SEPTEMBER 30, 2019

INDEPENDENT QUALIFIED PERSONS REPORT

BULELENG & TORETE NICKEL PROJECT, CENTRAL SULAWESI PROVINCE, INDONESIA

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DOCUMENT CONTROL

Client	
Far East Mining Pte Ltd	
Report Name	
Independent Qualified Persons Report	30 September 2019
Project Location	
Buleleng and Torete villages, South Bungku District, Morowali Regency, Central Sulawesi Province – Indonesia.	

Report Preparation and Responsibilities				
Name		**Position**	**Signature**	**Date**
Supervised By:	Wahyu Asmantowi	Director		30 September 2019
Competent/ Qualified Person (Mineral Resources)	Wahyu Asmantowi	Principal/ Senior Consultant Geologist		30 September 2019
Competent/ Qualified Person (Ore Reserves)	Widadi Akso Prabu	Associate Senior Mining Engineer		30 September 2019
Approved By:	Wahyu Asmantowi	Principal/ Senior Consultant Geologist		30 September 2019

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EXECUTIVE SUMMARY

Introduction

PT Geo Artha Selaras ("GAS") was contracted by Far East Mining Pte Ltd, ("FEM", the "Client" or the "Company") to complete an independent Mineral Resource and Ore Reserve estimate, high level life-of-mine ("LOM") and compile an independent qualified persons report (the "IQPR 2" or the "Report") of the PT Teknik Alum Services ("PT TAS") Buleleng and Torete Nickel Laterite Project ("the Project") in November, 2018. The Project is located near Buleleng and Torete villages in the South Bungku District, Central Sulawesi Province, approximately 180 km northwest of the provincial city of Kendari. The Mineral Resource, Ore Reserve, and the forecast production tonnes have been reported in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia ("The JORC Code"). The high level LOM was conducted to a Pre-Feasibility Study ("PFS") level of accuracy of +/-25%.

The Project consists of an operating open cut mine which is currently owned and operated by PT TAS and lies within a concession covering a total area of 1,301 ha. An initial independent qualified person's report ("IQPR 1") covered Concession Block 1 (as defined in the China Bearing (Singapore) Ltd Circular to Shareholders dated 31st May 2018) comprising 494 ha within the Mining Concession Area (also referred to as the "RTO area"). IQPR 2 covers Concession Block 2 (as defined in the China Bearing (Singapore) Ltd Circular to Shareholders dated 31st May 2018) comprising 807 ha within the Mining Concession Area (also referred to as the "Earnout area").

Scope and Basis of Report

This Report was prepared for FEM in relation to the technical review of the Buleleng and Torete deposits covering the Earnout area of 807 ha for the concession that meets (i) the standards of the JORC Code; and (ii) the requirements for mineral, oil and gas companies as set out in the Singapore Exchange (SGX) Catalist Rules.

GAS's technical team ("the Team") consisted of geologists and mining engineers. Mr Wahyu Asmantowi undertook the site visits to the Project between November 2018 and March 2019 to review drill core sampling and sample handling procedures and hold technical discussions with PT TAS personnel.

During September 2019, an independent estimate of the Mineral Resources and Ore Reserves for the Project (hereafter, referred to as the "Statement") was prepared. The Statement reports the resources and reserves based on drilling and depleted for mining completed up to 27th May 2019 (the "Effective Date" of the estimate) and reported in accordance with the JORC Code within this Report.

From June to August 2019, Mr. Widadi Akso Prabu prepared a LOM. The LOM included reporting of forecast production tonnes, planned mining schedule, fleet requirements, operating and capital costs, marketing and transportation arrangements and commentary on the social, health and safety factors that could impact operations. The LOM and the production forecast was completed to a PFS accuracy of +/-25%

In addition to the work undertaken to generate an estimate of Mineral Resources and Ore Reserves, and complete the LOM, this Report relies largely on information provided by PT TAS that includes exploration data, metallurgical test work results, production data, pit designs, cost schedules and other local Project data. The data relied upon for the Mineral Resource and Ore Reserves estimate and the LOM contained in this Report, have been compiled primarily by PT TAS and validated where possible by the qualified persons (as defined by SGX). The Report specifically excludes all aspects of legal issues, marketing, commercial and financing matters, insurance, land titles and usage agreements, and any other agreements/contracts that PT TAS may have entered into, except to the extent required for reporting according to the JORC Code.

In GAS's opinion, the information provided by PT TAS is reasonable and nothing was discovered during the preparation of the Report that indicated there was any significant error or misrepresentation in respect of that information. GAS does not however, warrant the completeness or accuracy of the information provided to it and which has been used in the preparation of this Report.

GAS has independently assessed the Project. All opinions, findings and conclusions expressed in the Report are those of the qualified persons named herein.

Project Description

Exploration and Production History

- Exploration commenced in 2010 by the previous owner of the Project. Geological mapping and outcrop sampling was undertaken to delineate the extent of the laterite outcrops, geomorphology, weathering, ultramafic host unit and structure of the area and determine areas prospective for nickel laterite mineralisation. Regional drilling was subsequently conducted to target zones of high potential using a drilling grid of approximately 200 m by 200 m. Subsequent to acquisition of the Project in 2013, PT TAS continued exploration with infill drilling of predominantly HQ-size core on 100 m, 50 m and 25 m drill spacing.
- Mining operations have been undertaken from 2015. The total production from 2015 to May 2019 was 1,203,188 wet metric tonnes ("WMT") of direct shipping ore ("DSO"). The average grade of the DSO was 1.81% nickel ("Ni").

Geology and Drilling

- The Project area consists of an ultramafic complex with peridotite as bedrock. Laterisation processes have resulted in the formation of oxide Ni laterites comprised largely of Fe hydroxides and oxides in the upper part of the profile, overlying altered or fresh bedrock that has a potential for higher grade Ni mineralisation. The laterisation results in a distinct vertical zonation forming overburden, limonite, saprolite and bedrock zones as is commonly formed in the region. Economic Ni mineralisation is known to be predominantly associated with the limonite and saprolite zones both within the deposit and in the region.
- The TAS drill hole database used for estimates contains 779 holes, containing a cumulative length of 9,275.6 m and covered a total of 1,010.5 Ha, divided in two deposits i.e. Torete at the north and Buleleng at the south. Torete block contains 702 holes with a cumulative length of 7,669 m covering 658.4 Ha, while Buleleng block contains 77 holes with a cumulative length of 1,607 m covering 352.1 Ha. The drill holes are distributed in quite a regular spacing ranging from 25 m x 25 m up to 200 m x 200 m grid at Torete, but ridge and spur drilling at Buleleng.

Mining

- Currently both Buleleng and Torete deposits produce medium grade saprolite material with an average grade of 1.8% Ni that is shipped to a domestic smelter; PT Sulawesi Mining Investment ("SMI") located at south Sulawesi Province.
- Mining is undertaken using a combination of small diesel hydraulic excavators working in tandem with dozers. Diesel hydraulic excavators are appropriate to the site

conditions, given their versatility and mobility. The excavators load material directly into haul trucks for transportation to ROM stockpiles and waste dumps.

Mineral Resources

The Mineral Resources of the Buleleng and Torete deposits cover the entire concession area of 1,301 ha. The Mineral Resources were classified as Inferred and Indicated Mineral Resources based on data quality, sample spacing, and grade continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 100 m by 100 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 100 m by 100 m, often on the periphery of the Indicated Resources. There are large areas of the project defined by drilling on 50 m by 50 m spacing or even closer 25 m by 25 m spacing. These areas could have been classified in the Measured category but were classified as Indicated due to limited data quality as was determined after analysis of the assay quality assurance and quality control (QA/QC) data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited density and moisture determinations.

The Mineral Resource has been constrained by an outer boundary around the periphery of the drill holes at a distance approximately half the adjacent drill spacing. The Mineral Resource has also been constrained by the license boundaries and topography data as at 27th May 2019.

The Mineral Resource is reported at variable grade ranges of Ni that define potentially economic mineralisation types in each lithological zone. Cut-off grade parameters were selected based on grade specification requirements for the smelters receiving the DSO and other similar projects in the region.

Results of the independent Mineral Resource estimate for the Project are tabulated in the Statement of Mineral Resources in ***Table ES-1***. The reported Mineral Resource figures in the table below represent estimates as at 27th May, 2019 and are depleted for mining as of the same date. They comprise estimates for both the RTO area and the Earnout area.

The Mineral Resource tonnages and grades were estimated on a dry in-situ basis. Wet quantities were determined from the estimated dry quantities and moisture content.

Table ES-1 Total Project Mineral Resource estimate.

Area and Category	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni (%)	Co (%)	Fe (%)
RTO: Measured	-	-	-	-	-
RTO: Indicated	44.3	30.0	0.99	0.05	22.8
RTO: Inferred	42.7	29.8	1.02	0.07	28.7
RTO: Subtotal	**87.0**	**59.8**	**1.00**	**0.06**	**25.8**
EARNOUT: Measured	-	-	-	-	-
EARNOUT: Indicated	12.5	8.6	1.06	0.07	29.7
EARNOUT: Inferred	47.0	32.2	0.99	0.06	28.1
EARNOUT: Subtotal	**59.5**	**40.8**	**0.99**	**0.07**	**28.4**
CONCESSION: Measured	**-**	**-**	**-**	**-**	**-**
CONCESSION: Indicated	**56.8**	**38.6**	**1.00**	**0.06**	**24.6**
CONCESSION: Inferred	**89.7**	**62.0**	**1.00**	**0.06**	**28.4**
CONCESSION: Total	**146.6**	**100.5**	**0.99**	**0.06**	**26.9**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table ES-2 RTO Area: Cobalt-rich Nickel Mineral Resource estimate.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
RTO	Buleleng	Inferred	Ni < 1.0	Co ≥ 0.03	Lim	2.1	1.2	0.81	0.07	35.08	9.82	2.47	0.04	1.71	1.02	40.33
					Sap	0.8	0.5	0.89	0.04	16.18	42.53	18.11	0.63	1.60	1.07	32.62
					Sub-total	2.8	1.8	0.84	0.06	29.46	19.55	7.12	0.21	1.68	1.03	38.04
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	3.9	2.3	1.16	0.09	40.44	10.23	2.87	0.02	1.71	1.02	40.33
					Sap	3.3	2.2	1.21	0.04	16.21	41.72	18.23	0.71	1.60	1.07	32.62
					Sub-total	7.1	4.5	1.18	0.07	28.63	25.57	10.35	0.36	1.66	1.04	36.57
			Ni ≥ 1.40	Co ≥ 0.03	Lim	0.7	0.4	1.50	0.11	44.33	5.18	0.45	0.00	1.71	1.02	40.33
					Sap	0.5	0.3	1.61	0.04	18.64	36.19	16.08	0.77	1.60	1.07	32.62
					Sub-total	1.2	0.8	1.55	0.08	32.64	19.29	7.56	0.35	1.66	1.04	36.82
			Total - Inferred			11.2	7.0	1.14	0.07	29.27	23.38	9.24	0.32	1.66	1.04	36.97
		Indicated	Ni < 1.0	Co ≥ 0.03	Lim	6.3	3.7	0.73	0.07	35.37	9.65	1.61	0.05	1.71	1.02	40.33
					Sap	2.5	1.6	0.84	0.04	14.81	42.85	17.05	0.91	1.60	1.07	32.62
					Sub-total	8.7	5.4	0.76	0.06	29.08	19.80	6.33	0.31	1.68	1.04	37.97
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	1.9	1.1	1.16	0.08	41.82	8.15	1.28	0.04	1.71	1.02	40.33
					Sap	4.3	2.9	1.20	0.04	16.60	41.48	15.53	0.82	1.60	1.07	32.62
					Sub-total	6.2	4.0	1.19	0.05	23.67	32.14	11.53	0.60	1.63	1.06	34.78
			Ni ≥ 1.40	Co ≥ 0.03	Lim	0.3	0.2	1.49	0.11	41.89	6.28	0.60	0.02	1.71	1.02	40.33
					Sap	2.1	1.4	1.68	0.04	17.90	38.67	15.29	0.81	1.60	1.07	32.62
					Sub-total	2.3	1.5	1.66	0.05	20.54	35.10	13.67	0.73	1.61	1.06	33.47
			Total - Indicated			17.3	11.0	1.04	0.06	25.89	26.49	9.28	0.48	1.65	1.05	36.16
	Torete	Inferred	Ni < 1.0	Co ≥ 0.001	Lim	13.2	9.3	0.92	0.10	40.36	11.61	3.29	0.11	1.71	1.20	29.94
					Sap	5.4	4.2	0.81	0.03	14.96	35.66	16.88	0.39	1.56	1.21	23.35
					Sub-total	18.6	13.5	0.88	0.08	32.44	19.11	7.53	0.20	1.66	1.20	27.88
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	4.4	3.1	1.08	0.11	40.34	10.21	3.08	0.18	1.71	1.20	29.94
					Sap	5.0	3.9	1.13	0.03	14.57	35.37	16.63	0.35	1.56	1.21	23.35
					Sub-total	9.4	7.0	1.11	0.06	26.10	24.11	10.56	0.27	1.63	1.21	26.30
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.1	0.1	1.40	0.34	46.19	3.89	1.44	0.01	1.71	1.20	29.94
					Sap	0.2	0.2	1.51	0.03	16.65	32.42	19.81	0.27	1.56	1.21	23.35
					Sub-total	0.3	0.3	1.48	0.12	25.25	24.11	14.46	0.19	1.60	1.21	25.27
			Total - Inferred			28.4	20.7	0.97	0.07	30.21	20.86	8.64	0.22	1.65	1.20	27.32
		Indicated	Ni < 1.0	Co ≥ 0.001	Lim	3.1	2.2	0.90	0.09	41.66	9.28	2.34	0.11	1.71	1.20	29.94
					Sap	1.5	1.2	0.85	0.03	14.18	32.49	15.48	0.49	1.56	1.21	23.35
					Sub-total	4.7	3.4	0.88	0.07	31.92	17.51	7.00	0.24	1.66	1.20	27.60
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	5.1	3.6	1.08	0.10	40.16	11.76	3.46	0.17	1.71	1.20	29.94
					Sap	4.2	3.2	1.19	0.03	13.78	33.97	16.61	0.41	1.56	1.21	23.35
					Sub-total	9.3	6.8	1.14	0.07	27.59	22.34	9.72	0.28	1.64	1.20	26.80
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.0	0.0	1.42	0.30	45.48	4.23	1.57	0.03	1.71	1.20	29.94
					Sap	1.8	1.4	1.64	0.03	13.75	32.16	15.85	0.27	1.56	1.21	23.35

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
					Sub-total	1.8	1.4	1.63	0.03	14.44	31.55	15.54	0.26	1.56	1.21	23.50
			Total - Indicated			15.7	11.6	1.12	0.06	27.27	22.04	9.63	0.27	1.63	1.21	26.64

RTO	Buleleng	**Total - Inferred**	**11.2**	**7.0**	**1.14**	**0.07**	**29.27**	**23.38**	**9.24**	**0.32**	**1.66**	**1.04**	**36.97**
		Total - Indicated	**17.3**	**11.0**	**1.04**	**0.06**	**25.89**	**26.49**	**9.28**	**0.48**	**1.65**	**1.05**	**36.16**
	Torete	**Total - Inferred**	**28.4**	**20.7**	**0.97**	**0.07**	**30.21**	**20.86**	**8.64**	**0.22**	**1.65**	**1.20**	**27.32**
		Total - Indicated	**15.7**	**11.6**	**1.12**	**0.06**	**27.27**	**22.04**	**9.63**	**0.27**	**1.63**	**1.21**	**26.64**
GRAND TOTAL			**72.6**	**50.3**	**1.04**	**0.07**	**28.46**	**22.71**	**9.09**	**0.30**	**1.65**	**1.15**	**30.43**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table ES-3 RTO Area: Cobalt-depleted Nickel Mineral Resource estimate.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
RTO	Buleleng	Inferred	Ni < 1.0	Co < 0.03	Lim	0.2	0.1	0.26	0.02	12.02	4.72	0.08	0.00	1.71	1.02	40.33
					Sap	0.8	0.5	0.68	0.02	9.25	32.58	14.01	0.45	1.60	1.07	32.62
					Sub-total	1.0	0.6	0.60	0.02	9.79	27.16	11.30	0.36	1.62	1.06	34.12
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Sap	1.8	1.2	1.24	0.03	13.63	45.54	19.51	0.38	1.60	1.07	32.62
					Sub-total	1.8	1.2	1.24	0.03	13.63	45.54	19.51	0.38	1.60	1.07	32.62
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.4	0.2	1.49	0.03	13.03	49.92	18.76	0.40	1.60	1.07	32.62
					Sub-total	0.4	0.2	1.49	0.03	13.03	49.92	18.76	0.40	1.60	1.07	32.62
			Total - Inferred			3.1	2.1	1.07	0.02	12.38	40.41	16.90	0.37	1.61	1.07	33.08
		Indicated	Ni < 1.0	Co < 0.03	Lim	2.3	1.4	0.21	0.01	15.12	3.07	0.56	0.03	1.71	1.02	40.33
					Sap	5.9	3.9	0.55	0.02	9.06	32.19	12.01	0.53	1.60	1.07	32.62
					Sub-total	8.2	5.3	0.46	0.02	10.65	24.57	9.02	0.40	1.63	1.06	34.64
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	0.0	0.0	1.14	0.01	33.44	1.05	0.08	0.00	1.71	1.02	40.33
					Sap	2.2	1.5	1.17	0.02	12.16	45.53	17.30	0.75	1.60	1.07	32.62
					Sub-total	2.2	1.5	1.17	0.02	12.29	45.26	17.20	0.74	1.60	1.07	32.67
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.9	0.6	1.63	0.02	14.15	36.75	18.70	0.77	1.60	1.07	32.62
					Sub-total	0.9	0.6	1.63	0.02	14.15	36.75	18.70	0.77	1.60	1.07	32.62
			Total - Indicated			11.3	7.4	0.70	0.02	11.26	29.73	11.46	0.50	1.62	1.06	34.07
	Torete	Inferred	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Inferred			-	-	-	-	-	-	-	-	-	-	-
		Indicated	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-

Description	Deposit	Classification	Cut-off Grade %	Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
				Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Indicated		-	-	-	-	-	-	-	-	-	-	-
RTO	Buleleng	**Total - Inferred**			**3.1**	**2.1**	**1.07**	**0.02**	**12.38**	**40.41**	**16.90**	**0.37**	**1.61**	**1.07**	**33.08**
		Total - Indicated			**11.3**	**7.4**	**0.70**	**0.02**	**11.26**	**29.73**	**11.46**	**0.50**	**1.62**	**1.06**	**34.07**
	Torete	**Total - Inferred**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
GRAND TOTAL					**14.4**	**9.5**	**0.78**	**0.02**	**11.51**	**32.06**	**12.65**	**0.47**	**1.62**	**1.06**	**33.86**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table ES-4 Earnout Area: Cobalt-rich Nickel Mineral Resource estimate.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
EARNOUT	Buleleng	Inferred	Ni < 1.0	Co ≥ 0.03	Lim	10.3	6.1	0.80	0.07	32.84	15.79	6.76	0.92	1.71	1.02	40.33
					Sap	0.8	0.6	0.83	0.06	21.75	39.18	15.58	0.34	1.60	1.07	32.62
					Sub-total	11.1	6.7	0.80	0.07	31.92	17.73	7.49	0.87	1.70	1.02	39.69
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	1.9	1.1	1.11	0.09	38.27	13.94	5.18	0.24	1.71	1.02	40.33
					Sap	1.6	1.1	1.18	0.04	16.67	39.10	18.82	0.48	1.60	1.07	32.62
					Sub-total	3.5	2.2	1.14	0.07	27.73	26.23	11.84	0.36	1.66	1.04	36.57
			Ni ≥ 1.40	Co ≥ 0.03	Lim	0.0	0.0	1.43	0.10	44.93	5.59	2.43	0.02	1.71	1.02	40.33
					Sap	0.1	0.1	1.52	0.04	17.70	39.82	18.95	0.32	1.60	1.07	32.62
					Sub-total	0.1	0.1	1.51	0.05	20.99	35.68	16.95	0.28	1.61	1.06	33.55
			Total - Inferred			14.7	9.0	0.89	0.07	30.78	19.99	8.65	0.74	1.69	1.03	38.86
		Indicated	Ni < 1.0	Co ≥ 0.03	Lim	2.5	1.5	0.89	0.09	40.45	15.02	4.08	0.11	1.71	1.02	40.33
					Sap	0.0	0.0	0.93	0.03	16.78	37.64	20.08	0.94	1.60	1.07	32.62
					Sub-total	2.5	1.5	0.89	0.09	40.34	15.13	4.15	0.11	1.71	1.02	40.29
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	0.3	0.2	1.09	0.09	39.52	16.10	5.53	0.16	1.71	1.02	40.33
					Sap	0.2	0.2	1.27	0.03	16.47	38.01	19.58	0.63	1.60	1.07	32.62
					Sub-total	0.5	0.3	1.17	0.07	28.84	26.25	12.04	0.38	1.66	1.04	36.76
			Ni ≥ 1.40	Co ≥ 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.2	0.2	1.52	0.04	17.91	34.96	18.72	0.36	1.60	1.07	32.62
					Sub-total	0.2	0.2	1.52	0.04	17.91	34.96	18.72	0.36	1.60	1.07	32.62
			Total - Indicated			3.3	2.0	0.99	0.08	36.60	18.60	6.65	0.17	1.69	1.03	39.08
	Torete	Inferred	Ni < 1.0	Co ≥ 0.001	Lim	11.4	8.0	0.93	0.10	40.74	12.78	4.78	0.15	1.71	1.20	29.94
					Sap	2.4	1.8	0.88	0.03	14.63	35.37	20.27	0.50	1.56	1.21	23.35
					Sub-total	13.8	9.8	0.92	0.09	35.87	16.99	7.67	0.21	1.68	1.20	28.71
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	4.8	3.4	1.09	0.11	39.36	12.59	4.85	0.22	1.71	1.20	29.94
					Sap	7.3	5.6	1.12	0.03	14.32	36.65	22.85	0.35	1.56	1.21	23.35
					Sub-total	12.1	9.0	1.11	0.06	23.75	27.59	16.07	0.30	1.62	1.21	25.83
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.0	0.0	1.45	0.12	40.59	10.30	4.32	0.13	1.71	1.20	29.94
					Sap	0.7	0.6	1.57	0.03	13.18	35.19	23.09	0.40	1.56	1.21	23.35
					Sub-total	0.8	0.6	1.57	0.03	14.36	34.12	22.28	0.39	1.57	1.21	23.63
			Total - Inferred			26.6	19.5	1.03	0.07	29.59	22.43	12.01	0.26	1.65	1.20	27.22
		Indicated	Ni < 1.0	Co ≥ 0.001	Lim	3.8	2.7	0.89	0.10	39.98	12.53	5.52	0.09	1.71	1.20	29.94
					Sap	0.7	0.5	0.89	0.03	15.19	36.91	19.44	0.66	1.56	1.21	23.35
					Sub-total	4.5	3.2	0.89	0.09	35.93	16.51	7.80	0.19	1.69	1.20	28.86
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	0.8	0.6	1.11	0.09	40.35	12.32	3.72	0.14	1.71	1.20	29.94
					Sap	1.6	1.2	1.19	0.03	14.74	35.68	18.59	0.47	1.56	1.21	23.35
					Sub-total	2.4	1.8	1.16	0.05	23.00	28.14	13.79	0.37	1.61	1.21	25.48
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.3	0.2	1.48	0.11	42.87	9.60	4.36	0.09	1.71	1.20	29.94
					Sap	0.4	0.3	1.87	0.03	13.44	34.66	17.73	0.46	1.56	1.21	23.35

