengan dibebani kewajiban-kewajiban, dilaksanakan dengan ketentuan:
- a. pemegang izin pinjam pakai kawasan hutan menyampaikan permohonan penetapan areal kerja berdasarkan hasil tata batas areal izin pinjam pakai kawasan hutan kepada Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan;
 - b. permohonan penetapan areal kerja sebagaimana dimaksud pada huruf a, dilampiri dengan bukti pemenuhan kewajiban sebagaimana dimaksud Amar KETIGA.
- KEENAM : PT. Hengjaya Mineralindo dilarang:
- a. memindahtangankan Izin Pinjam Pakai Kawasan Hutan kepada pihak lain atau perubahan nama pemegang izin pinjam pakai tanpa persetujuan Menteri Lingkungan Hidup dan Kehutanan;
 - b. menjaminkan atau mengagunkan areal Izin Pinjam Pakai Kawasan Hutan kepada pihak lain;
 - c. melakukan kegiatan didalam areal Izin Pinjam Pakai Kawasan Hutan sebelum memperoleh penetapan batas areal kerja Izin Pinjam Pakai Kawasan Hutan, kecuali melakukan kegiatan tata batas, membuat kegiatan persiapan berupa pembangunan direksi kit (*base camp* sementara), dan/atau pengukuran sarana dan prasarana;
 - d. menggunakan merkuri dalam kegiatan pertambangan;
 - e. melakukan kegiatan lainnya yang dilarang sesuai Peraturan Perundang-undangan.
- KETUJUH : Menyelesaikan hak-hak pihak ketiga, apabila terdapat hak-hak pihak ketiga di dalam areal izin pinjam pakai kawasan hutan dengan meminta bimbingan dan fasilitasi Pemerintah Daerah setempat.
- KEDELAPAN : Izin Pinjam Pakai Kawasan Hutan ini dicabut dan pemegang izin dikenakan sanksi sesuai peraturan perundang-undangan, apabila melakukan pelanggaran atas ketentuan dalam izin pinjam pakai kawasan hutan ini.
- KESEMBILAN : Izin Pinjam Pakai Kawasan Hutan ini berlaku dan melekat sebagai izin pemanfaatan kayu, serta izin pemasukan dan penggunaan peralatan.
- KESEPULUH : Perpanjangan Izin Pinjam Pakai Kawasan Hutan diberikan berdasarkan hasil evaluasi terhadap pemenuhan kewajiban Izin Pinjam Pakai Kawasan Hutan dan diajukan oleh pemegang izin dalam jangka waktu paling lambat 2 (dua) bulan sebelum berakhirnya izin.



KESEBELAS : Keputusan ini mulai berlaku pada tanggal ditetapkan untuk jangka waktu paling lama sampai dengan tanggal 26 Mei 2031, kecuali apabila dicabut oleh Menteri Lingkungan Hidup dan Kehutanan.

Ditetapkan di Jakarta
pada tanggal 06 FEB 2018

Salinan sesuai dengan aslinya
KEPALA BIRO PERATURAN
PERUNDANG-UNDANGAN,
KOMISI PERENCANAAN
TATA USAHA
PIMPINAN

**A.n. MENTERI LINGKUNGAN HIDUP DAN
KEHUTANAN REPUBLIK INDONESIA,
KEPALA BADAN KOORDINASI
PENANAMAN MODAL,**

TTD

THOMAS TRIKASIH LEMBONG



Salinan Keputusan ini disampaikan kepada Yth:

1. Menteri Lingkungan Hidup dan Kehutanan;
2. Menteri Energi dan Sumber Daya Mineral;
3. Sekretaris Jenderal Kementerian Lingkungan Hidup dan Kehutanan;
4. Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan;
5. Direktur Jenderal Pengelolaan Hutan Produksi Lestari;
6. Direktur Jenderal Pengendalian Daerah Aliran Sungai dan Hutan Lindung;
7. Direktur Jenderal Konservasi Sumber Daya Alam dan Ekosistem;
8. Direktur Jenderal Penegakan Hukum Lingkungan Hidup dan Kehutanan;
9. Direktur Jenderal Mineral dan Batubara;
10. Gubernur Sulawesi Tengah;
11. Bupati Morowali;
12. Kepala Dinas Kehutanan Provinsi Sulawesi Tengah;
13. Kepala Balai Pemantapan Kawasan Hutan Wilayah XVI Palu;
14. Kepala Balai Pengelolaan Hutan Produksi Wilayah XII Palu;
15. Kepala Balai Pengelolaan Daerah Aliran Sungai dan Hutan Lindung Palu Poso;
16. Direktur Utama PT. Hengjaya Mineralindo.