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
					Sub-total	0.7	0.5	1.73	0.06	24.02	25.65	12.92	0.32	1.61	1.21	25.72
			Total - Indicated			7.6	5.5	1.06	0.07	30.57	21.18	10.24	0.26	1.65	1.20	27.46

Description	Deposit	Classification	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
EARNOUT	Buleleng	**Total - Inferred**	**14.7**	**9.0**	**0.89**	**0.07**	**30.78**	**19.99**	**8.65**	**0.74**	**1.69**	**1.03**	**38.86**
		Total - Indicated	**3.3**	**2.0**	**0.99**	**0.08**	**36.60**	**18.60**	**6.65**	**0.17**	**1.69**	**1.03**	**39.08**
	Torete	**Total - Inferred**	**26.6**	**19.5**	**1.03**	**0.07**	**29.59**	**22.43**	**12.01**	**0.26**	**1.65**	**1.20**	**27.22**
		Total - Indicated	**7.6**	**5.5**	**1.06**	**0.07**	**30.57**	**21.18**	**10.24**	**0.26**	**1.65**	**1.20**	**27.46**
GRAND TOTAL			**52.2**	**35.9**	**0.99**	**0.07**	**30.51**	**21.32**	**10.47**	**0.39**	**1.66**	**1.14**	**31.29**

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- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table ES-5 Earnout Area: Cobalt-depleted Nickel Mineral Resource estimate.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
EARNOUT	Buleleng	Inferred	Ni < 1.0	Co < 0.03	Lim	1.3	0.8	0.59	0.02	18.35	27.42	17.91	6.48	1.71	1.02	40.33
					Sap	1.0	0.7	0.77	0.02	12.05	40.20	22.01	0.76	1.60	1.07	32.62
					Sub-total	2.3	1.4	0.67	0.02	15.42	33.36	19.82	3.82	1.66	1.04	36.75
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	0.0	0.0	1.15	0.01	10.60	28.75	22.19	1.21	1.71	1.02	40.33
					Sap	3.2	2.2	1.15	0.02	12.66	41.02	23.87	0.50	1.60	1.07	32.62
					Sub-total	3.2	2.2	1.15	0.02	12.65	40.98	23.87	0.50	1.60	1.07	32.64
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.1	0.1	1.66	0.02	12.98	47.36	22.35	0.15	1.60	1.07	32.62
					Sub-total	0.1	0.1	1.66	0.02	12.98	47.36	22.35	0.15	1.60	1.07	32.62
			Total - Inferred			5.7	3.7	0.98	0.02	13.74	38.19	22.25	1.78	1.62	1.06	34.24
		Indicated	Ni < 1.0	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.6	0.4	0.89	0.02	13.03	43.74	23.02	0.81	1.60	1.07	32.62
					Sub-total	0.6	0.4	0.89	0.02	13.03	43.74	23.02	0.81	1.60	1.07	32.62
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.8	0.5	1.17	0.02	12.96	40.81	24.46	0.61	1.60	1.07	32.62
					Sub-total	0.8	0.5	1.17	0.02	12.96	40.81	24.46	0.61	1.60	1.07	32.62
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.3	0.2	1.70	0.02	10.84	39.69	28.58	0.26	1.60	1.07	32.62
					Sub-total	0.3	0.2	1.70	0.02	10.84	39.69	28.58	0.26	1.60	1.07	32.62
			Total - Indicated			1.6	1.1	1.17	0.02	12.61	41.61	24.69	0.62	1.60	1.07	32.62
	Torete	Inferred	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Inferred			-	-	-	-	-	-	-	-	-	-	-
		Indicated	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-

Description	Deposit	Classification	Cut-off Grade %	Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	SiO2	MgO	CaO	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
				Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Indicated		-	-	-	-	-	-	-	-	-	-	-
EARNOUT	Buleleng	**Total - Inferred**			**5.7**	**3.7**	**0.98**	**0.02**	**13.74**	**38.19**	**22.25**	**1.78**	**1.62**	**1.06**	**34.24**
		Total - Indicated			**1.6**	**1.1**	**1.17**	**0.02**	**12.61**	**41.61**	**24.69**	**0.62**	**1.60**	**1.07**	**32.62**
	Torete	**Total - Inferred**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
GRAND TOTAL					**7.3**	**4.8**	**1.02**	**0.02**	**13.48**	**38.97**	**22.81**	**1.52**	**1.62**	**1.06**	**33.87**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
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Project Plan

The Project currently consists of an open cut mining operation utilising conventional truck and shovel methods mining approximately 50,000 WMT per month. The majority of the mined mineral product is saprolite mineralisation with an average grade of 1.8 % Ni that is shipped to a domestic smelter SMI, located in south Sulawesi Province. The LOM plan presented in this Report is based on preliminary economic pit shells provided by PT TAS that were generated at an overall slope angle of 45 degrees and constrained to existing roads and site infrastructure and modifying factors.

GAS understands PT TAS plans to expand production and is targeting an average monthly production of approximately 350,000 WMT from 2020 with average Ni grades between 1.2% and 1.6%. PT TAS prepared a LOM production schedule where the main goals were not only to deliver material within the product specification, however, also sequence the mining in such a way that in-pit waste dumping will be available as soon as the pits are being depleted. This strategy will help to minimise the waste dump haul distance through to the end of the mine and the environmental impact of mining operations.

LOM Planning

The approach to completing the 2019 LOM Plan involved defining pit limits for each pit; evaluating development strategies; for both individual pits, and the mine as a whole. This was followed by a detailed LOM production and dump scheduling plus stage plans to illustrate pit development.

The LOM planning shows that mining activities will be conducted only in Torete area during 2019 – 2023. Then it will be conducted in both Torete and Buleleng for the next four years (2024 – 2027) and from 2028 – 2033 the mining activity will be solely carried out in Buleleng. The total LOM in all areas is approximately 15 years starting from 2019 to 2033, with the total production at approximately 59 million tonnes (“Mt”).

The LOM plan is based on three production activities:

1. Mining of cobalt-rich nickel ≥ 0.06% Co starting from 2019 to 2027 (9 years) at Torete with total production of 14.2 Mt with an average of 1.6 Mt per year. Production at Buleleng will start from 2024 up to 2033 with a total production of 17.6 Mt, an average of 1.8 Mt per year.
2. Mining of Ni ≥ 1.0% and Ni < 1.40% starting from 2019 up to 2027 (9 years) at Torete area with total production of 11.4 Mt with an average of 1.3 Mt per year. Production at Buleleng will start from 2024 up to 2033 with a total of 9.8 Mt, an average of 1.0 Mt per year.
3. Mining of Ni ≥ 1.40% starting from 2019 up to 2027 (9 years) at Torete with total production of 2.4 Mt of ore with an average of 0.3 Mt per year. Production at Buleleng will start from 2024 up to 2033 with a total production of 3.8 Mt, an average of 0.4 Mt per year.

The preferred development strategy involves a strip mining and haul-back mining method. There is no need for any blasting as overburden and ore are all soft material with little fragments of rock. The selected mining method is an open cut shallow, truck and excavator mining method where dumping is initially ex-pit and then in-pit dumping where possible using a haul-back method. The mining factors applied to the resource models for deriving mining quantities were selected based on the use of excavators and trucks.

Three final options for the LOM production schedule were produced and analysed;

- The first schedule is to supply ore with 0.8% Ni and 0.07% Co. This schedule targeted a peak ore production target of 3.2 Mtpa in the year 2023, while the average yearly production is 2.1 Mtpa. The total LOM production is 31.8 Mt.
- The second schedule is to supply ore with 1.2% Ni. This schedule targeted a peak ore production target of 2.1 Mtpa in the year 2020, while the average yearly production is 1.4 Mtpa. The total LOM production is 21.2 Mt.
- The third schedule is to supply ore with 1.7% Ni. This schedule targeted a peak ore production target of 0.9 Mtpa in the year 2027, while the average yearly production is 0.4 Mtpa. The total LOM production is 6.1 Mt.

The key results of this study are as follows:

- The deposit characteristics are suited to flexible, selective mining methods,
- The operation of the pits is to be undertaken by PowerChina (the mining contractor), using a mix of hydraulic excavators, dozers, loaders and haul trucks,

Based on the LOM results, there is 31.8 Mt of mineable ore product with grades of 0.83% Ni and 0.07% Co, and 21.2 Mt of mineable ore product with a grade of 1.16% Ni, and 6.1 Mt of minable product with a grade of 1.65% Ni. The total ore scheduled is 59.1 Mt. Table ES-6 presents the physical LOM schedule.

Table ES-6 Life of Mine Production Schedule

Deposit	Production & Sales Schedule	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
TORETE	OB	Overburden (M WMT)	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0							0.4
		Ni OB (%)	0.9	0.9	0.8	0.9	0.9	0.7	0.7	0.7	0.0							0.7
		Co OB (%)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00							0.03
		Fe OB (%)	13.6	13.5	13.6	14.8	15.7	15.0	36.7	20.9	0.0							23.5
		Moisture OB (%)	23.4	23.4	23.4	23.4	23.4	23.4	27.8	25.8	0.0							25.3
	Co ≥ 0.06 (Other Sales)	Ore (M WMT)	0.4	0.6	1.6	2.7	3.2	1.8	1.4	1.7	0.9							14.2
		Ni Ore (%)	1.0	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.9							0.9
		Co Ore (%)	**0.07**	**0.07**	**0.08**	**0.09**	**0.08**	**0.06**	**0.08**	**0.07**	**0.07**							0.08
		Fe Ore (%)	31.8	29.3	35.7	36.7	31.7	28.4	34.1	34.5	37.1							33.5
		Moisture Ore (%)	28.5	27.4	28.8	28.9	27.5	27.0	28.0	28.7	29.6							28.2
	Ni ≥ 1.0 - ≤ 1.4 (Smelter Sales)	Ore (M WMT)	0.8	2.1	1.6	1.0	0.9	1.5	1.6	1.3	0.5							11.4
		Ni Ore (%)	**1.1**	**1.1**	**1.2**	**1.2**	**1.1**	**1.1**	**1.1**	**1.1**	**1.2**							1.1
		Co Ore (%)	0.06	0.06	0.08	0.05	0.05	0.07	0.07	0.07	0.05							0.07
		Fe Ore (%)	27.2	26.6	25.7	23.4	24.3	28.0	30.4	32.1	25.3							27.4
		Moisture Ore (%)	27.7	26.9	26.2	25.4	25.8	26.8	27.3	27.5	25.7							26.7
	Ni ≥ 1.4 (Local)	Ore (M WMT)	0.1	0.3	0.4	0.0	0.0	0.2	0.5	0.6	0.2							2.4
		Ni Ore (%)	**1.6**	**1.6**	**1.6**	**1.4**	**1.5**	**1.6**	**1.6**	**1.8**	**1.8**							1.7
		Co Ore (%)	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.02							0.04
		Fe Ore (%)	12.0	12.6	12.9	14.9	14.9	15.2	22.1	19.6	14.4							16.9
		Moisture Ore (%)	23.4	23.4	23.4	23.4	23.4	23.4	25.0	24.7	23.4							24.1
	TOTAL ORE (M WMT)		1.4	3.0	3.5	3.8	4.0	3.4	3.6	3.6	1.6							27.9
	BOUNDARY AREA (HA)		16.4	18.1	54.2	25.0	42.3	63.9	50.8	39.9	0.0							310.7
BULELENG	OB	Overburden (M WMT)						0.1	0.2	0.5	1.0	4.6	0.9	2.0	0.7	0.9	4.5	15.3
		Ni OB (%)						0.8	0.5	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.2
		Co OB (%)						0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.01
		Fe OB (%)						13.1	7.9	7.1	10.0	9.9	12.0	4.3	6.1	2.3	2.2	6.3
		Moisture OB (%)						32.0	21.4	20.8	29.5	28.7	32.1	14.2	17.4	9.6	9.4	19.5
	Co ≥ 0.06 (Other Sales)	Ore (M WMT)						0.5	0.5	0.3	1.4	2.3	2.4	2.2	2.2	2.5	3.2	17.6
		Ni Ore (%)						0.7	0.7	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.9	0.8

Deposit	Production & Sales Schedule	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
		Co Ore (%)						**0.09**	**0.09**	**0.08**	**0.07**	**0.07**	**0.06**	**0.05**	**0.06**	**0.07**	**0.08**	**0.07**
		Fe Ore (%)						44.2	43.4	40.0	33.6	31.9	28.5	24.9	30.3	32.8	36.5	**32.3**
		Moisture Ore (%)						40.3	40.3	39.9	38.8	38.5	37.9	36.7	38.5	39.7	40.1	**38.8**
	Ni ≥ 1.0 - ≤ 1.4 (Smelter Sales)	Ore (M WMT)						0.0	0.1	0.2	0.6	1.9	1.5	1.8	1.7	1.4	0.7	**9.8**
		Ni Ore (%)						**1.3**	**1.3**	**1.2**	**1.2**	**1.2**	**1.1**	**1.2**	**1.2**	**1.2**	**1.1**	**1.2**
		Co Ore (%)						0.03	0.03	0.03	0.05	0.06	0.04	0.04	0.05	0.04	0.04	**0.04**
		Fe Ore (%)						16.6	16.3	14.3	25.0	28.2	20.5	19.3	19.6	16.6	17.5	**20.9**
		Moisture Ore (%)						32.6	32.6	32.6	35.4	36.2	34.3	33.7	34.1	33.3	34.0	**34.4**
	Ni ≥ 1.4 (Local)	Ore (M WMT)						0.0	0.1	0.2	0.7	0.4	0.6	0.5	0.6	0.7	0.1	**3.8**
		Ni Ore (%)						**1.5**	**1.5**	**1.6**	**1.8**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.5**	**1.6**
		Co Ore (%)						0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.03	**0.04**
		Fe Ore (%)						17.2	17.3	16.4	19.7	19.9	19.6	18.6	16.7	17.2	12.9	**18.3**
		Moisture Ore (%)						32.6	32.6	32.6	33.1	33.7	33.3	33.4	33.0	33.2	32.6	**33.2**
	TOTAL ORE (M WMT)							**0.6**	**0.7**	**0.7**	**2.7**	**4.5**	**4.5**	**4.5**	**4.5**	**4.6**	**4.0**	**31.2**
	BOUNDARY AREA (HA)							**3.5**	**2.6**	**2.6**	**27.8**	**31.2**	**16.5**	**23.5**	**21.6**	**25.0**	**55.3**	**209.5**
TORETE & BULELENG	**Total**	**Total Material (MWMT)**	**1.4**	**3.0**	**3.6**	**3.8**	**4.0**	**4.2**	**4.6**	**4.8**	**5.3**	**9.1**	**5.4**	**6.5**	**5.2**	**5.4**	**8.4**	**74.9**
		Overburden (MWMT)	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.2**	**0.3**	**0.6**	**1.0**	**4.6**	**0.9**	**2.0**	**0.7**	**0.9**	**4.5**	**15.8**
		Ore (MWMT)	**1.4**	**3.0**	**3.5**	**3.8**	**4.0**	**4.0**	**4.2**	**4.2**	**4.3**	**4.5**	**4.5**	**4.5**	**4.5**	**4.6**	**4.0**	**59.1**
		Stripping Ratio (t/t)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.2**	**1.0**	**0.2**	**0.4**	**0.2**	**0.2**	**1.1**	**0.3**
		Area (Ha)	**16.4**	**18.1**	**54.2**	**25.0**	**42.3**	**67.4**	**53.4**	**42.4**	**27.8**	**31.2**	**16.5**	**23.5**	**21.6**	**25.0**	**55.3**	**520.2**

Note: 1.Totals has been rounded to reflect the accuracy of the estimates.

- 2. All grades are reported on a dry basis

3. Tonnes are reported on a wet basis to reflect sales contracts

Economic Analysis

GAS has reviewed the provided historical costs, the forecast costs, and capital expenditure for the Project and found they are reasonable.

Ore Reserves

Results of the independent Ore Reserve estimate for the Project are tabulated in the Statement of Ore Reserves in ***Table ES-7, Table ES-8 and Table ES-9***. The reported Ore Reserve figures in the table below represent estimates as at 27th May, 2019 and are depleted for mining as of the same date. They comprise estimates for both the RTO area and the Earnout area.

Table ES-7 Total Project Cobalt-rich Nickel Ore Reserves.

Deposit	Class	Area	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni	Co	Fe	Sio2	Mgo	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
Torete	Probable	RTO	4.2	3.0	0.89	0.07	33.18	16.46	6.36	1.66	1.2	27.93
		Earnout	4.1	2.9	0.89	0.09	36.78	15.64	7.43	1.69	1.2	29.1
Buleleng	Probable	RTO	8.5	5.2	0.76	0.06	29.84	18.62	5.77	1.68	1.03	38.25
		Earnout	2.4	1.4	0.89	0.09	40.4	15.09	4.13	1.71	1.02	40.31
Total			**19.3**	**12.6**	**0.83**	**0.07**	**33.38**	**17.07**	**6.04**	**1.68**	**1.1**	**34.32**

Note: 1.Totals has been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.
3. Co ≥ 0.06, a cut-off grade of Ni < 1.0 and Co ≥ 0.001 at Torete and Ni < 1.0 and Co ≥ 0.03 at Buleleng

Table ES-8 Total Project Cobalt-depleted Medium Grade Nickel Ore Reserves.

Deposit	Class	Area	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni	Co	Fe	Sio2	Mgo	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
Torete	Probable	RTO	8.6	6.3	1.13	0.07	29.13	21.03	8.92	1.65	1.2	27.2
		Earnout	1.9	1.4	1.15	0.05	23.78	27.27	12.95	1.61	1.21	25.71
Buleleng	Probable	RTO	8	5.2	1.18	0.05	21.55	34.67	12.55	1.63	1.06	34.47
		Earnout	1.2	0.8	1.17	0.04	19.69	34.6	19.27	1.63	1.06	34.39
Total			**19.6**	**13.7**	**1.16**	**0.06**	**24.95**	**28.01**	**11.43**	**1.63**	**1.14**	**30.46**

Note: 1.Totals has been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.
3. Based on Ni ≥ 1.0 and Ni < 1.40 for Torete and Buleleng

Table ES-9 Total Project Cobalt-depleted High Grade Nickel Ore Reserves.

Deposit	Class	Area	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni	Co	Fe	Sio2	Mgo	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
Torete	Probable	RTO	1.6	1.2	1.63	0.03	14.58	31.43	15.26	1.56	1.21	23.53
		Earnout	0.6	0.4	1.71	0.06	26.51	23.42	11.25	1.63	1.21	26.27
Buleleng	Probable	RTO	3	2.0	1.64	0.04	19.02	35.26	14.74	1.61	1.07	33.35
		Earnout	0.5	0.3	1.61	0.03	14.14	37.46	23.99	1.6	1.07	32.62
Total			**5.6**	**4.0**	**1.64**	**0.04**	**18.11**	**33.2**	**15.36**	**1.6**	**1.12**	**29.85**

Note: 1.Totals has been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.
3. Based on Ni ≥ 1.40 for Torete and Buleleng

Summary Mineral Resources and Ore Reserves

SGX Catalist Rules requires a table prepared in compliance with Appendix 7D presenting Mineral Resources and Ore Reserves. Table ***ES-10*** *presents this information for the entire concession.*

Table ES-10 Total Project Mineral Resources and Ore Reserves

CATEGORY	MINERAL TYPE	GROSS ATTRIBUTABLE TO LICENSE					NET ATTRIBUTABLE TO THE COMPANY					
		Wet Tonnes (Millions)	Dry Tonnes (Millions)	Grade %			Wet Tonnes (Million)	Dry Tonnes (Million)	Grade %			Change (Dry t)
				Ni (%)	Co (%)	Fe (%)			Ni (%)	Co (%)	Fe (%)	
RESERVES												
Proved	-	-	-	-	-	-	-	-	-	-	-	-
Probable	Limonite	19.3	12.6	0.83	0.07	33.38	19.3	12.6	0.83	0.07	33.38	
	Limonite	19.6	13.7	1.16	0.06	24.95	19.6	13.7	1.16	0.06	24.95	
	Saprolite	5.6	4.0	1.64	0.04	18.11	5.6	4.0	1.64	0.04	18.11	
Total		**44.5**	**30.3**	**1.08**	**0.06**	**27.7**	**44.5**	**30.3**	**1.08**	**0.06**	**27.7**	**+ 30.3 Mt**
RESOURCES*												
Measured	-	-	-	-	-	-	-	-	-	-	-	-
Indicated	Limonite & Saprolite	56.8	38.6	0.99	0.05	24.3	56.8	38.6	0.99	0.05	24.3	+ 37.5 Mt
Inferred	Limonite & Saprolite	89.7	62.0	1.00	0.07	28.4	89.7	62.0	1.00	0.07	28.4	+ 20.3 Mt
Total		**146.6**	**100.5**	**0.99**	**0.06**	**26.8**	**146.6**	**100.5**	**0.99**	**0.06**	**26.8**	**+ 57.8 Mt**

- All estimates are depleted using topographic survey data as at 27th May 2019.
- Mineral Resource and Ore Reserve estimates are not precise calculations.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- *Mineral Resources are inclusive of Ore Reserves
- No Ore Reserves were reported previously
- Previous Mineral Resource estimate reported at an effective date of 8 October 2017

Opportunities and Risks

As part of the analysis, there were a number of opportunities and risks identified that should be evaluated further in future work.

Potential opportunities to improve the schedule include:

- Further optimisation of waste haul distances during the first 5 year,
- Other options of ex-pit or in-pit dump spreader use are possible,
- Evaluation of economic ore limits underneath existing resources, overburden dumps and reclaimed areas, such as resources with high iron content (Fe>40%),
- Continued detailed exploration drilling within the Inferred Mineral Resource classification area and recognising drilling for all areas inside concession.

Key risks and issues include:

- An economic model is based on certain forward-looking assumptions that must be periodically reviewed.
- No geotechnical study has been completed to confirm pit depths under current parameters.
- Use of small equipment may create substantial congestion as pit depths increase and working areas decrease.

- In-pit water management requires further improvement to minimise potential disruption to ore production.

Conclusions and Recommendations

Total Mineral Resources reported for the Project at an effective date of 8th October 2017 totaled 66.5 MWMT, covering 494 ha of the total concession area of 1,301 ha. Most resources were classified as Inferred and there were no Ore Reserves reported at the time. The 2017 estimate is also referred to as the RTO area of the concession.

In 2018, a new drilling program has added new Mineral Resources and upgraded a significant tonnage of previously defined Inferred Resources to Indicated Mineral Resources. In 2019, a PFS has converted some of the resources to Ore Reserves. At an effective date of 27th May 2019, the total Mineral Resources for the Project are 146.6 MWMT, with Ore Reserves of 44.5 MWMT.

Of the 146.6 MWMT of Mineral Resources reported as at 27th May 2019 for the Project, there are 87.0 Mt within the 494 ha RTO area, an increase of 20.5 MWMT. There are 59.5 MWMT outside of the RTO in the remaining 807 ha of the concession, referred to as the Earnout area. All the Earnout area Mineral Resources were defined in the 2018 drilling program.

GAS considers that the work completed in 2018 and 2019 has successfully added new Mineral Resources to the Project, including the definition of enriched cobalt zones that add value to the Project. The PFS completed in 2019 has also led to the creation of Ore Reserves at the Project for the first time, providing more certainty to support the production schedule for the next 15 years.

Further work is recommended to mitigate the risks identified and assess opportunities, including:

- Undertake a geotechnical study to confirm all pits and dump stability parameters.
- Update the geological models.
- Investigate the blending options between pits.
- Evaluate the replacement of the infrastructure preventing the increase in the optimum pit selection.
- Investigate in-pit dumping option and selective mining method study.

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1. INTRODUCTION

1.1. Summary

The Project is owned and operated by PT TAS. The concession contains the Buleleng and Torete nickel laterite deposits. The Project concession covers a total area of 1,301 ha.

This independent qualified persons report ("IQPR 2") was prepared for PT TAS and presents the results of exploration undertaken at the Project since the publication of the report titled "Independent Qualified Person's Report Buleleng and Torete Nickel Projects" prepared by RPM Global, dated May 2018 ("IQPR 1").

GAS's technical team ("the Team") consisted of geologists and mining engineers. Mr Wahyu Asmantowi was the Team Project Manager and undertook the site visits to the Project between November 2018 and March 2019 to review drill core sampling and sample handling procedures and hold technical discussions with PT TAS personnel.

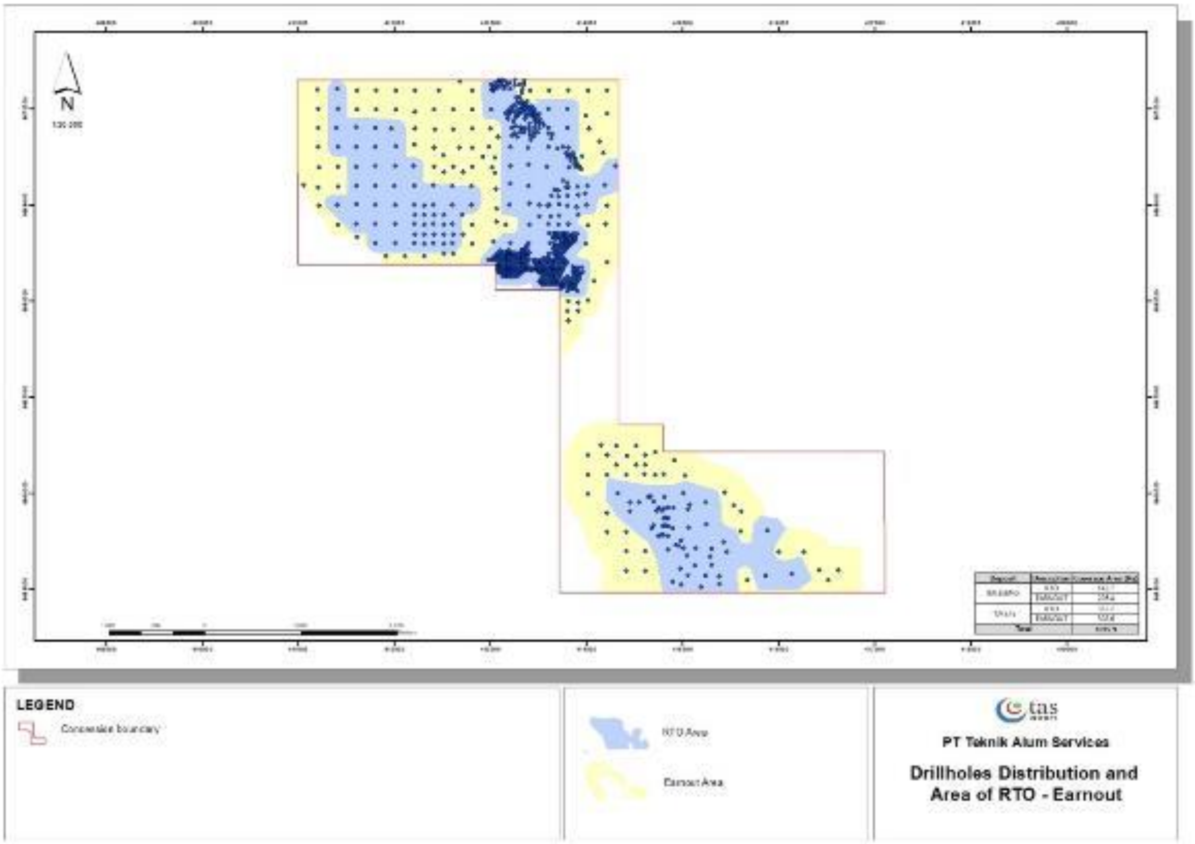
During September 2019, an independent estimate of the Mineral Resources and Ore Reserves of the Project (hereafter, referred to as the "Statement") was prepared. The Statement reports the Mineral Resources and Reserves based on drilling and depleted for mining completed up to 27th May 2019 (the "Effective Date" of the estimate of Mineral Resources and Ore Reserves) and reported in accordance with the JORC Code.

From June to August 2019, Mr Widadi Akso Prabu prepared a Life-of-Mine Plan ("LOM"). The LOM included reporting of forecast production tonnes, planned mining schedule, fleet requirements, operating and capital costs, marketing and transportation arrangements and commentary on the social, health and safety factors that could impact operations. The LOM and production forecast has been completed to a Pre-Feasibility study accuracy of +/-25%

1.2. PT TAS Concession

PT TAS nickel concessions are located in Morowali Regency, Indonesia (**Figure 1-1**). The Project consists of two known Ni laterite occurrences; the Buleleng and Torete deposits. Both deposits are contained within a concession covering an area of approximately 1,301 Ha, have had a significant amount of exploration work conducted on them and are both currently in production.

Figure 1-1 Concession area showing the RTO area vs the Earnout area.



1.3. Scope of Work

The Scope of Work ("SOW") for this Report comprised a part for geology and Mineral Resources and a part for mining, economics and Ore Reserves.

Part 1 – Geology and Mineral Resources

GAS completed the following:

- Review of all drill hole geology, survey, assay, bulk density and moisture data, QA/QC data, topographic surfaces and mining reconciliation data;
- Updated the 3D geology model.
- Prepared a Mineral Resource estimate using a method appropriate to the number of sample locations and style of deposit being modelled;
- Categorised the Mineral Resource quantities as Indicated and Inferred categories, and report Mineral Resources in line with the JORC Code based on the latest topography survey data from May 2019.

Part 2 – Mining, Economics and Ore Reserves

GAS reviewed the following information:

- Historical mining performance;
- Planned mining schedule (including ramp up);
- Blending approach and strategy;
- Operating costs;

- Capital costs;
- Marketing;
- Processing;
- Transportation;
- Social, health and safety factors, and
- Estimate and classify Ore Reserves
- Opportunities and risks.

GAS prepared an Ore Reserve estimate and categorised the Indicated Mineral Resource as Probable Ore Reserves, and report Ore Reserves in line with the JORC Code based on the latest topography survey data from May 2019.

Part 3 – Independent Qualified Persons Report 2

Compilation of this IQPR 2 providing the findings of the above work and relevant sign-off of the work in accordance with the JORC Code and SGX Catalist rules.

1.4. Aim and Use of the Report

This IQPR 2 was prepared for FEM in relation to the earnout provisions ("Earnout") at Buleleng and Torete, covering an area of 807 ha out of a total of 1,301 ha for the concession that meets (i) the standards of the JORC Code; and (ii) the requirements for mineral, oil and gas companies as set out in the Catalist Rules.

The SGX Catalist Rules specify that a listing applicant must substantiate the existence of adequate Mineral Resources through the publication of an IQPR that complies with the Catalist Rules of the SGX (the "Catalist Rules") and Practice Note 4C, which set out the disclosure requirements for Mineral, Oil and Gas Companies. This Report has been prepared to meet the requirements of the Catalist Rules for new listings and as specified in Practice Note 4C.

This IQPR 2 will be used as the basis for the preparation of Valuation Report 2 (as defined in the China Bearing (Singapore) Ltd Circular to Shareholders dated 31st May 2018).

1.5. Qualified Persons

The qualified person for the estimation and reporting of the Mineral Resources for the Project is Mr Wahyu Asmantowi ("Mr Wahyu"). The qualified person for the estimation and reporting of the Ore Reserves for the Project is Mr Widadi Akso Prabu ("Mr Widadi").

Both Mr Wahyu and Mr Widadi meet the SGX requirements for an independent qualified person and consent forms for each are presented in Section 19.

This report has been signed off by Mr Wahyu, a director of GAS.

1.6. Statement of Independence

The qualified persons preparing this Report and their firm's partners, directors, substantial shareholders and their associates are independent of FEM and its subsidiaries, its directors, substantial shareholders, advisers and their associates. In addition, they have no interest, direct or indirect, in PT TAS, their subsidiaries, or associated companies, and will not receive benefits other than remuneration paid in connection with this Report. Remuneration paid to GAS is not dependent on the findings of this Report.

For the purposes of Rule 442 of the Singapore Stock Exchange Catalist Rules:-

(a) the qualified persons are not sole practitioners;

(b) the production of this report has been directly supervised by Mr Wahyu;

(c) the qualified persons and its, directors, substantial shareholders and their associates are independent of PT TAS, its directors and substantial shareholders;

(d) the qualified persons and GAS and its, directors, substantial shareholders and their associates do not have any interest, direct or indirect, in PT TAS, its subsidiaries or associated companies and will not receive benefits other than remuneration paid to GAS in connection with the qualified person's report, and

(e) no remuneration paid or to be paid to GAS in connection with the report is dependent on the findings of the report.

1.7. Reporting Standard Used

This IQPR 2 has been compiled in line with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia (The JORC Code).

The JORC Code requires that a public report describing a company's Exploration Results, Mineral Resources and Ore Reserves must be based on, and fairly reflect, the information and supporting documentation prepared by a Competent Person, as defined by the JORC Code. SGX Catalist rules use the term qualified person and provide a definition that is similar to a Competent Person. In this IQPR 2, whenever reference is made to a Competent Person as per the JORC Code, it is equivalent to a qualified person as per the SGX Catalist rules.

1.8. Basis of the Report

The qualified persons reviewed the available project data and incorporated the results thereof with appropriate comments and adjustments as needed in the preparation of this Report. Standard industry review procedures were used throughout in the preparation of this Report. The qualified persons used their experience to determine whether the information from previous reports was suitable for inclusion and adjusted information as required.

This Report includes technical information which required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. The qualified persons do not consider any such errors to be material.

The primary source documents for this Report were as follows:

- Standard Operating Procedures (SOPs).
- Technical reports, documents and studies are used as reference material in the preparation of the statement such as:
  - The JORC Code;
  - Internal Technical report PT TAS, Oct, 2013. Technical Report PT TAS Mineral Resource by PT Wuna Bumi Nikel Consultants;
  - Regional Geology of the Lasusua - Kendari sheet, Sulawesi. By E. Rusmana, Sukido, D.Sukarna, E. Haryono and T.O.Simandjuntak, 1993;
  - Geological Map of Bungku Quadrangle, Sulawesi. Scale 1:250.000 by Simandjuntak, T.O., Rusmana, E., Supandjono, J.B., Koswara, A. 1993

- Feasibility study report PT TAS, September, 2008. “Laporan Studi Kelayakan Proyek Pembangunan Tambang Bijih Nikel di Desa Buleleng dan Desa Torete Kecamatan Bungku Selatan Kabupaten Morowali Provinsi Sulawesi Tengah”;
- AMDAL report PT TAS, October, 2008. “Analisis Mengenai Dampak Lingkungan PT Teknik Alum Services”;
- RKAB report PT TAS, January, 2019. “Rencana Kerja dan Anggaran Biaya PT Teknik Alum Services”;
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- Ahmad, W. 2008. Nickel Laterites, Fundamentals of chemistry, mineralogy, weathering processes, formation, and exploration. Vale Inco – VITSL.

▪ PT TAS drilling database, which is a comprehensive archive of all drilling-related data, including collar locations, geological logging and geochemical assays (including QA/QC data).

▪ Assay certificates, from relevant geochemical laboratories.

▪ Legal permitting (Exploration Permit, Exploitation Permit, CNC Certificate, Special Terminal of Mining).

▪ Digital elevation model (“DEM”) of the TAS areas from Ground Topography survey.

1.9. Site Visits

Three site visits were carried out by Mr Wahyu between November 2018 to March 2019. The site visits confirmed the drilling, sampling, sample preparation and assaying procedures and original geology and assay logs sighted and collected. The inspections included the drilling and exploration areas, wet and dry sample preparation areas, stockpile and jetty areas and all other infrastructure.

The data, drilling and geological records were found to be well maintained and comprehensive field procedures had been developed. The site visit reviews concluded no significant issues were identified with regards to the current data provided and geological understanding of the deposits.

Mr Widadi did not complete a site visit but has relied on the information provided to him by Mr Wahyu.

1.10. Responsibility and Context of this Report

The contents of this IQPR 2 have been created using data and information provided by or on behalf of PT TAS. GAS does not warrant nor accepts any responsibility for the accuracy or completeness of the data and information provided to it by, or obtained by it from, PT TAS or any third parties, even if that data and information has been incorporated into or relied upon in creating this Report.

In respect of the information supplied by or on behalf of PT TAS, the qualified persons have made reasonable enquiries and exercised their judgement on the reasonable use of such information; and have found no reason to doubt the accuracy or reliability of the information.

The Report has been produced by using information that was available as at the date of this Report. GAS is under no obligation to update the information contained in the Report at any time.

PT TAS has not advised of any material change, or event likely to cause material change, to the operations or forecasts as of the date of this Report.

The work undertaken for this Report is that required for preparation of Mineral Resources and Ore Reserves, coupled with such inspections as considered appropriate to prepare this Report.

GAS has specifically excluded making any comments on the competitive position of the Project compared with other similar and competing nickel producers around the world. GAS strongly advises that any potential investors make their own comprehensive assessment of both the competitive position of the Project in the market, and the fundamentals of the nickel market at large.

The findings and opinions presented herein are not warranted in any manner, expressed or implied. The ability of the operator, or any other related business unit, to achieve forward-looking production and economic targets is dependent on numerous factors that are beyond the control of GAS and cannot be fully anticipated by GAS. These factors included site-specific mining and geological conditions, the capabilities of management and employees, availability of funding to properly operate and capitalise the operation, variations in cost elements and market conditions, developing and operating the mine in an efficient manner, etc. Unforeseen changes in legislation and new industry developments could substantially alter the performance of any mining operation.

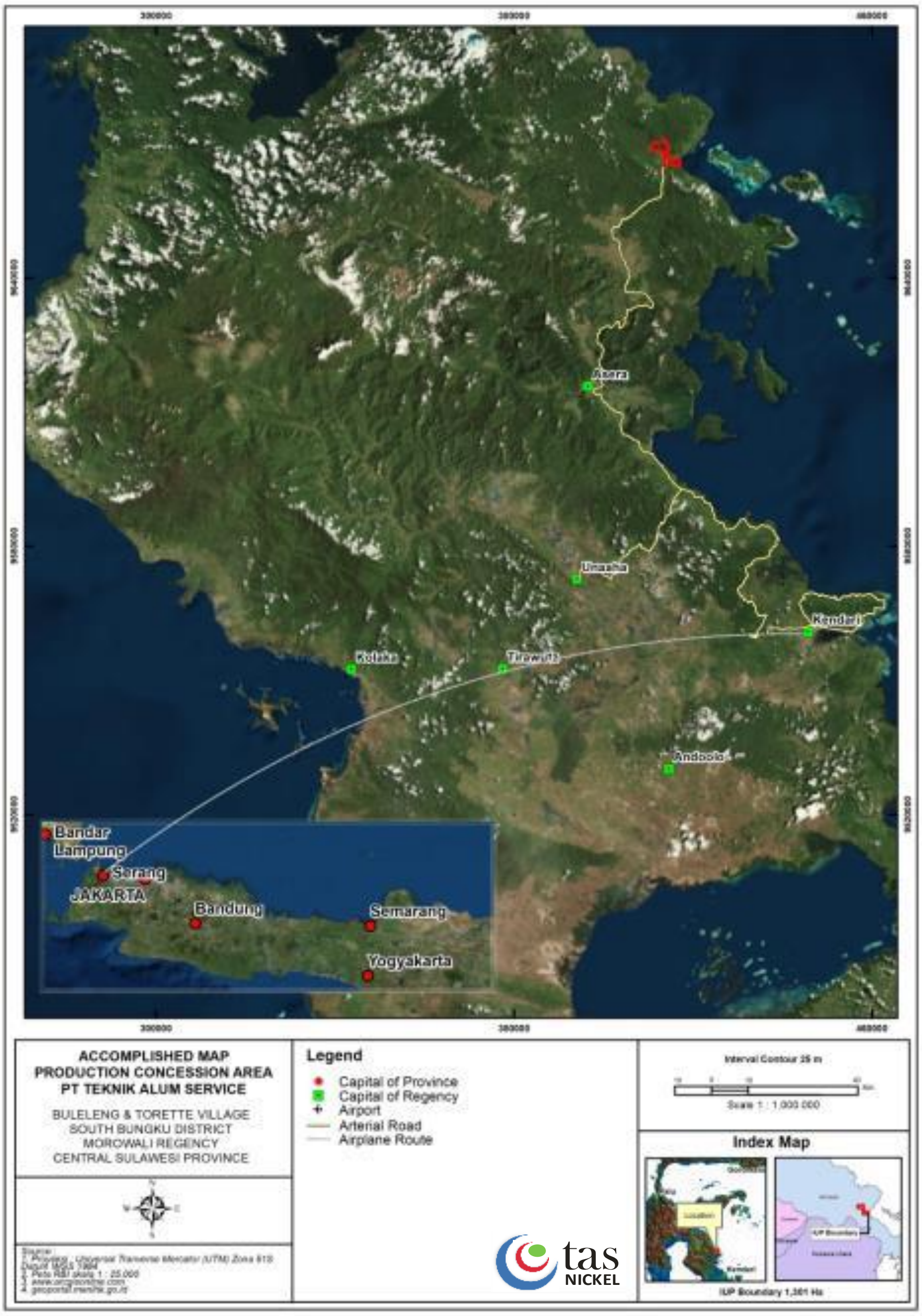
This Report is not a valuation report nor does it express an opinion as to the value of the mineral assets the subject of review.

2. PROJECT DESCRIPTION

2.1. Location and Access

The Project is located near Buleleng and Torete villages, South Bungku District, Morowali Regency, Central Sulawesi Province, approximately 180 km northwest of the provincial city of Kendari, Indonesia. The access to the concession is by commercial flights from Jakarta to Kendari (three and a half hours duration), then from Kendari driving along sealed provincial roads (six hours duration). The Project location is shown in **Figure 2-1.**

Figure 2-1. Project Location



Source: PT TAS Exploration Drilling Report

2.2. Regional Environment

2.2.1. Topography

The topography of the project area is in the form of hills and plains (**Figure 2-2 and 2-3**). The plains area is located in the northern part of the concession area. The hilly area is generally located in the southern part of the concession area. The trending ridge line is oriented northeast to southwest with an elevation in this area of 50 - 425 m above sea level ("ASL"). Drainage occurs through a series of near-parallel tributaries on either side of the ridge line.

Figure 2-2. Torete Terrain Overview (View toward Northwest)

Source: PT TAS Exploration Drilling Report

Figure 2-3. Torete Terrain Overview (View toward South)

Source: PT TAS Exploration Drilling Report

2.2.2. Climate

The area has a typical wet and humid tropical climate with abundant rainfall. The temperature generally ranges from 26°C to 30ºC, with cooler temperatures at higher elevations. The wet season is typically from December to February and the dry season from June to November. Annual precipitation is about 2,000 mm.

2.2.3. Local Resources

Buleleng is a coastal village located near the Project area. The village is adjacent to the forest on which day-to-day community life and the village economy is highly dependent on. Most villagers have multiple sources of income. In addition to fishing, most people are also involved with rice farming, market gardening (including cashew, cocoa and coconut), and collecting forest resources. The forest resources utilised by the villagers include commercial timber, rattan, honey and hunting for animals.

2.2.4. Regional and Local Infrastructure

In addition to the mining infrastructure, significant regional and local infrastructure provides support to the Project. The main road connecting Buleleng village also provides access to other provinces (Central Sulawesi and Southeast Sulawesi). Local people depend on electric power supplied by the government. A small harbor exists for public transportation to Kendari, Southeast Sulawesi.

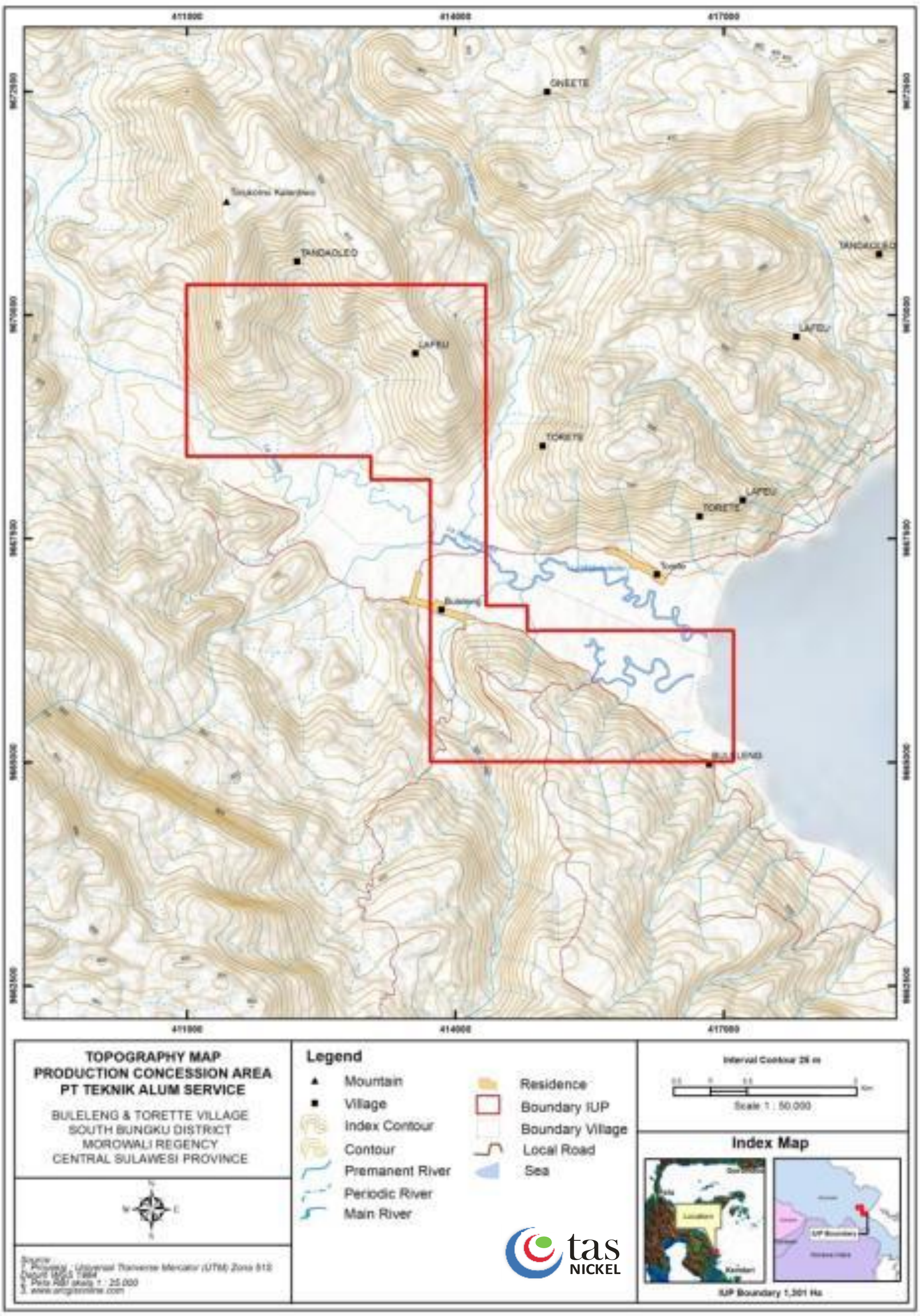
3. TENURE AND PERMIT

3.1. Mining Permit

Table 3-1. TAS Production Mining Permit Details

Company Name	PT Teknik Alum Services
Certificate Type	**Production licence**
Certificate No.	540.6 / SK.001 / DESDM / V / 2009
Mine Right Holder	PT Teknik Alum Services
Share Holder	(1) The Agam Tirto Buwono (90%) Jl. Sumbawa No 20 Surabaya 60281 (2) PT Teknik Alum Services (10%) Jl. MT. Haryono Komp. Balikpapan Baru Blok AB-I No.11 RT.052 Kel. Damai Balikpapan-Kalimantan Timur
Commodities	Nickel and other associated commodities
Coverage Area	1,301 Ha
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Validity	May 6th, 2029
Issue Date	May 5th, 2009

Figure 3-1. Concession area of IUP PT TAS



Source: PT TAS Exploration Drilling Report

Table 3-2. Coordinates of TAS Extension Production Mining License Details

No	Longitude			Latitude		
	Degree	Minute	Second	Degree	Minute	Second
1	122	11	0.92	-2	56	59.42
2	122	11	58.05	-2	56	59.42
3	122	11	58.05	-2	57	59.35
4	122	13	2.04	-2	57	59.35
5	122	13	2.04	-2	58	56.04
6	122	16	46.92	-2	58	56.04
7	122	16	46.92	-2	59	15.54
8	122	16	38.61	-2	59	15.54
9	122	16	38.61	-2	59	39.73
10	122	16	27.4	-2	59	39.73
11	122	16	27.4	-2	59	52
12	122	16	0	-2	59	52
13	122	16	0	-3	0	10.06
14	122	15	40.04	-3	0	10.06
15	122	15	40.04	-3	0	25.22
16	122	15	14.73	-3	0	25.22
17	122	15	14.73	-3	1	49.71
18	122	11	27.32	-3	1	49.71
19	122	11	27.32	-3	0	56.28
20	122	7	44.6	-3	0	56.28
21	122	7	44.6	-3	0	3.2
22	122	11	0.92	-3	0	3.2

3.2. Clear and Clean

PT TAS holds Clean and Clear certificates, which ensure no overlap with other mining licenses. Certificate issued by Director General for Coal and Minerals under the decree 517/Min/12/2013 dated 20 February 2013 (**Table 3-3**).

Table 3-3. TAS Clear and Clean Certificate Details

Company Name	PT Teknik Alum Services
Certificate Type	**Clear and Clean**
Certificate No.	517 / Min / 12 / 2013
Mine Right Holder	PT Teknik Alum Services
Mining Licence	540.3 / SK.002 / DESDM / II / 2012
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Issue Date	February 20th, 2013

3.3. Forestry Status

The concession area consists of Limited Production Forest in the northwest of the concession, Conversion Production Forest in the northeast and APL (Other Usage Area) in the south (**Figure 3-2**). The APL area does not require forestry permits for exploration or production but the remaining areas of the concession require Forestry Department permits (“IPPKH”) for the exploration and production activities. PT TAS has submitted the application for the Borrow-Use Permit Forestry (IPPKH; “Ijin Pinjam Pakai Kawasan Hutan“).

3.4. Special Terminal Mining License

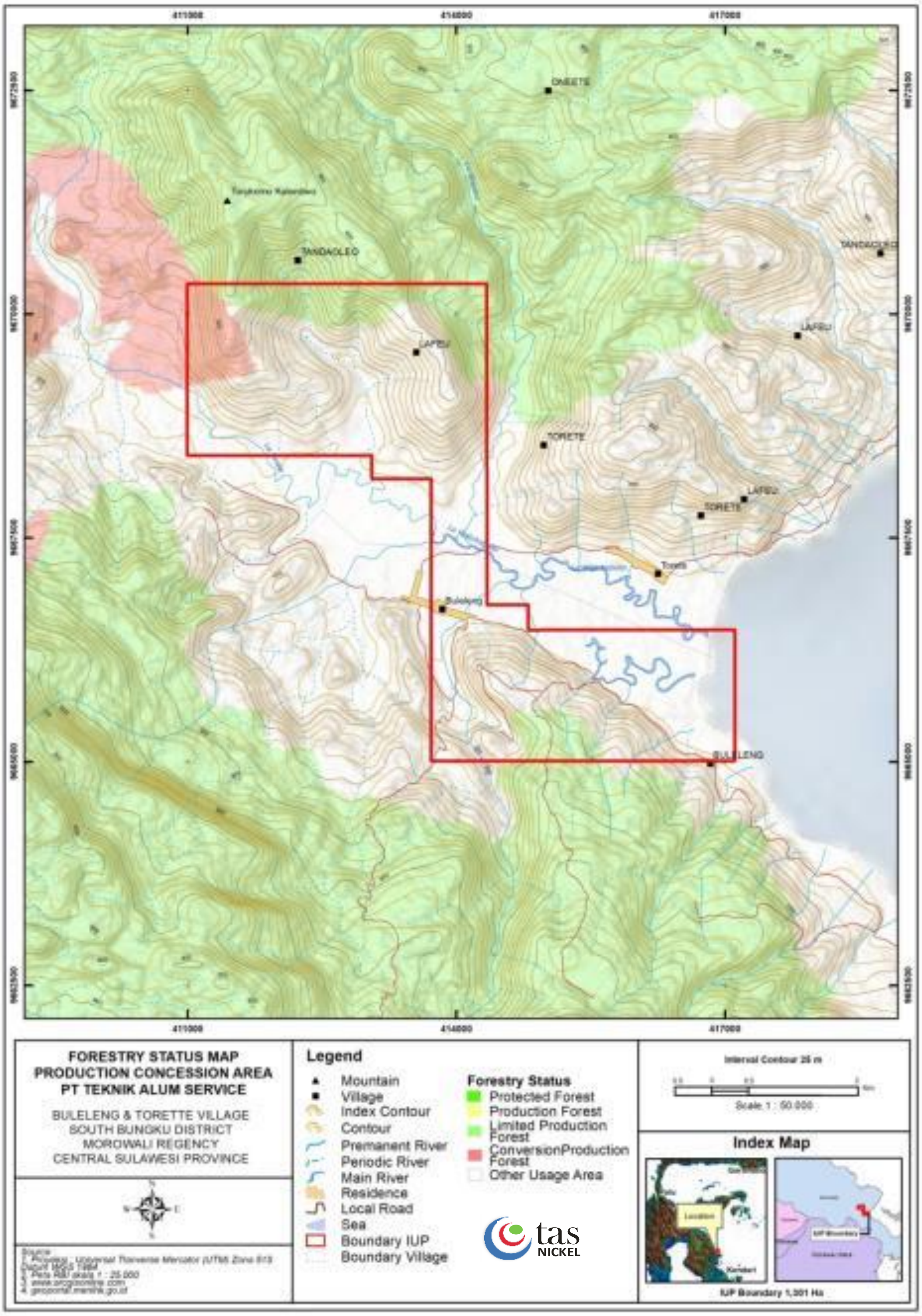
The terminal of mining or jetty is needed to maintain the smooth logistics for mining operations and for to the delivery of raw nickel ore products from the area to the plant. In accordance with the transportation regulations, mining terminal permits are required before building and operating mine terminal.

TAS has obtained a special terminal permit for nickel mine based on Decree of the Minister of Transportation No. B.X- 507 / PP 008 dated 7th October 2015 located in Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province. The mining terminal or jetty has been connected via the gravel road to the mine site.

Table 3-4. TAS Establishment of Special Terminal Locations

Company Name	PT Teknik Alum Services
Certificate Type	**Special Terminal Mining**
Certificate No.	B.X- 507 / PP 008
Mine Right Holder	PT Teknik Alum Services
Coordinates	a. 03^o - 01' - 31'' LS / 122^o - 15' - 21'' BT
	b. 03^o - 01' - 39'' LS / 122^o - 15' - 03'' BT
	c. 03^o - 01' - 15'' LS / 122^o - 15' - 03'' BT
	d. 03^o - 01' - 15'' LS / 122^o - 15' - 28'' BT
	e. 03^o - 01' - 39'' LS / 122^o - 15' - 28'' BT
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Validity	October 7th, 2025
Issue Date	October 7th, 2015

Figure 3-2. Forestry Status of PT TAS (http://webgis.menlhk.go.id)



Source: PT TAS Exploration Drilling Report

3.5. Grid System

All collar positions have been surveyed with DGPS equipment on the WGS 1984 Datum with the Zone 51 South projection.

4. HISTORY

4.1. Exploration History

Exploration started in 2010 and was conducted in four phases. The first phase consisted of a desktop study followed by geological mapping and outcrop sampling. In 2013, the second phase of exploration was carried out with consisted of regional drilling to define zones of better potential and mineralisation continuity using a drilling grid of spacing 400 m by 400 m to 200 m by 200 m across all deposits within the license area. In 2017, the third phase of exploration activities were undertaken using diamond drill rigs producing predominantly HQ-size core on 100 m, 50 m and 25 m drill spacings. And in 2018, the most recent phase of drilling activities was undertaken outside the area targeted in 2017 as well as some small areas inside the 2017 drilling area in order to increase Mineral Resource confidence.

A summary of the exploration drilling is shown in **Table 4-1.**

Table 4-1. Summary of Exploration Drilling

<table>
<tr><th>Year</th><th>Block</th><th>Spacing</th><th>Total Holes</th><th>Total Metres</th><th>Total Samples</th></tr>
<tr><td rowspan="3">2013</td><td rowspan="2">Torete</td><td>200m x 200m</td><td>75</td><td>765</td><td>826</td></tr>
<tr><td>25m by 25m</td><td>404</td><td>4,969</td><td>5,374</td></tr>
<tr><td>Buleleng</td><td>200m x 200m</td><td>42</td><td>1,175</td><td>1,220</td></tr>
<tr><td rowspan="2">2017</td><td>Torete</td><td rowspan="2">Twin holes/Additional</td><td>94</td><td>1,038</td><td>1,183</td></tr>
<tr><td>Buleleng</td><td>22</td><td>649</td><td>821</td></tr>
<tr><td rowspan="4">2018</td><td rowspan="3">Torete</td><td>200m x 200m</td><td>79</td><td>683</td><td>789</td></tr>
<tr><td>100m x 100m</td><td>38</td><td>352</td><td>397</td></tr>
<tr><td>50m by 50m</td><td>106</td><td>931</td><td>1190</td></tr>
<tr><td>Buleleng</td><td>200m x 200m</td><td>37</td><td>447</td><td>520</td></tr>
<tr><td colspan="3">Total</td><td>897</td><td>11,009</td><td>12,320</td></tr>
</table>

4.2. Production History

Mining operations have been undertaken from 2015. The total production from 2015 to end May 2019 was 1.2 MWMT of DSO. The average grade of the DSO was 1.81% Ni. The DSO is sent to a domestic smelter in Central Sulawesi, Indonesia. The production history for the Project is shown in **Table 4-2.**

Table 4-2 Project Production History based on Shipment

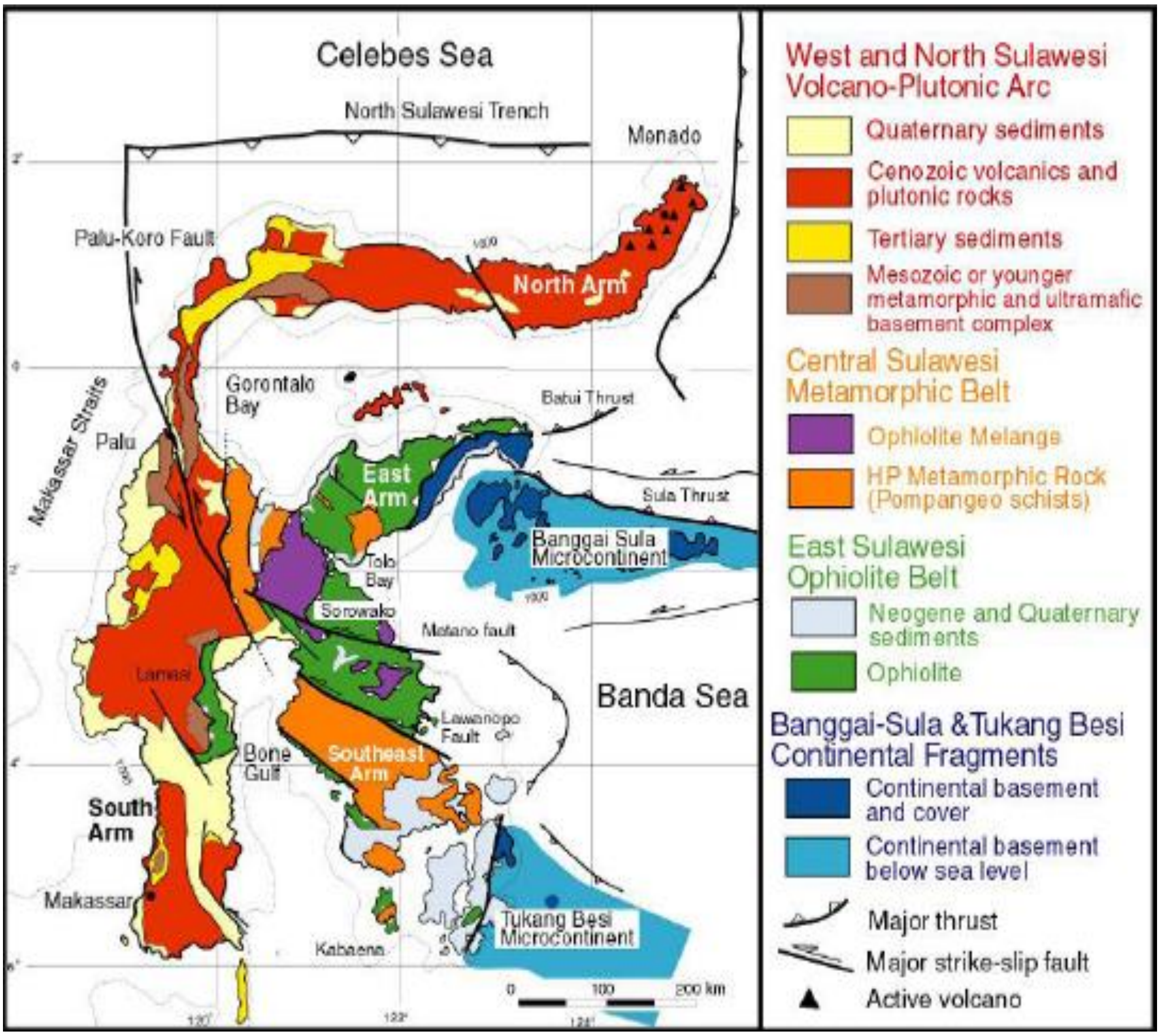
Year	Wet Metric Tonnes	% Ni
2015	73,613	1.97
2016	371,920	1.90
2017	312,549	1.75
2018	274,439	1.74
To End May 2019	170,667	1.72
Total	**1,203,188**	**1.81**

5. GEOLOGICAL SETTING AND MINERALISATION

5.1. Regional Geology

The K-shape island of Sulawesi (formerly Celebes) consists of four narrow peninsulas known as ‘arms’, a ‘neck’ and a ‘trunk’ (west-central Sulawesi), which are surrounded by deep gulfs and marginal sea basins. The arms consist of South Arm, North Arm, East Arm and Southeast Arm (**Figure 5-1**).

Figure 5-1. Regional geology map of Sulawesi (Kadarusman et al., 2004)



Source: PT TAS Exploration Drilling Report

The region has been subdivided into four litho-tectonic units bounded by large-scale tectonic dislocations and thrust faults. These are from west to east: (i) the west Sulawesi volcano-plutonic Arc, (ii) the central Sulawesi metamorphic belt, (iii) the east Sulawesi ophiolite belt, and (iv) the continental fragments of Banggai-Sula, Tukang Besi and Buton (Kadarusman et al., 2004).

South Konawe and its surrounding is a part of the East Sulawesi Ophiolite (“ESO”). East Sulawesi Ophiolite is one of the largest three ophiolites in the world. The ESO is a dismembered ophiolite that is tectonically intercalated with Mesozoic deep-sea sediments, marginal basin crust, and parts of the Sundaland fore-arc or oceanic plateau of Pacific plate. The origin and age(s) of the ESO is debatable as geochemical and geochronological data is incomplete. It represents a single ophiolite that has undergone a multistage history and consists of slices of ophiolite fragments with different origins (Monnier et al., 2002; Parkinson, 1998). It was in part thrust over the eastern periphery of the metamorphic rocks in the middle Oligocene (Kadarusman et al, 2004).

The ESO total length is 700 km from Gorontalo Bay, through the East Arm and central Sulawesi toward the Southeast Arm and the Islands of Buton and Kabaena; it also extends to the Lamasi Complex of the South Arm passing through the Gulf of Bone (The total outcrop area is more than 15,000 km2, see Fig. 4.1). The ophiolites are intercalated and complexly juxtaposed with Mesozoic and Tertiary sedimentary rocks, as a result of late Oligocene/early Miocene collision, subsequent contraction, and later strike-slip faulting (Parkinson, 1998; Hall, 2002).

A full suite of ophiolite lithology (ultramafic and mafic sequences) is present along the northern coast of the East Arm. In the large parts of the ESO, ultramafic sequences dominate in the Southeast Arm, southern part of the East Arm and Kabaena Island, while basaltic volcanic units are exposed in the Lamasi area (Kadarusman et al., 2004).

The ultramafic rocks of central Sulawesi consist of peridotites that have been serpentinised to varying degrees. Ultramafic outcrops in the east and southeast arm of Sulawesi occur in three forms:

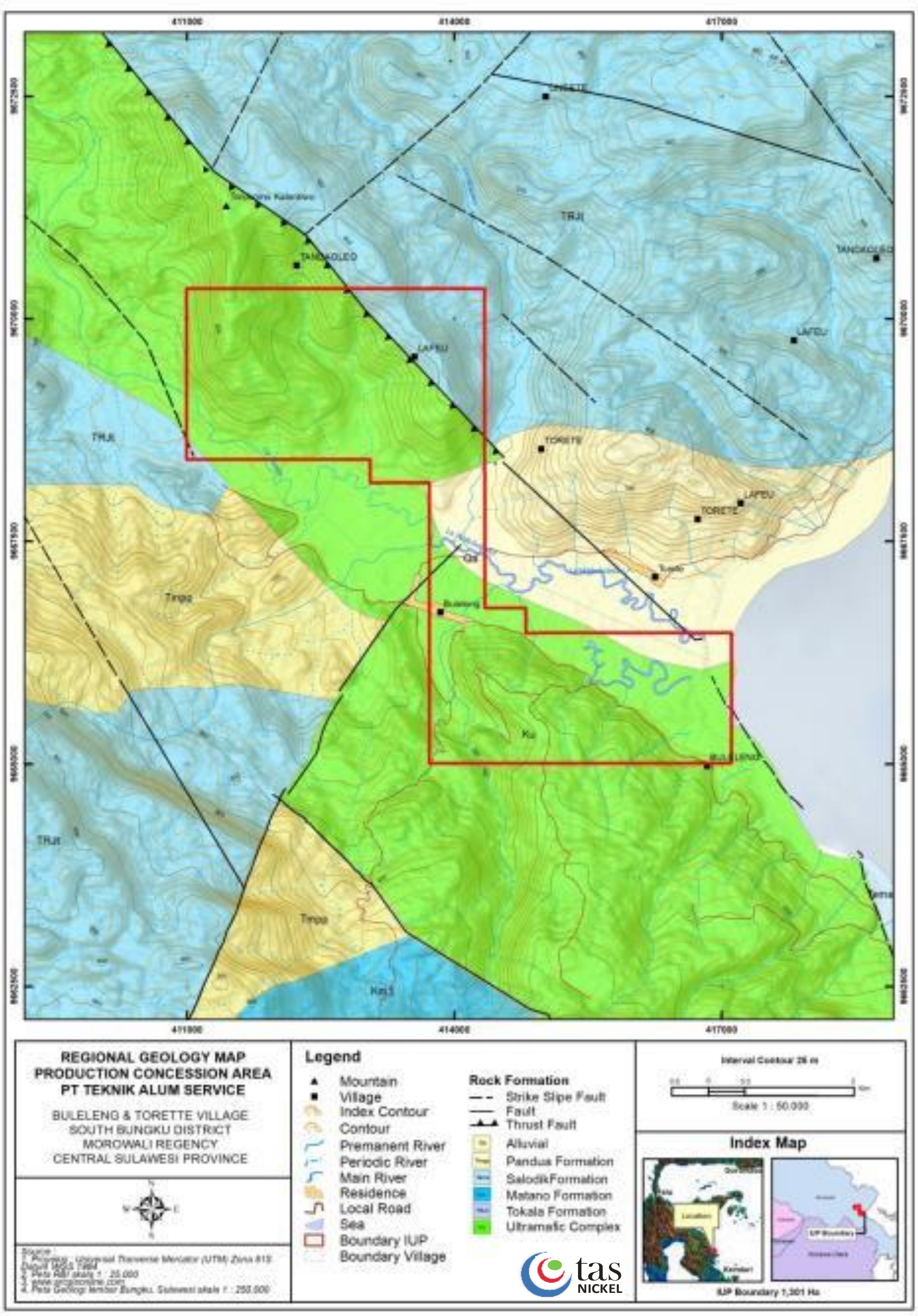
- Large irregular masses of up to several hundred square kilometres. The largest is the Area Massif Lakes that covers several thousand square kilometres of continuous ultramafic terrain.
- Imbricated strips following the general structural grain of the subduction melange.
- Small irregular-shaped and isolated bodies of ultramafics.

According to the regional geology of the Lasusua - Kendari sheet, Sulawesi by E. Rusmana, Sukido, D.Sukarna, E. Haryono and T.O.Simandjuntak, 1993, the concession area has several formations consisting of Alluvial (Qa), Tokala Formation (TRJt), and Ultramafic Complex (**Figure 5-2**).

Based on the regional geology report and review survey results (reconnaissance) that have been conducted by (Simanjuntak et al., 1993), the regional geology of the Project area can be broadly described as follows:

- Alluvial (Qa): Characterised by alluvial material; pebble, gravel, sand and clay. This formation occupies the Central concession area and covers about 10% of the total area.
- Ultramafic Complex (Ku): Characterised by ultramafic rocks (ophiolite) and includes peridotite, harzburgit, dunit, gabro and serpentinite. This group occupies the central and western part of the northern exploration area and covers about 65% of the total area.
- Tokala Formation (TRJt): Characterised by carbonate rocks; calsilutit, limestone, sandstone, shale, marl and slate. This Formation occupies the northeast of the exploration area, and covers about 25% of the total area.

Figure 5-2. Regional Geology of PT TAS Concession Area

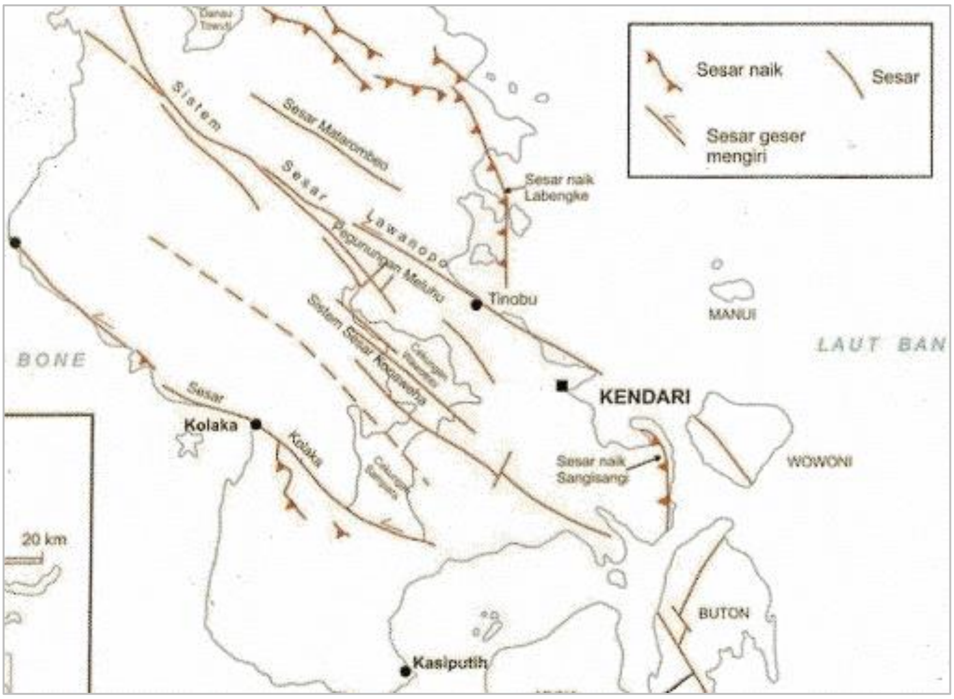


Source: PT TAS Exploration Drilling Report

The most important structure on Sulawesi is the still-active Palu-Koro Fault. It marks the western boundary of the lithosphere plate that is overriding the Sulawesi sea floor to the North. The Palu Fault is marked by a continuous rift valley, which has a flat floor about 5-km wide in the Gulf of Palu area. At the north, the Palu Fault has been traced all the way up to the North Sulawesi Trench and marks its western extent. At the south, the Palu Fault stops at the northern shore of the Gulf of Bone (Kadarusman et al., 2004).

In addition, the structures that developed in the arms of East and Southeast Sulawesi were the Matano Fault, Kolaka Fault Group, Lawanopo Fault Group, and Lainea Fault Group. Other faults include Lemo Fault, Lameroto Fault, Mateupe Fault, Lindu Fault, Lambatu Fault, and Tanjungbasi Fault (**Figure 5-3**). The geological structure that developed in this area was dominated by the sinistral main fault which is trending northwest-southeast (Surono, 2013).

Figure 5-3. Main Fault at Southeast Arm Sulawesi (Surono, 2013)



Source: PT TAS Exploration Drilling Report

Nickel laterite deposits are formed strictly over ultramafic rocks through chemical leaching and supergene enrichment. Being residual soils, the deposits require appropriate conditions that would protect the material from rapid erosion yet allow good water circulation and flushing of the dissolved components. A fluctuating water table considerably enhances the supergene concentration of nickel in the laterite profile (Ahmad, 2008).

Thus, good exploration targets in Sulawesi are confined to ultramafic terrain where appropriate geomorphic landforms are developed. These landforms consist of plateaus, terraces, rolling hills, gentle hill flanks, and gentle ridge spurs. Steep terrain (generally over 25% gradient) does not retain the necessary laterite soil, while basins and depressions do not allow good water circulation.

5.2. Local Geology

5.2.1. Morphology

One of the main factors in forming good nickel laterite is geomorphology aspects. The slope of the landform plays an important part in nickel laterite formation intensity. Flatter slope will facilitate the surface water to infiltrate easier, thus making the weathering process work intensively. Weathering is the main process to form a nickel laterite enrichment. In contrast, high slopes will facilitate water run-off, meaning less water infiltrates the soil or the rock. In turn, this does not facilitate the weathering process to form nickel laterite.

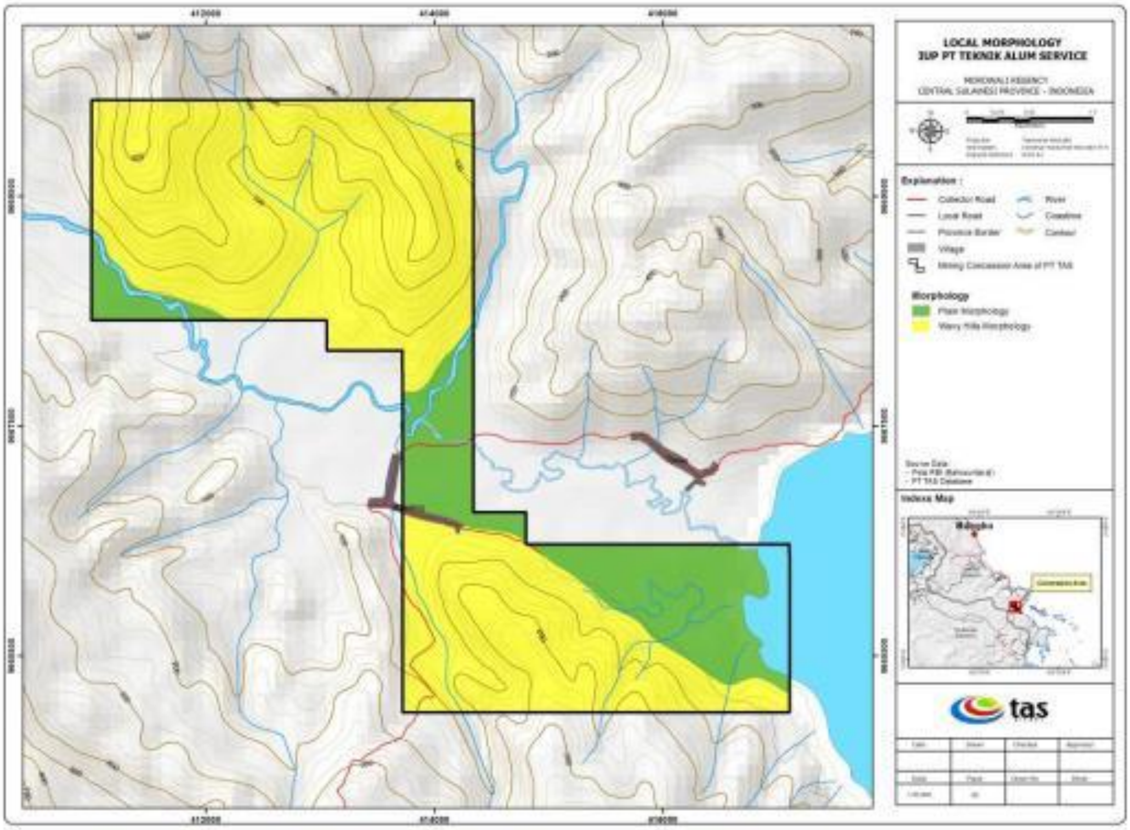
In general, morphology drilling area of PT TAS is divided into two morphology types based on morphological classification according to van Zuidam (1983), which is based on height difference and the degree of the slope, then including the Wavy Hills Morphology and Plain Morphology (**Figure 5-4**).

- Wavy Hills Morphology, occupies the north and south PT TAS concession area, extending from the northwest to the southeast towards the coast. This area is a forest area that has a moderate-high level of vegetation. Based on geological maps this morphology of undulating hills is composed of ophiolite rocks, comprising serpentinite and peridotite.
- Plain Morphology occupies the central PT TAS concession area, extending from the northwest to the southeast heading towards the coast. This area is a swamp area. Soil is a clay material, brown - black.

Figure 5-4. Plain and Wavy Hills Morphology of PT TAS

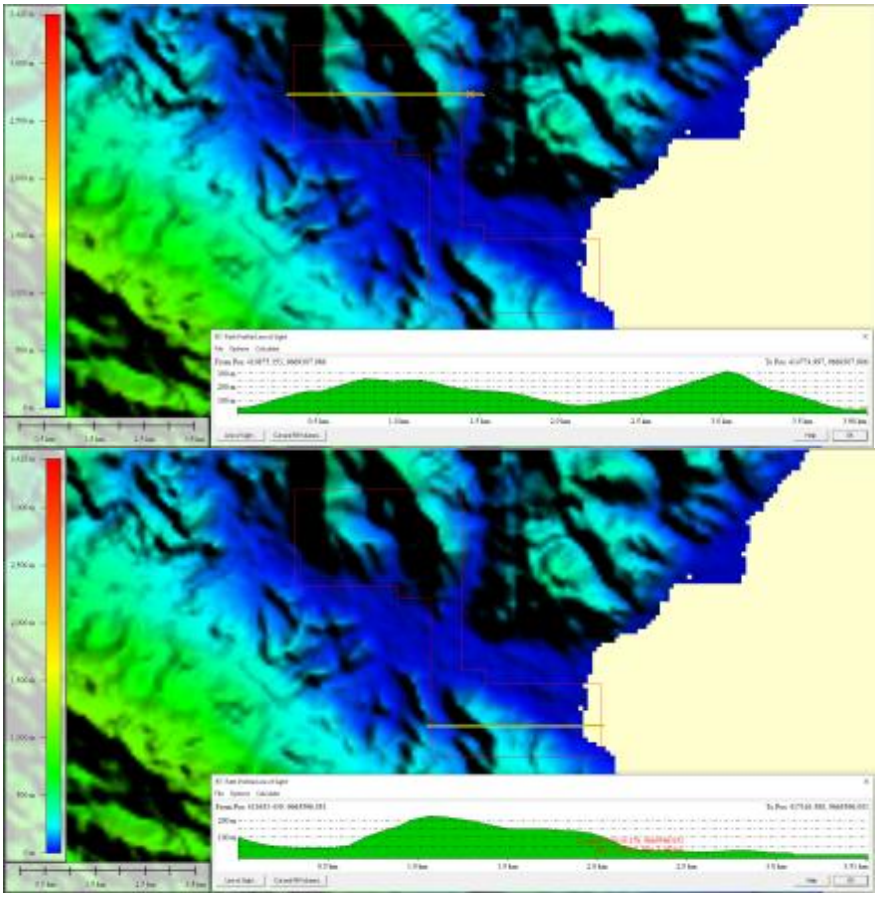
Source: PT TAS Exploration Drilling Report

Figure 5-5. Local morphology of PT TAS concession area



Source: PT TAS Exploration Drilling Report

Figure 5-6. Section view morphology Buleleng and Torete of PT TAS



Source: PT TAS Exploration Drilling Report

5.2.2. Lithology

Geological mapping within the TAS property was done by traversing along creeks and spurs. Based on this work the rocks were divided into ultramafic unit and alluvial.

- **Ultramafic Unit**

  This is peridotite rocks with medium serpentinised level. Based on regional geology, this sequence is Cretaceous age. When fresh, this rock is dark green and black-green but where it has been intensively weathered it becomes laterite soil in the most part. The rock texture is porphyroaphanitic, pyroxene phenocrys with a groundmass of olivine and serpentine, anhedral crystal shape, holocrystaline. The rock is fractured and veined. The surface features of this unit are laterite soil, peridotite rock, some iron cap and silica boxwork. When highly serpentinised, it is a grayish color; coherent and solid, aphanitic textured with a mineral composition of antigorite, clay and magnetite.

Figure 5-7. Outcrops of weathered peridotite

Source: PT TAS Exploration Drilling Report

Figure 5-8. Outcrops of Serpentinite at PT TAS Area

Source: PT TAS Exploration Drilling Report

- **Alluvial**

  This unit is sedimentary and comprised of clay, sand, pebble and cobble. Its age is Quaternary and lies unconformably on the peridotite and serpentinite, present in the Plain Morphology Area.

Figure 5-9. Alluvial Deposit at PT TAS Area

Source: PT TAS Exploration Drilling Report

5.3. Mineralisation

Nickel laterite is a supergene enriched nickel deposit due to laterisation of ultramafic rocks. Laterites are essentially derived from the chemical weathering of ultramafic rock. However, not all minerals break down at the same times. Olivine is the most unstable mineral and breaks down first. Magnesium is the dominant cation that is leached out in the beginning, followed by silica. Removal of olivine leaves behind cavities that are temporarily filled by ferric hydroxide and ferruginous clays.

In the case of residual soil, chemical weathering takes place at the bottom of the regolith. The regolith-protolith boundary marks the weathering front, which may be very irregular in shape depending upon the local topography and the nature of the water table.

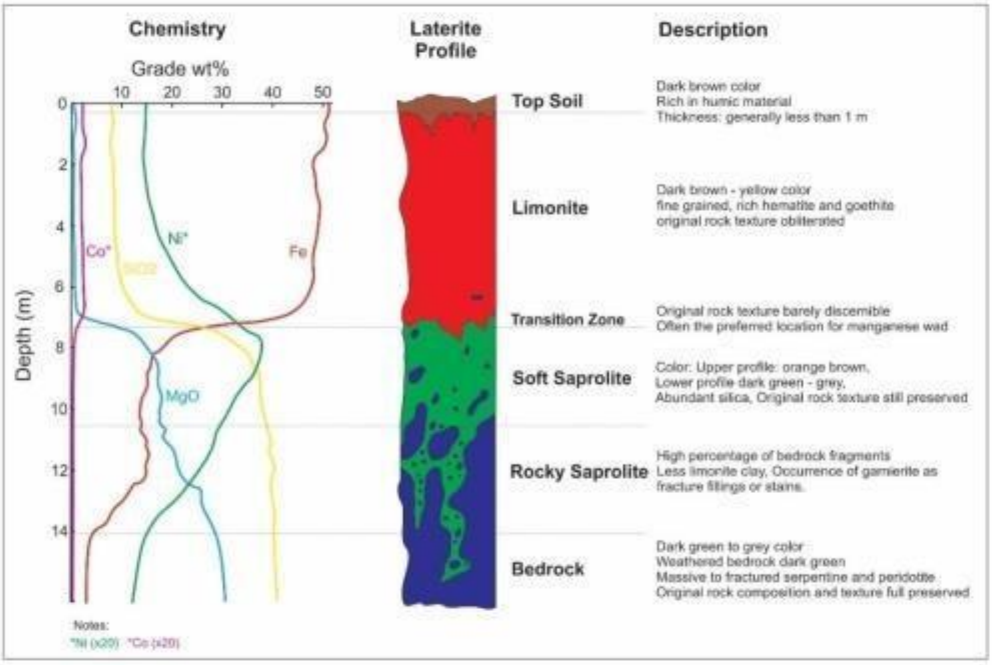
From the top to bottom the laterite profile consists of a red limonite layer rich in hematite and less hydrated Fe oxides (goethite); with rock porosity decreasing with time. Bulk density increases with time. Further changes include formation of duricrust (ferricrete or silcrete). At the bottom of the red limonite is yellow limonite, rich in hydrated Fe oxides. Rock porosity decreases with time. Bulk density increases with time. Saprolite is a zone with precipitated silica + garnierite where chemical weathering proceeds actively along joints and fractures. Rock porosity increases with time and bulk density decreases with time. The contact between yellow limonite and saprolite is marked with the presence of soft smectite clays + silica. Rock porosity is at its maximum and bulk density at its lowest. The bottom profile is bedrock with fresh ultramafic rock with joints and fractures opening up as hydrostatic pressure is removed.

The laterites are developed over ultramafic rocks that lie along the East Arm and central Sulawesi toward the Southeast Arm, and the Islands of Buton and Kabaena (Kadarusman et al., 2004). The rock types within the ultramafic are harzburgite, serpentinised harzburgite, peridotite, and serpentinised peridotite. Formation of the laterites is thought to have occurred during the Pliocene or early Pleistocene. The largest of the laterite bodies overlies the central ultramafic body **(See Figure 5-2).**

The PT TAS deposit is a classic nickel laterite deposit in its composition. It comprises iron oxides on the surface (limonite) and magnesium silicates beneath (saprolite). The nickel deposits formed over ultramafic rocks by the process of lateritisation. The lateritic profile is well developed and protected from erosion by the presence of an iron cap. In some areas the iron cap has been destroyed, exposing the laterite. Generally, the laterite profile of

TAS concessions is comprised of a mixture of limonite (top soil and limonite) with low to high grade saprolite (soft saprolite and rocky saprolite) lying above ultramafic bedrock (**Figure 5-10**).

Figure 5-10. Schematic nickel laterite profile



Source: PT TAS Exploration Drilling Report

6. PRE-2018 EXPLORATION

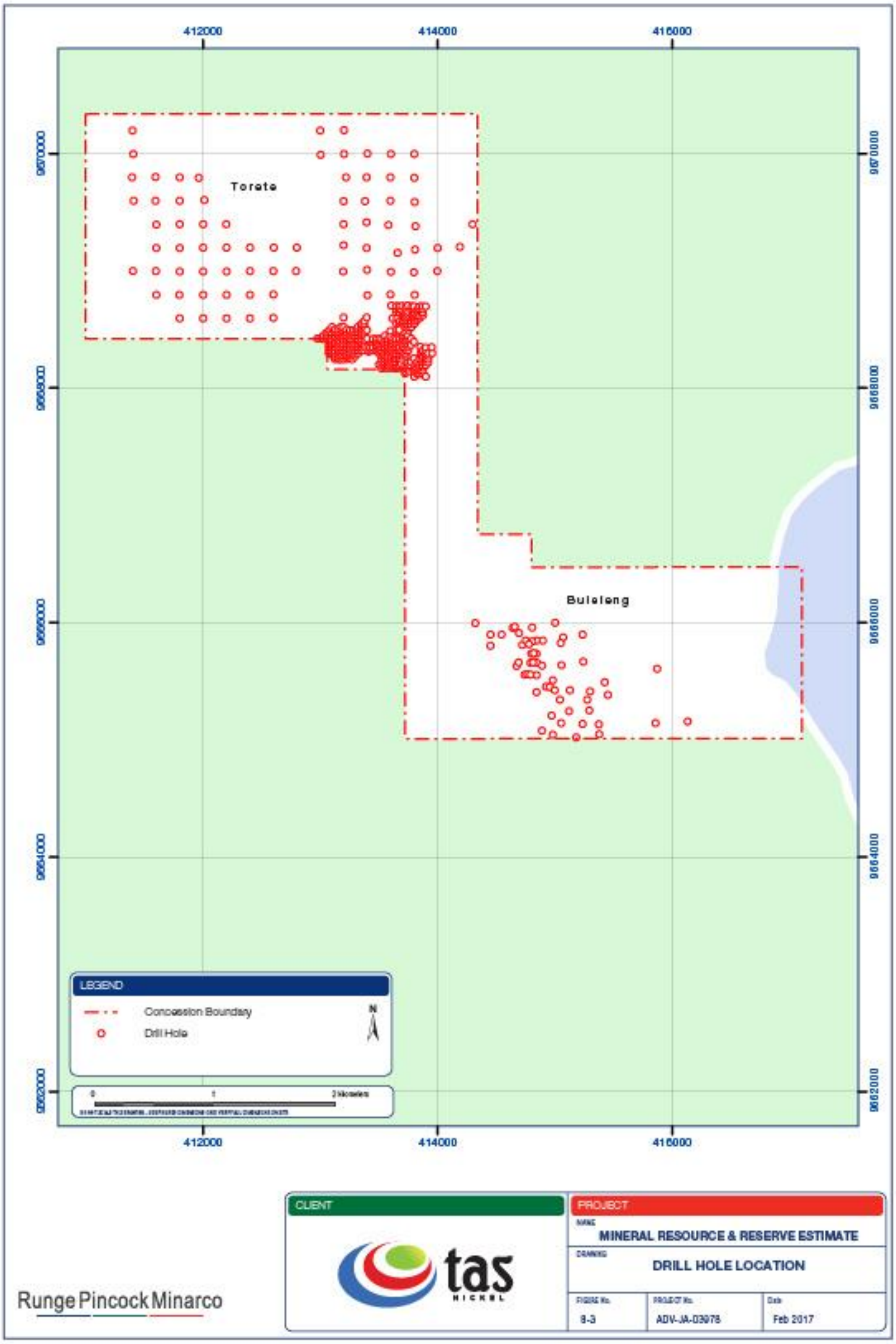
In 2013 and 2017, PT TAS completed diamond coring drilling programs using Jacro-200 triple tube wireline. In diamond drilling a diamond impregnated or tungsten carbide tipped bit mounted on a rotating string of rods cuts a solid cylinder of rock which passes up the inside of the drill rods as the bit advances. The standard drill bit/core barrel size used was HQ-3 (61.1 mm core diameter).

The drilling program was designed to obtain detailed samples through the nickel laterite deposit profile. This drilling program used a regional drill spacing of 200 m x 200 m grid interval, with infill drilling to define zones of better potential and mineralisation continuity for resource estimation purposes. The drilling was completed at Buleleng and Torete covering an area of 449 ha (**Table 6-1 and Figure 6-1**). More information is in IQPR 1.

Table 6-1. Summary of pre-2018 exploration drilling

Year	Block	Spacing	Total Holes	Total Metres	Total Samples
2013	Torete	200m x 200m	75	765	826
		25m by 25m	404	4,969	5,374
	Buleleng	200m x 200m	42	1,175	1,220
2017	Torete	Twin holes/Additional	94	1,038	1,183
	Buleleng		22	649	821
Total			**637**	**8,596**	**9,424**

Figure 6-1. Pre-2018 Drill hole Distribution



Source: RPM Mineral Resources Report

7. 2018 EXPLORATION

7.1. Core Drilling

Exploration core drilling started in September and ended in December 2018 and was conducted in three phases. The first phase consisted of a desktop study followed by field geological mapping. The second phase consisted of wide-spaced drilling on a grid of 200 m by 200 m across the license area in both the RTO area and the Earnout area. The third phase of exploration activities was undertaken using diamond drill rigs producing predominantly HQ-size core on 100 m, and 50 m drill spacings as infill drilling inside the RTO area at Torete. This additional core drilling was done in order to increase the confidence in the Mineral Resource classification.

Total drilling was 269 holes for 2,488.4 m. Average total depth was 10.4 m per hole. This drilling consists of 37 drill holes of Buleleng and 232 drill holes of Torete. All boreholes were vertical. A summary of the exploration drilling details is shown in **Table 7-1 and 7-2.**

Table 7-1. Summary of 2018 exploration drilling

Block	Total Holes Drilled	Total Depth (m)	Average Depth (m)	Min Depth (m)	Max Depth (m)
Buleleng	37	447.4	12.1	1.3	34.5
Torete	232	2,041.0	8.8	3	24
Total/Avg.	**269**	**2,488.4**	**10.4**	**2.15**	**29.25**

Table 7-2. 2018 Drilling penetration rates

Variable	Amount	%
Total Holes Drilled	269	-
Total metres	2,488.4	-
Average depth (m)/holes	10.4	-
Holes stopped in Limonite zone	0	0%
Holes stopped in Saprolite zone	57	21%
Holes stopped in Bedrock zone	212	79%
Holes with mineralisation	230	86%
Holes without mineralisation	39	14%

Table 7-2 shows that the percentage of drilling with mineralisation is 86% and without mineralisation is 14%. Determination of drilling that intersected mineralisation was determined using ore thickness ≥ 2 m with an average Ni grade ≥ 0.8%.

7.1.1. Drilling Method

The drilling method utilised Jacro 175 rigs with wire line drilling using HQ3-size triple-tube core-barrel and both tungsten carbide and diamond bits (HQ3 size 61.1 mm), plus MD 175 man-portable rigs using NQ-size single tube. Drilling involved approximately one metre core runs. All holes were drilled vertically through the limonite and saprolite zones into underlying bedrock. Each hole was completed when a minimum of 2 m of bedrock or waste was intersected.

Figure 7-1. Drilling Activities using Jacro-175 with Triple Tube Core-barrel

Source: PT TAS Exploration Drilling Report

Figure 7-2. Drilling Activities using MD-175 Man-portable with Single Tube Core-barrel

Source: PT TAS Exploration Drilling Report

7.1.2. Drill Hole Collar Location

All drill hole collars were surveyed initially with a Differential Global Positioning System ("DGPS") instrument and marked with a labeled wooden stake. At completion of drilling, the collar was surveyed accurately using a Sokia Total Station survey instrument. The exploration team used a unique grid system to identify the area, block number and hole number (**Figure 7-3**). All survey work is tied into the UTM WGS-84 grid 51S coordinate system.

At this exploration program, the drill hole spacing for outer Torete deposit is approximately 200 m by 200 m in the well drilled portions, and around 100 m by 100 m and up to 50 m by 50 m as infill drilling inside the area of Torete RTO block that already reported in year 2017. Drill hole spacing for the Buleleng deposit is variable, ranging from 200 m to 200 m and around 100 m by 100 m.

Figure 7-3. Surveying of Drill Hole Collar Locations

Source: PT TAS Exploration Drilling Report

A drill hole location plan for the Project is shown in **Figure 7-4 and Figure 7-5.**

Figure 7-4. 2018 Drill Hole locations at Buleleng

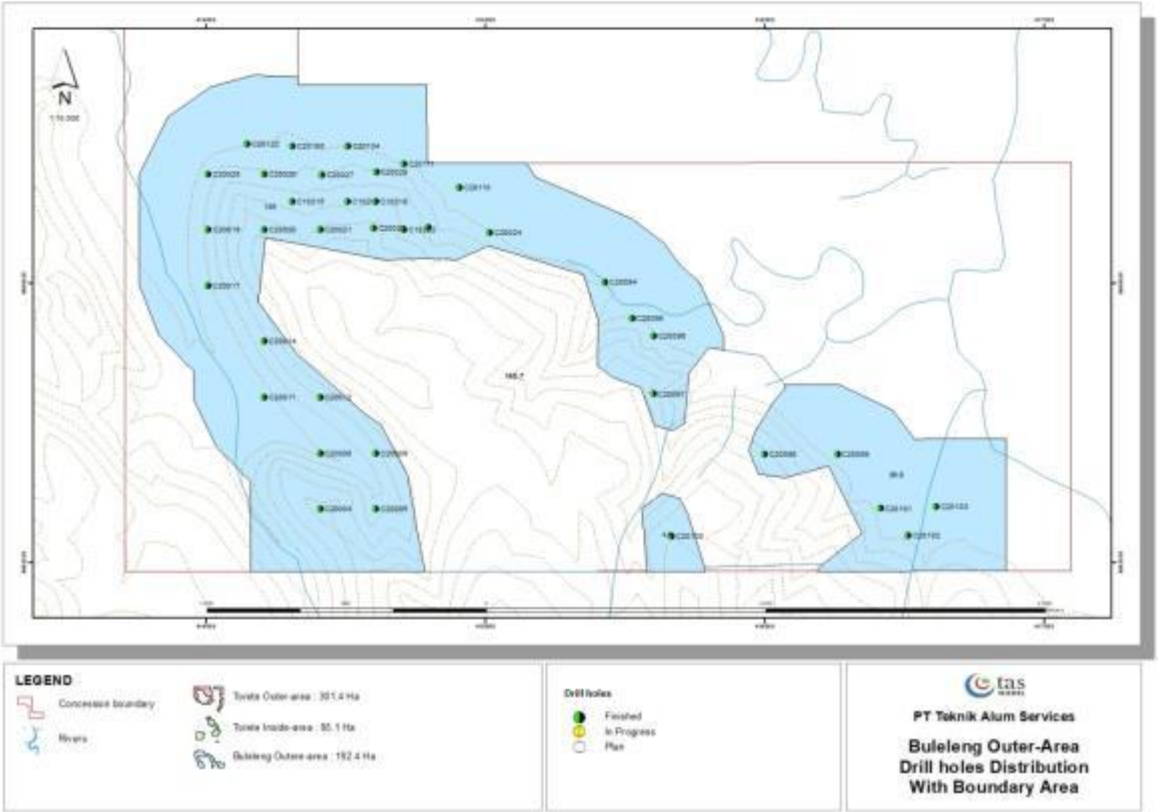
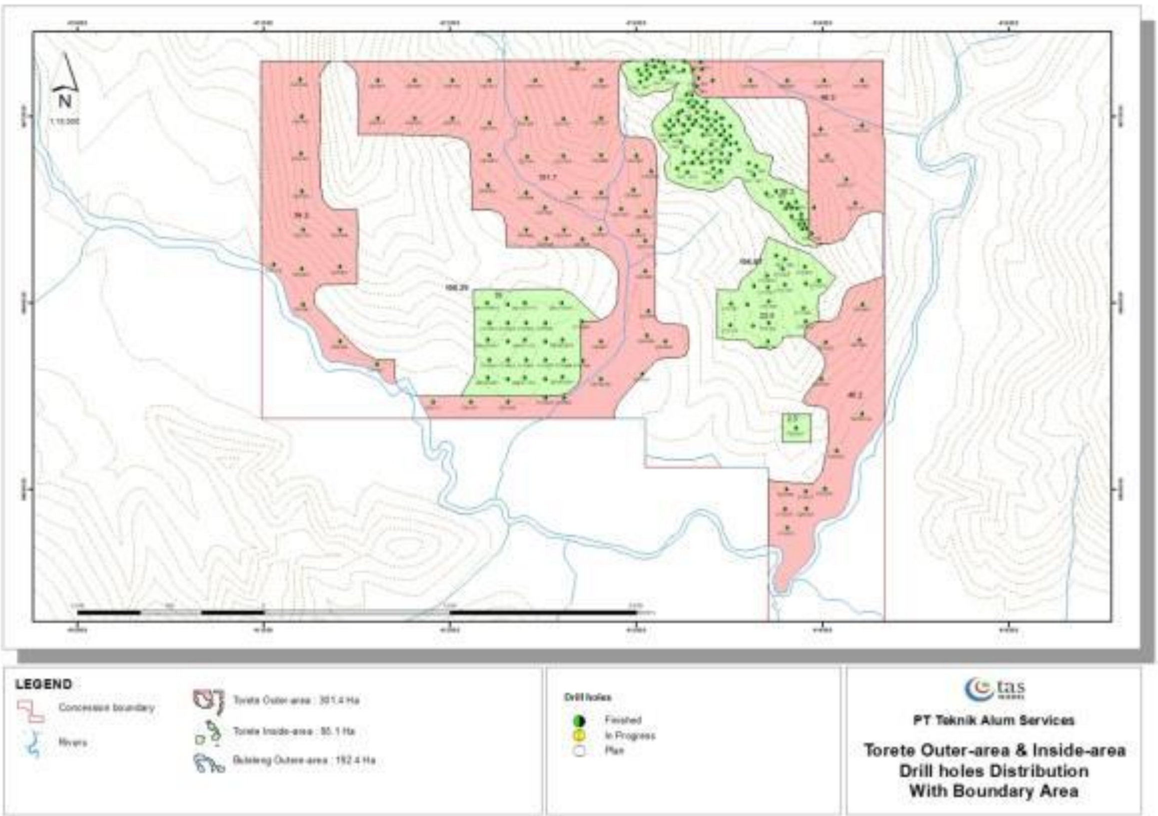


Figure 7-5. 2018 Drill Hole locations at Torete



7.1.3. Downhole Surveys

No downhole deviation surveys were undertaken as they were not considered necessary due to the shallow nature of the holes and associated minimal deviation.

7.2. Core Logging

7.2.1. Geological Logging

Logging is qualitative in nature; however lithological/weathering zone logging information can be checked with sample assays. All drill hole samples were geologically logged for criteria including weathering, mineralisation, lithology, structure, grain size and sample recovery.

All logging was carried out by a geologist at drilling site. All core samples were placed in wooden core boxes then photographed and logged. Minimum length of logged geological units was 15 cm with the core described over mostly one metre intervals using a standard logging form. Geological breaks were utilised to separate soft and hard material or different lithologies and characteristics.

Figure 7-6. Example logging form completed by geologist


PT. TEKNIK ALUM SERVICE
BULELENG - TORETE NICKEL PROJECT

FORM LOGGING
Revised:
Page: Of
Hole Information — Hole ID: C1000[illegible] — Deposit: Nikel laterite
Logger: [illegible]
Collar Coordinates: X Y Z
Truncation Flag: Yes: No:

From	To	Length (m)	Sample ID	Recov. Length	Material Code	Rock Code	Grain Size	Deposit	Weathering	Colour	Structure Primary	Structure Sec.	Mineral Primary	Mineral Sec.	Mineral Tertiary	Mag Suscept.	Total Fracture	RQD Length	Comment
0	1	1		1	lim		FG	Nil	1	RED			GTh	HMT					
1	2	1		1	lim		FG	Nil	1	RED			HMT	GTh					
2	3	1		1	lim		FG	Nil	1	RED			HMT	GTh					
3	4	1		1	lim		FG	Nil	1	RED			HMT		GTh				
4	5	1		1	lim		FG	Nil	1	RED			HMT		GTh				
5	6	1		1	lim		FG	Nil	1	RED			HMT		GTh				
6	7	1.15		1.15	lim		FG	Nil	1	RED			HMT		GTh				Swelling 15 cm
7	8	1		1	lim		FG	Nil	1	RED			HMT		GTh				
8	9	1		1	lim		FG	Nil	1	RED			HMT		GTh				
9	9.6	0.6		0.6	lim		FG	Nil	1	RED			HMT		GTh				9.00 - 9.60 m lim/9.60 - 10.00 m SAP
9.6	10	0.4		0.4	SAP		MG	low	2	BRN			SER	HMT					
10	10.6	0.6		0.6	SAP		MG	low	3	BRN			SER		HMT				10.00 - 10.60 m SAP / 10.60 - 11.00 m BRK
10.6	11	0.4		0.4	BRX	PDT	CG	low	3	BLK			PX		SER				
11	12	1		1	BRK	PDT	CG	low	3	BLK			PX		SER				
12	13	1		1	BRK	PDT	CG	low	3	BLK			PX		SER				
13	14	1		1	BRK	PDT	CG	low	3	BLK			PX		SER				

Source: PT TAS Exploration Drilling Report

Figure 7-7. Core logging by field geologist on drilling site

Source: PT TAS Exploration Drilling Report

7.2.2. Core Recovery

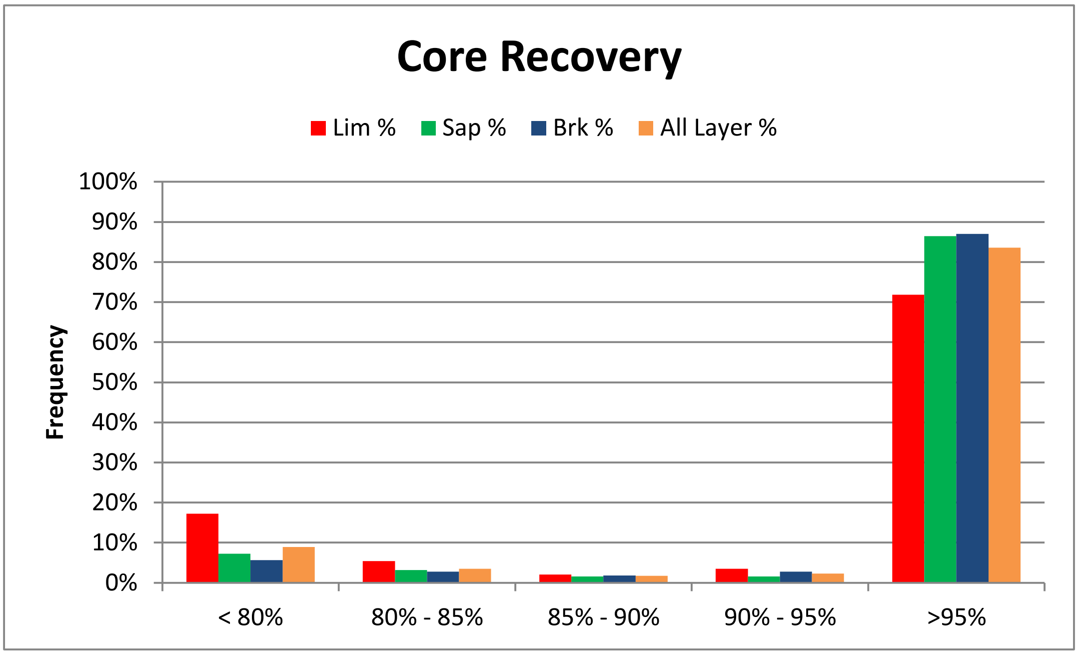
The core recovery was recorded by standard measurement of the core length divided by the run length. Where there was more than one material in the one metre interval, the approximate proportions of materials that show core loss and those that show core gain (swelling) were estimated. This was applied to determine a more accurate estimate of core recovery.

Minimum core recovery applied was 80%. If the recovery fell below 80% for three consecutive intervals, the hole was re-drilled not more than one metre away from the original collar location.

Drilling recovery is most important within mineralised zones, where a low drilling recovery may introduce a systematic bias as a consequence of selective loss of either ore or waste. Core recovery with greater than 90% indicates good recovery and representative samples.

The average core recovery for the Project is around 95% or greater. Results for recovery below 80% are mostly found in the top of the limonite zone (**Figure 7-8**).

Figure 7-8. Core recovery of each layer



Source: PT TAS Exploration Drilling Report

Figure 7-9. Example of Drill Core from the Project

Source: PT TAS Exploration Drilling Report

7.2.3. Sampling

Drill cuttings were sampled on predominately one metre intervals. The drill core was extracted from the tube after being drilled and laid inside wooden core trays. The drill cores were logged and photographed by a geologist at the drill site. After geological logging and documentation, all sample per one metre interval is put into a plastic bag and sent to preparation house for further process before analysis by XRF.

7.3. Bulk Density and Moisture Content

7.3.1. Methodology

Bulk density data for the Project was collected from drill core samples. A total of 231 drill core samples were measured for density and moisture content. Measurements were made using the Caliper and Water Displacement (Archimedes) method;

- Caliper method:
  - individual pieces of intact core (generally greater than 10 cm long) are selected;
  - the ends are cut perpendicular to the axis of the core;
  - the diameter (d) of the core is determined with a pair of calipers – it should be measured at several points and averaged;
  - the length (l) of the core is determined with a tape measure – it should be measured at several points and averaged;
  - the sample is weighed.
- Water Displacement (Archimedes) method involves measuring the volume of water displaced as the sample is lowered into it. Samples measured by caliper were used:
  - Sample was wrapped with plastic;
  - weighing the sample in air;
  - and immersed in water, the difference in weight equating to the volume of water displaced (Archimedes' Principle);
  - The change in water volume was then recorded and the wet density was calculated by dividing the weight of the core by the volume of the displaced water in the measuring tube;
  - The moisture content was determined later in the on-site laboratory before the sample was prepared for analysis.
- Determination of moisture content (MC) involved weighing before and after drying in an oven with temperature 105^{o} C. This releases the free water from the interstitial pore spaces and the moisture content is calculated from the difference in mass of the sample before and after drying.
  - Weighing the pan;
  - Weighing the pan with sample (wet weight);
  - Drying on temperature 105 degrees C for 8 hours;
  - Weighing the pan with sample (dry weight);
  - reporting MC with respect to wet mass;

$$MC : 100\,x\,\frac{(Wet\ weight - Dry\ weight)}{Wet\ Weight}$$

A summary of core density samples measured is shown in **Table 7-3** and examples of the process are shown in **Figure 7-10.**

Table 7-3. Summary of Core Density Samples

Type	Number of Samples	Buleleng			Torete		
		Limonite	Saprolite	Bedrock	Limonite	Saprolite	Bedrock
Core Samples	231	23	48	4	59	73	24

Figure 7-10. On-site core density measurement activities

Source: PT TAS Exploration Drilling Report

7.3.2. Caliper Wet Density Results

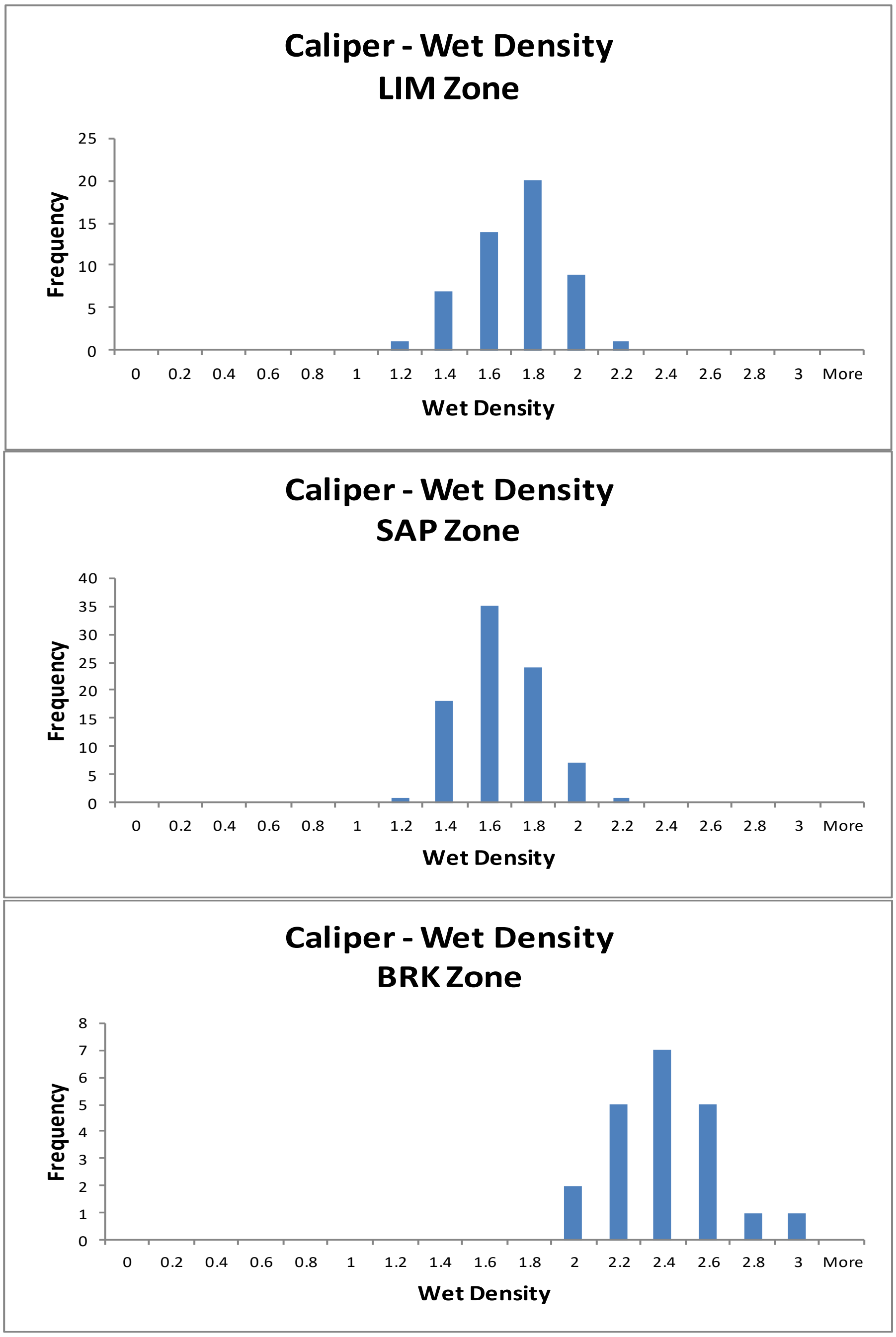
A statistical review of caliper data is shown in **Table 7-4** and histograms of the data for limonite, saprolite and bedrock are shown in **Figure 7-11**.

Table 7-4. Statistical summary of Caliper Wet Density

Caliper - Wet Density	LIM	SAP	BRK
Mean	**1.6224999**	**1.5564565**	**2.3186172**
Standard Error	0.028048	0.0198255	0.0563928
Median	1.6466053	1.5394229	2.3163695
Standard Deviation	0.2022568	0.1838543	0.2584244
Sample Variance	0.0409078	0.0338024	0.0667832
Kurtosis	0.2595496	-0.4864629	0.5803012
Skewness	-0.4167216	0.2397508	0.6293276
Range	0.9728722	0.8267005	1.037735
Minimum	1.0588246	1.1828065	1.9358563
Maximum	2.0316969	2.009507	2.9735913
Sum	84.369996	133.85526	48.690961
Count	52	86	21

Source: PT TAS Exploration Drilling Report

Figure 7-11. Histogram of available data Caliper Wet Density each zone



Source: PT TAS Exploration Drilling Report

7.3.3. Archimedes Wet Density Results

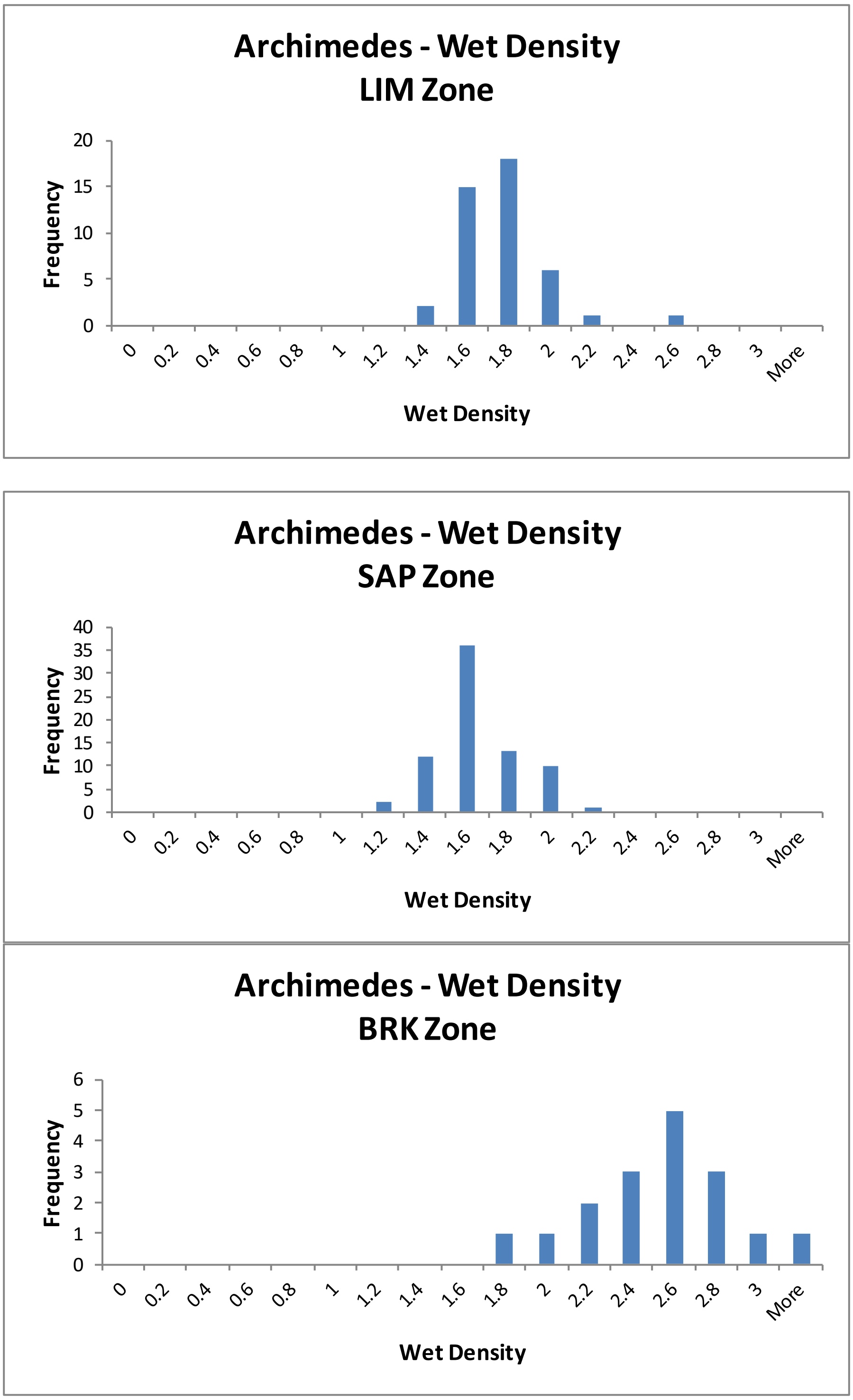
A statistical review of Archimedes data is shown in **Table 7-5** and histograms of the data for limonite, saprolite and bedrock are shown in **Figure 7-12**.

Table 7-5. Statistic summary of available data Archimedes Wet Density

Archimedes – Wet Density	LIM	SAP	BRK
Mean	**1.668190539**	**1.568907465**	**2.413208868**
Standard Error	0.034006914	0.022271843	0.081760785
Median	1.635662304	1.545977011	2.428571429
Standard Deviation	0.220389994	0.207737925	0.337108353
Sample Variance	0.048571749	0.043155046	0.113642042
Kurtosis	2.871052717	-0.083864989	0.15248883
Skewness	1.203887167	0.424572848	-0.046724315
Range	1.160422871	0.957665031	1.338107737
Minimum	1.304794521	1.153094463	1.734908136
Maximum	2.465217391	2.110759494	3.073015873
Sum	70.06400262	136.4949495	41.02455075
Count	**42**	**87**	**17**

Source: PT TAS Exploration Drilling Report

Figure 7-12. Histogram of Archimedes Wet Density

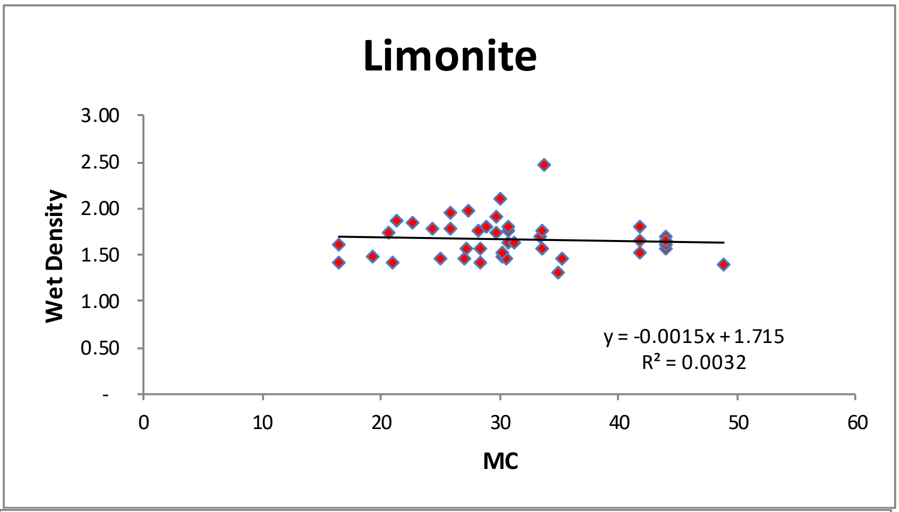


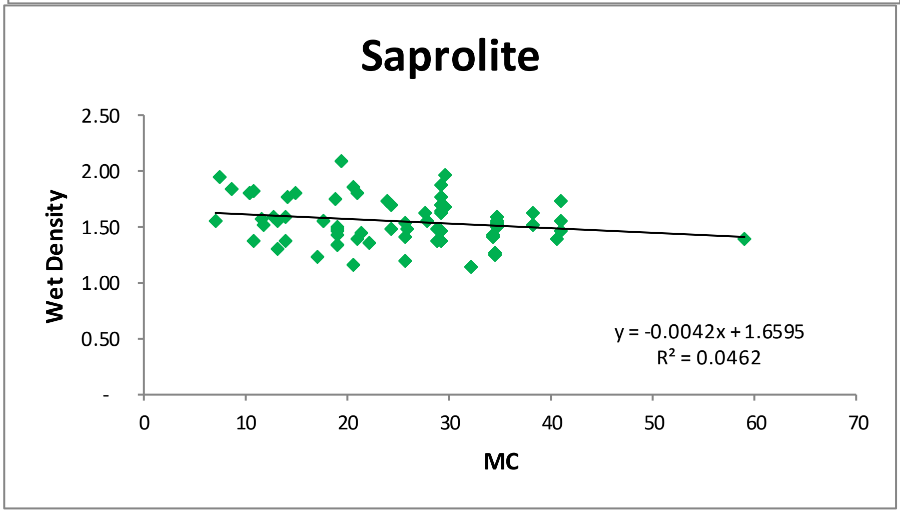
Source: PT TAS Exploration Drilling Report

7.3.4. Moisture Results

Moisture determinations for limonite and saprolite generally varied from 10-50% (**Figure 7-13**), whereas moisture contents for bedrock were generally less than 10%, as expected.

Figure 7-13. Moisture vs Wet Density relationship





Source: PT TAS Exploration Drilling Report

7.3.5. Density and Moisture Assessment

The databases were validated to determine if there were any invalid or unusual data entries. This was conducted for all numeric fields by determining the minimum, maximum, average values, Ni, Fe and MgO results, moisture content and dry density value.

In the Limonite zone; samples with MgO >10%) and Fe <30% were excluded. All data without MC results were also excluded.

In the Saprolite zone; samples with MgO <10% and Fe >30% were excluded. All data without MC results were also excluded.

Validated results are shown in **Table 7-6** for caliper and **Table 7-7** for Archimedes data. **Figure 7-14** presents the comparison between the dry bulk density estimates for limonite and saprolite completed using both methods and illustrates there is a good agreement between the two methods.

Table 7-6. Density and moisture statistics using the Caliper method

Method	Deposit	Domain	Data Type	No. of Samples Used	Mean	Minimum	Maximum	Standard Deviation	Sample Variance
CALIPER	Buleleng	Limonite	Wet Density t/m3	9	**1.70**	1.627	1.861	0.070	0.005
			Dry Density t/m3	9	**1.01**	0.923	1.232	0.104	0.011
			Moisture %	9	**40.91**	31.179	43.953	4.908	24.087
		Saprolite	Wet Density t/m3	4	**1.68**	1.565	1.818	0.105	0.011
			Dry Density t/m3	4	**1.04**	0.988	1.079	0.044	0.002
			Moisture %	4	**37.83**	34.718	40.939	3.592	12.900
		Bedrock	Wet Density t/m3	3	**1.94**	2.564	2.192	0.329	0.108
			Dry Density t/m3	3	**1.78**	2.522	2.084	0.388	0.150
			Moisture %	3	**1.65**	8.218	5.233	3.323	11.040
	Torete	Limonite	Wet Density t/m3	5	**1.70**	1.597	1.809	0.095	0.009
			Dry Density t/m3	5	**1.21**	1.145	1.287	0.060	0.004
			Moisture %	5	**29.16**	27.212	30.712	1.535	2.357
		Saprolite	Wet Density t/m3	6	**1.69**	1.523	1.915	0.144	0.021
			Dry Density t/m3	6	**1.33**	1.102	1.516	0.177	0.031
			Moisture %	6	**22.56**	13.051	28.772	5.679	32.248
		Bedrock	Wet Density t/m3	14	**2.28**	1.936	2.974	0.277	0.077
			Dry Density t/m3	14	**2.15**	1.655	2.893	0.306	0.094
			Moisture %	14	**5.63**	0.642	14.495	4.081	16.653

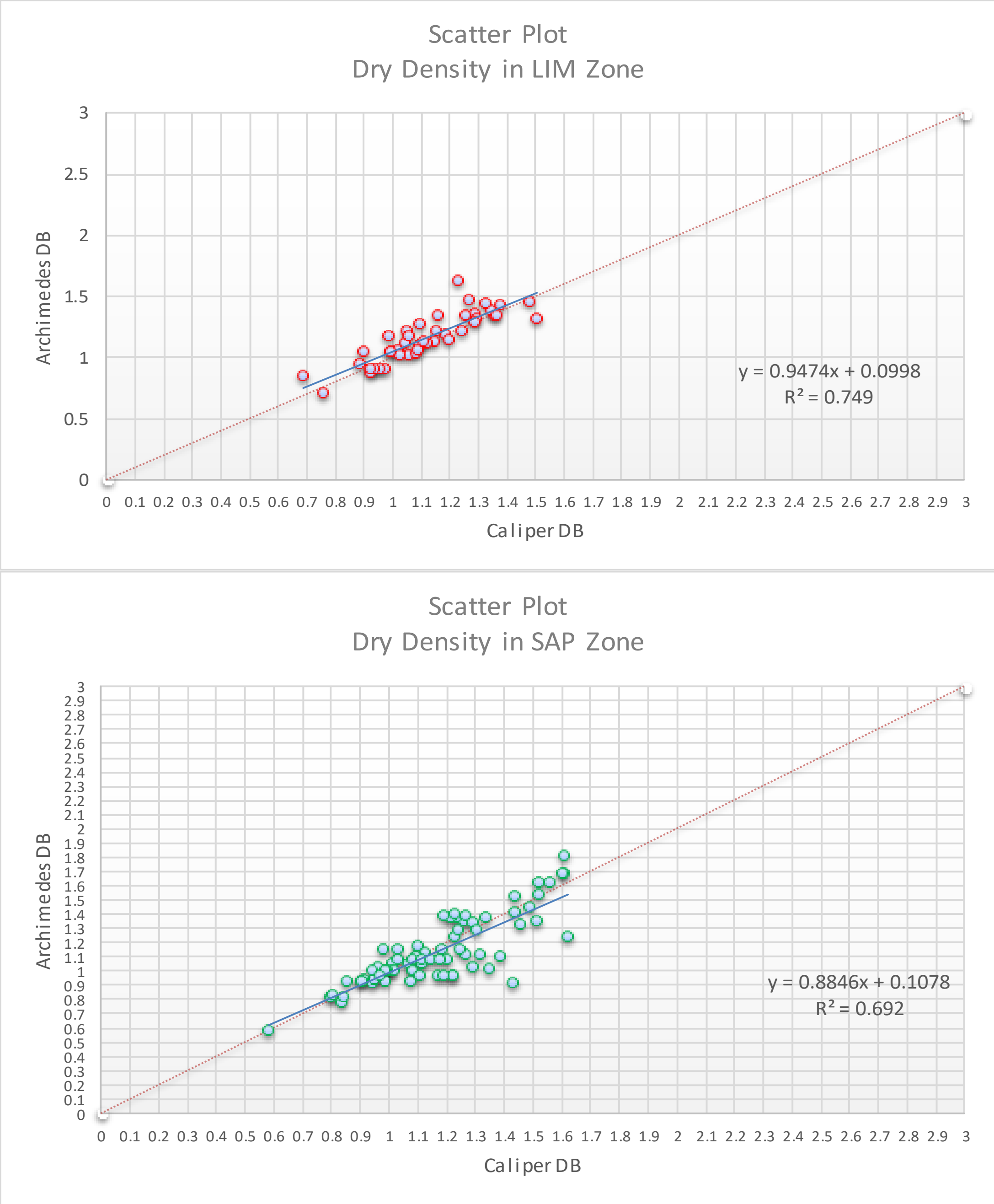
Source: PT TAS Exploration Drilling Report

Table 7-7. Density and moisture statistics using the Archimedes method

Method	Deposit	Domain	Data Type	No. of Samples Used	Mean	Minimum	Maximum	Standard Deviation	Sample Variance
ARCHIMEDES	Buleleng	Limonite	Wet Density t/m^3	12	**1.71**	1.519	2.465	0.251	0.063
			Dry Density t/m^3	12	**1.03**	0.873	1.632	0.211	0.044
			Moisture %	12	**39.75**	31.179	43.953	5.104	26.052
		Saprolite	Wet Density t/m^3	28	**1.52**	1.202	1.965	0.153	0.023
			Dry Density t/m^3	28	**1.10**	0.862	1.419	0.152	0.023
			Moisture %	28	**27.41**	13.863	40.939	8.750	76.568
		Bedrock	Wet Density t/m^3	2	**2.61**	2.138	3.073	0.661	0.437
			Dry Density t/m^3	2	**2.52**	2.014	3.022	0.713	0.509
			Moisture %	2	**3.74**	1.653	5.829	2.953	8.719
	Torete	Limonite	Wet Density t/m^3	3	**1.73**	0.087	0.008	1.628	1.795
			Dry Density t/m^3	3	**1.20**	0.060	0.004	1.128	1.244
			Moisture %	3	**30.71**	0.000	0.000	30.712	30.712
		Saprolite	Wet Density t/m^3	16	**1.44**	1.153	1.807	0.192	0.037
			Dry Density t/m^3	16	**1.09**	0.577	1.427	0.251	0.063
			Moisture %	16	**24.14**	10.675	58.914	12.293	151.129
		Bedrock	Wet Density t/m^3	14	**2.37**	1.735	2.895	0.303	0.092
			Dry Density t/m^3	14	**2.24**	1.592	2.809	0.338	0.114
			Moisture %	14	**5.63**	0.642	14.495	4.081	16.653

Source: PT TAS Exploration Drilling Report

Figure 7-14. Comparison of Caliper and Archimedes methods



Source: PT TAS Exploration Drilling Report

8. DEPOSIT CHARACTERISTICS

8.1. Physical Characteristics

8.1.1. Limonite Zone

The limonite zone has average of 3.24 m, which consists of the various iron oxides. The upper part of the limonite zone is a top soil. This layer comprises occasional iron cap as well as organic material derived from the breakdown of plants and the networks of fine plant roots. The chemical composition of this layer is characterised by low Ni and MgO contents. The humic material forms a thin horizon of generally less than 1 m thickness and is absent in many places.

The limonite layer follows immediately below the topsoil and consists of deeply weathered material. The upper part of the limonite, sometimes called Red Limonite, is a red-brown or more often, chocolate-brown clayey material with no internal structures or fragments. The material consists entirely of fine-grained minerals. This zone is rich in hematite and less hydrated Fe oxides (goethite).

The lower part of this zone, sometimes called Yellow Limonite, is yellow-brown to orange coloured and generally has a more compact appearance than the Red Limonite. The Yellow Limonite rarely contains coarse fragments of weathered material. This zone is rich in hydrated Fe oxides (goethite).

Locally, the upper part of the limonite layer hosts silica boulders and clay material and can influence the chemistry. Some nickel is tied to the limonite/goethite structure along with manganese and chromite.

Figure 8-1. Limonite zone

Source: PT TAS Exploration Drilling Report

8.1.2. Saprolite Zone

The saprolite zone has an average of 4.75 m. Rock texture can be seen where fresh boulders are surrounded by a matrix of highly weathered material (saprolite). The highest grade mineralisation typically forms as a result supergene enrichment of Ni in the saprolite layer. Garnierite is present in this layer.

The Saprolite zone consists of two categories i.e. Soft Saprolite and Rocky Saprolite.

Soft Saprolite has a yellow to greenish-white colour and typically contains abundant silica boxworks. This material generally contains less than 20% fragments of weathered bedrock. The fragments often have a rounded shape and vary from centimetre-metre size. The soft saprolite easily breaks up on handling and disintegrates into gritty material. The potential for upgrading of the soft saprolite by screening may be significant, as most nickel is confined to the fine fractions.

Rocky saprolite is competent dark green to greyish rock of weathered peridotite and with moderate saprolite alteration, occurring mostly along fractures. Primary olivine and orthopyroxene exhibit patchy replacement by fine-grained hydrated iron oxides and amorphous silica. Granular textures are well preserved, and the material consists of cores of angular fresh rock (20–50%) with successive rims of more and more strongly altered material. Silica boxwork is rarely seen in the hard saprolite but a bright green garnierite staining can often be seen on fracture planes.

Figure 8-2. Saprolite zone (Soft and Rocky Saprolite)

Source: PT TAS Exploration Drilling Report

8.1.3. Bedrock Zone

Bedrock is at the bottom of the profile and shows traces of incipient laterite weathering. Most drilling has reached the fresh bedrock, but there are some holes that did not because of thick saprolite and limonite accumulation. The average interval of bedrock drilled before the holes were terminated was 3.3 m.

Bedrock has a dark green to dark brown colour and consists of massive to fractured, varyingly serpentinised peridotite, whose interface with the weathered profile can be highly irregular with numerous peaks and troughs. Bedrock is commonly exposed along rivers and creeks and in major landslides.

Figure 8-3. Bedrock zone

Source: PT TAS Exploration Drilling Report

8.2. Geochemical Characteristics

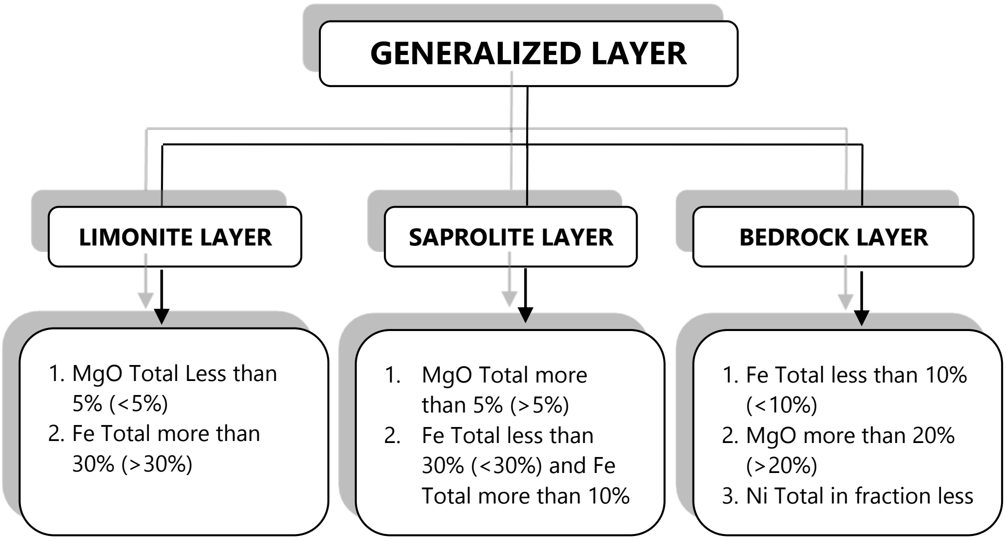
8.2.1. Material Type Classification

The classification of weathered material is based on nickel, iron, and magnesium contents and is also largely based on nickel and iron and position in the profile, with the exception of bedrock, which is based upon nickel and iron content. Interpretations of analytical data from the core drilling provide a consistent set of lithological records across all deposit areas. Experience has shown that classification of the constituent materials, particularly identifying the contacts, within the laterite profile from visual inspection of drill core cuttings is relatively unreliable unless supplemented by the chemical analyses.

8.2.2. Layer Verification

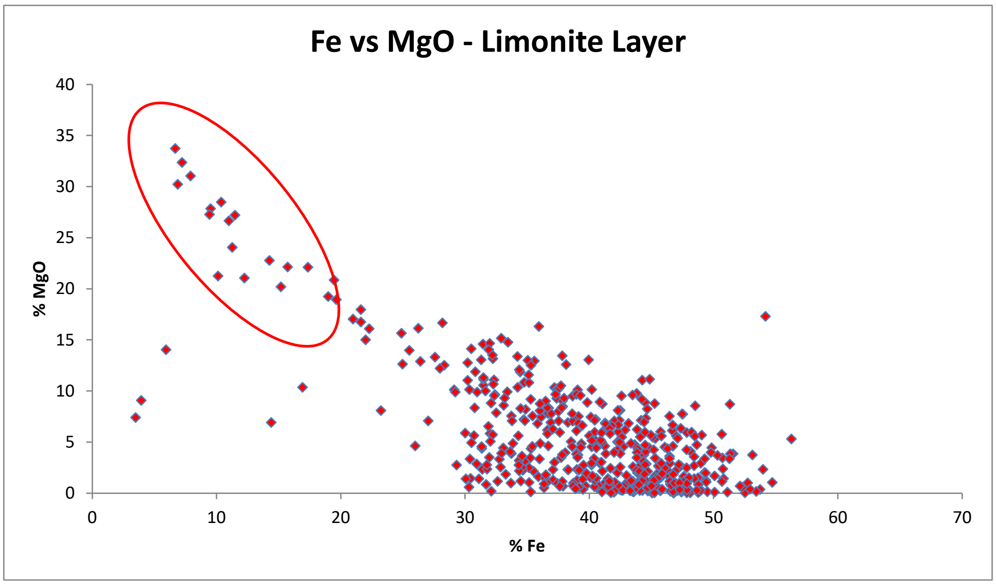
Layer verification is an important step during validation process. Geologist will justify and generalised the layer chemistry into geological layer based on geological characteristics as per visual observation. The criteria for defining layers can be seen in **Figure 8-4.**

Figure 8-4. General layer laterite classification of the project



In addition to the criteria described in **Figure 8-4**, the geologists must have a good understanding and good geological interpretation to assign material types. **Figure 8-5** shows the distribution between Fe vs MgO in the Limonite layer. Outliers (red circle) in this zone are associated with silica boulders or floating peridotite boulders that have mixed with Limonite material.

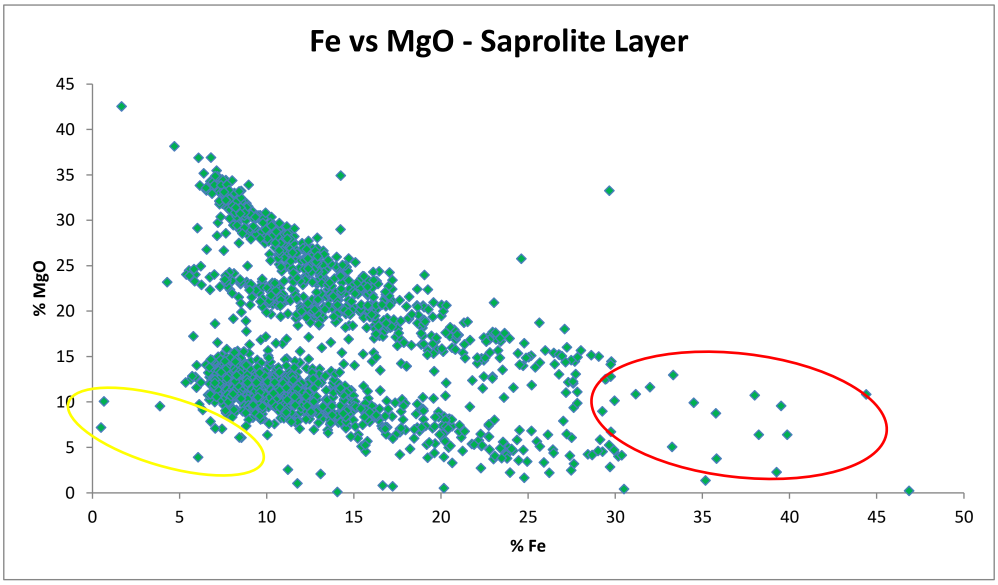
Figure 8-5. Fe vs MgO in Limonite layer



Source: PT TAS Exploration Drilling Report

Figure 8-6 shows the distribution between Fe vs MgO in Saprolite layer. Some samples that have low MgO and Fe content (yellow circle) were confirmed as boxwork and silica vein material in the saprolite layer. Samples inside the red circle are in the transition zone and have high Fe and low MgO but are part of the saprolite layer. The figure also shows some differentiation within the saprolite due to some samples that have high Ni content but low Fe and logged as Rocky Saprolite.

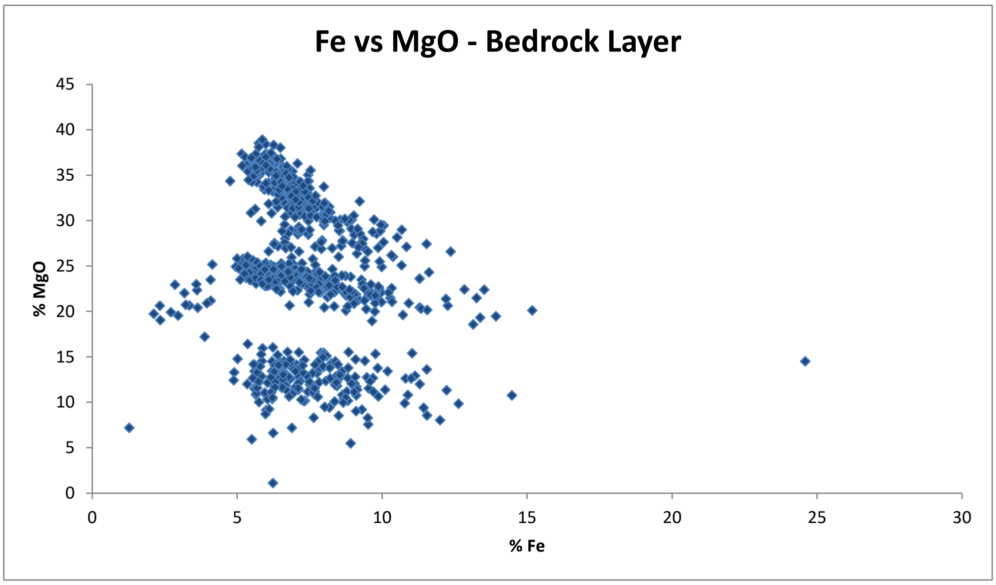
Figure 8-6. Fe vs MgO in Saprolite layer



Source: PT TAS Exploration Drilling Report

Figure 8-7 shows the distribution of Fe vs MgO in bedrock. There are some outlier values which are still acceptable as a transition from saprolite into bedrock. Typically, bedrock has Ni values less than approximately 0.8% and Fe values less than 10%. Any samples that have Ni and Fe less than these values were flagged and visually checked to verify that the lithology coding is correct.

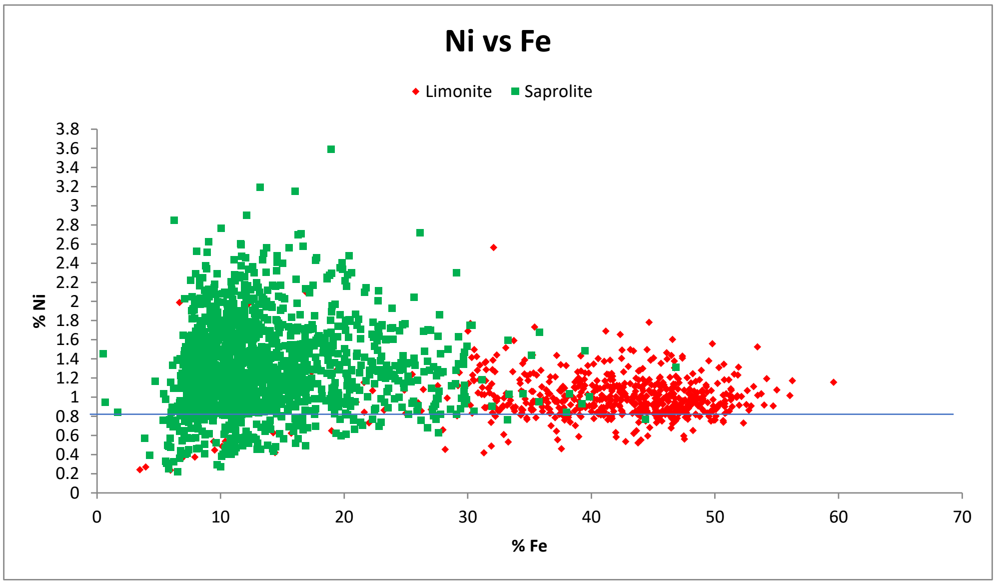
Figure 8-7. Fe Vs MgO in Bedrock



Source: PT TAS Exploration Drilling Report

Figure 8-8 shows the distribution of Ni vs Fe in the limonite and saprolite layer. High Ni content in limonite is still acceptable because in the transition zone garnierite could be present with high Fe. The low Fe content in the limonite zone is caused by floating boulders or silica boxwork.

Figure 8-8. Ni Vs Fe in Limonite and Saprolite layer

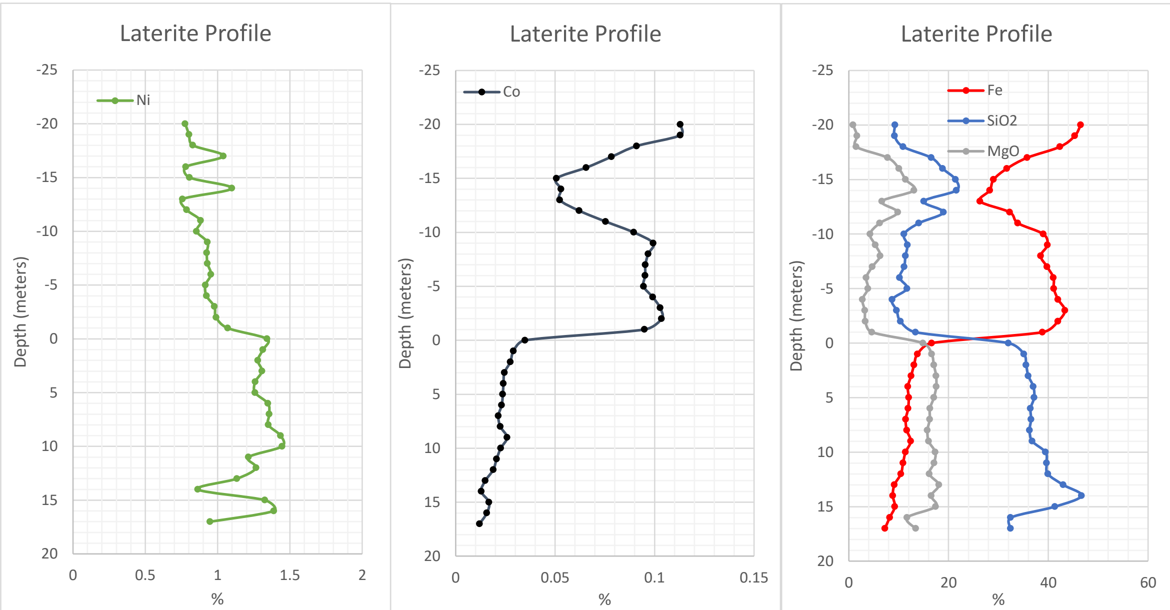


Source: PT TAS Exploration Drilling Report

8.2.3. Chemistry through the laterite profile

Figure 8-9 shows the typical chemistry profile (Ni, Co, Fe, MgO and SiO_2) through the laterite profile. Ni enrichment is at the top of saprolite and decreases into bedrock, Co enrichment is at the bottom of limonite. Fe is higher in the top of the limonite profile and decreases into saprolite. SiO_2 and MgO are lower at the top and increase into the bottom of saprolite.

Figure 8-9. Geochemical laterite profile on PT TAS, showing elements of Ni, Co, Fe, SiO2, and MgO vs Depth

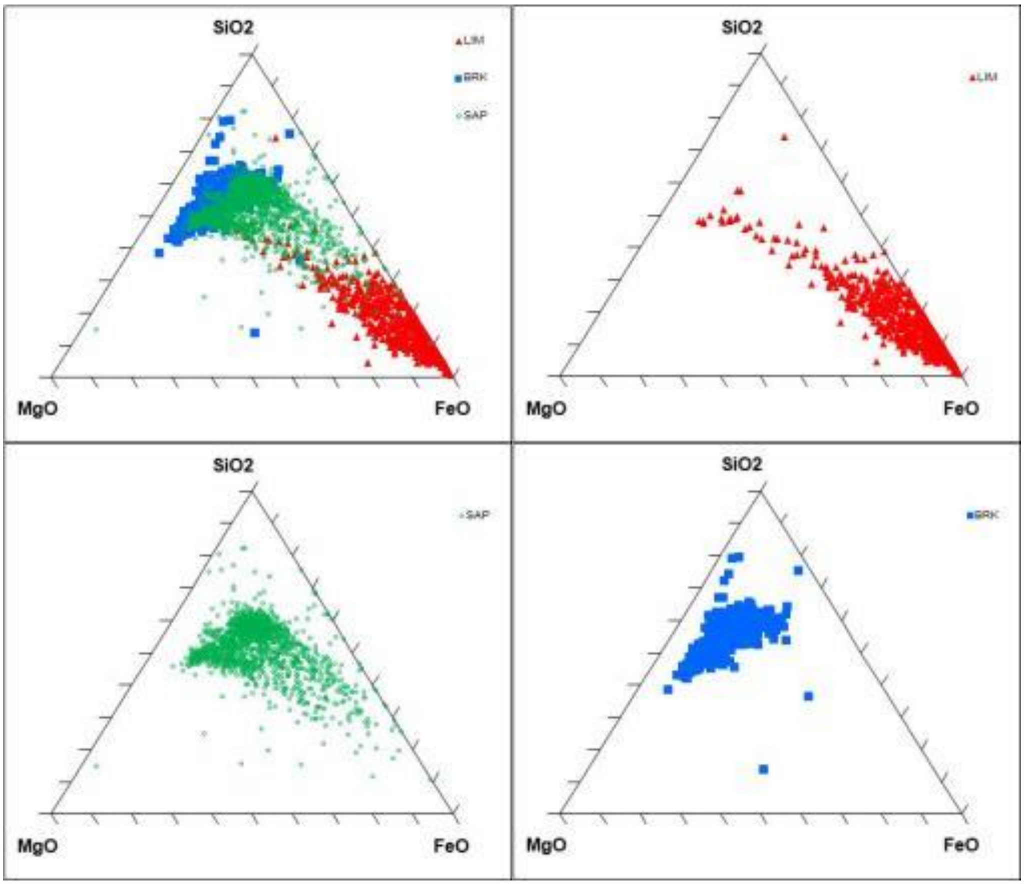


Source: PT TAS Exploration Drilling Report

8.2.4. Ternary Diagram

From triangular plot diagrams, lateritisation based on MgO, and SiO_2 contents compared to FeO can be distinguished. **Figure 8-10** show the ternary diagram for FeO-MgO-SiO_2 system in limonite, saprolite and bedrock, showing that MgO and SiO_2 are progressively leached with Fe remaining in the system. Fe-oxide consists of goethite and hematite.

Figure 8-10. Ternary plot of drill-core samples using the four main discriminators of the zones classification, FeO, MgO, and SiO2 (n = 3005). A: All zones. The arrow indicates a general chemical trend in a laterite profile from bedrock, saprolite to limonite. B: Limonite zone samples (n = 627). C: Saprolite zone samples (n = 1552). D: Bedrock zones samples (n = 826).



Source: PT TAS Exploration Drilling Report

9. SAMPLING AND ANALYSIS

9.1. Methodology

All sample preparation was completed according to the standard JIS M 8109:1996 Garnierite Nickel Ores - Methods for Sampling, Sample Preparation, and Determination of Moisture Content. This standard is widely used in the Indonesian nickel industry as best practice.

All samples were prepared and analysed at the on-site laboratory for each deposit. This laboratory is operated by PT TAS and is therefore not independent. No formal accreditation of the laboratory has been received. The laboratory routinely performs checks on its sample preparation and analytical methods, which are described in this IQPR 2.

9.1.1. Sub-Sampling and Sample Preparation

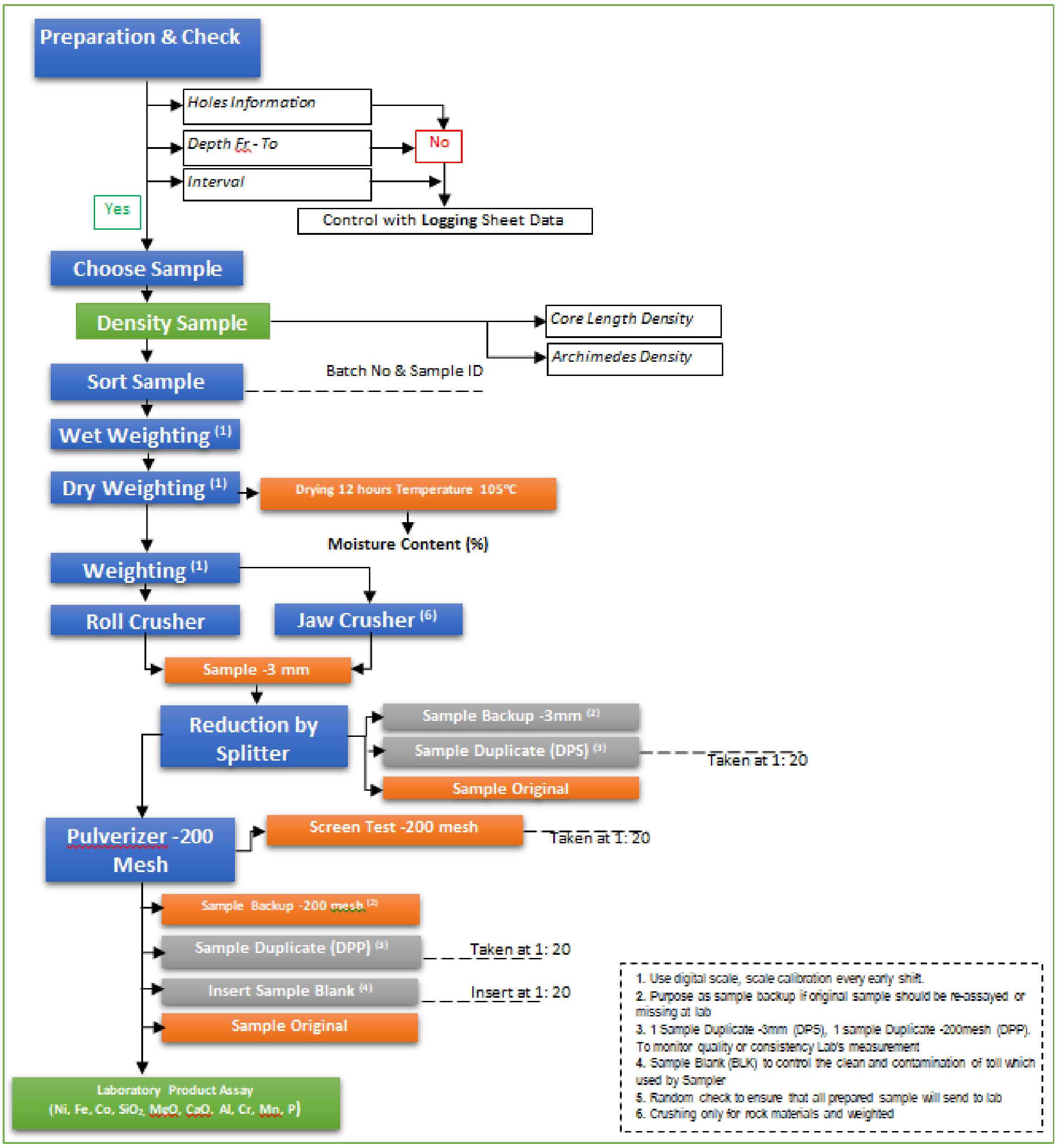
The same sub-sampling techniques and sample preparation methods were used for the Buleleng and Torete deposits. The standard JIS M 8109:1996 involved weighing a wet sample of around 5 kg in size then drying for twelve hours at 105^{o} C. After drying, the sample was re-weighed to obtain the dry weight from which the moisture content was calculated later. The sample was then screened and split to obtain -6 inch, and +6-inch size fractions. Each size fraction was then weighed. All samples of -6 inch and +6 inch were crushed to -10 mm and then to -3 mm size fractions. The sample was split to obtain an approximate 500 g sample.

One in every twenty samples was taken as a duplicate sample. The sample was then pulverised to a -200-mesh size fraction, manually mixed and reduced using a 2 x 3 matrix. One in every twenty sample pulps was taken as a duplicate sample. Approximately 100 g of the sample was sent to the on-site laboratory for analysis with the remaining 400 g sample retained as backup and for future analysis.

Samples were then converted to a pressed powder using a manual hand pressing process.

A flow chart of the sample preparation procedure is shown in **Figure 9-1** with sample preparation activities shown in Figure **9-2.**

Figure 9-1. Flow Chart of Sample Preparation



Source: PT TAS Exploration Drilling Report

Figure 9-2. On-site Sample Preparation Activities

Source: PT TAS Exploration Drilling Report

9.1.2. Sample Analysis

The pressed powder was assayed using the Energy Dispersive X-Ray Fluorescence ("EDXRF") method of analysis. Assaying was conducted using the Rigaku EDXRF instrument. Calibrations for the instruments were carried out on a regular basis.

Figure 9-3. Internal Laboratory using Rigaku EDXRF Instrument Activities

Source: PT TAS Exploration Drilling Report

9.2. Quality Assurance and Quality Controls

Sample QA/QC procedures applied consisted of internal standards, internal duplicates, internal blanks, certified reference materials (“CRMs”) and a program of external checks at two umpire laboratories (**Table 9-1**).

Table 9-1. Summary of QA/QC Data

Sample Type	Total Samples
Internal Samples Standard	
- *CAL01*	35
- *CAL05*	37
- *CAL31*	38
- *CAL34*	38
Certified Reference Materials	
- *OREAS 181*	25
- *OREAS 186*	25
- *OREAS 190*	25
- *OREAS 193*	25
- *OREAS 194*	25
Internal Duplicates samples	140
Internal Blank samples	137
External Check	100
Total	**650**

9.2.1. Internal Standard Samples

A total of 148 internal standard samples were analysed from both deposits. Internal standard samples were inserted by the on-site laboratory at a frequency of one in every twenty samples. A total of four different standard samples were used for the Project. All standard samples used were sourced from the deposits in the Project area then sent to the Intertek Jakarta laboratory ("Intertek") for rigorous assaying and certification as a local standard for the Project. Intertek is an independent, certified commercial laboratory.

A statistical summary of each standard used is shown in **Table 9-2 to Table 9-5**, while Shewhart plots for standard CAL01 is shown in **Figure 9-4.**

The standard results for Ni and Fe for the both deposits combined indicates that most results for all standards are inside the control limits and therefore acceptable. There are only a small number of samples that fall outside the control limits.

Table 9-2. Statistical Summary of Standard Samples – CAL01

Standard CAL01	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	2.13	0.028	15.1	0.55	20.74	41.67
Mean	1.960	0.026	13.774	0.376	21.379	39.241
STDEV	0.080	0.002	0.231	0.035	2.139	1.180
CV	4.057	6.074	1.676	9.258	10.005	3.006
+3d	2.198	0.031	14.466	0.481	27.797	42.781
+2d	2.119	0.029	14.235	0.446	25.658	41.601
-2d	1.801	0.023	13.312	0.307	17.101	36.882
-3d	1.721	0.021	13.081	0.272	14.962	35.702
Max	2.105	0.030	14.267	0.446	25.090	41.211
Min	1.700	0.020	13.311	0.322	18.457	36.909
Range	0.405	0.010	0.956	0.124	6.633	4.302
Bias	7.99%	6.73%	8.78%	31.56%	-3.08%	5.83%
Total sample	**35**	**35**	**35**	**35**	**35**	**35**
Count sample error	1	1	0	0	0	0
% samples error	**3%**	**3%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**97%**	**97%**	**100%**	**100%**	**100%**	**100%**

Source: PT TAS Exploration Drilling Report

Table 9-3. Statistical Summary of Standard Samples – CAL05

Standard CAL05	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	1.75	0.031	15.06	0.61	19.99	41.36
Mean	1.627	0.027	13.839	0.430	21.817	40.023
STDEV	0.044	0.001	0.190	0.036	1.746	1.263
CV	2.713	5.057	1.373	8.368	8.003	3.154
+3d	1.760	0.031	14.409	0.538	27.055	43.810
+2d	1.716	0.030	14.219	0.502	25.309	42.548
-2d	1.539	0.024	13.459	0.358	18.325	37.498
-3d	1.495	0.023	13.269	0.322	16.579	36.235
Max	1.699	0.030	14.149	0.493	24.630	41.998
Min	1.461	0.025	13.502	0.328	19.049	37.254
Range	0.238	0.005	0.647	0.165	5.581	4.744
Bias	7.01%	12.99%	8.11%	29.52%	-9.14%	3.23%
Total sample	**37**	**37**	**37**	**37**	**37**	**37**
Count sample error	1	0	0	0	0	0
% samples error	**3%**	**0%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**97%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: PT TAS Exploration Drilling Report

Table 9-4. Statistical Summary of Standard Samples – CAL31

Standard CAL31	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	1.32	0.037	20.48	0.9	10.64	42.47
Mean	1.165	0.032	18.041	0.719	18.062	38.005
STDEV	0.044	0.001	0.247	0.032	0.922	1.686
CV	3.751	4.341	1.368	4.409	5.103	4.437
+3d	1.296	0.037	18.782	0.814	20.827	43.064
+2d	1.253	0.035	18.535	0.782	19.906	41.378
-2d	1.078	0.030	17.548	0.655	16.219	34.632
-3d	1.034	0.028	17.301	0.624	15.297	32.946
Max	1.243	0.035	18.582	0.778	19.499	41.742
Min	1.007	0.030	17.583	0.649	15.800	35.302
Range	0.236	0.005	0.999	0.129	3.699	6.440
Bias	11.73%	12.30%	11.91%	20.13%	-69.76%	10.51%
Total sample	**38**	**38**	**38**	**38**	**38**	**38**
Count sample error	1	0	0	0	0	0
% samples error	**3%**	**0%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**97%**	**100%**	**100%**	**100%**	**100%**	**100%**

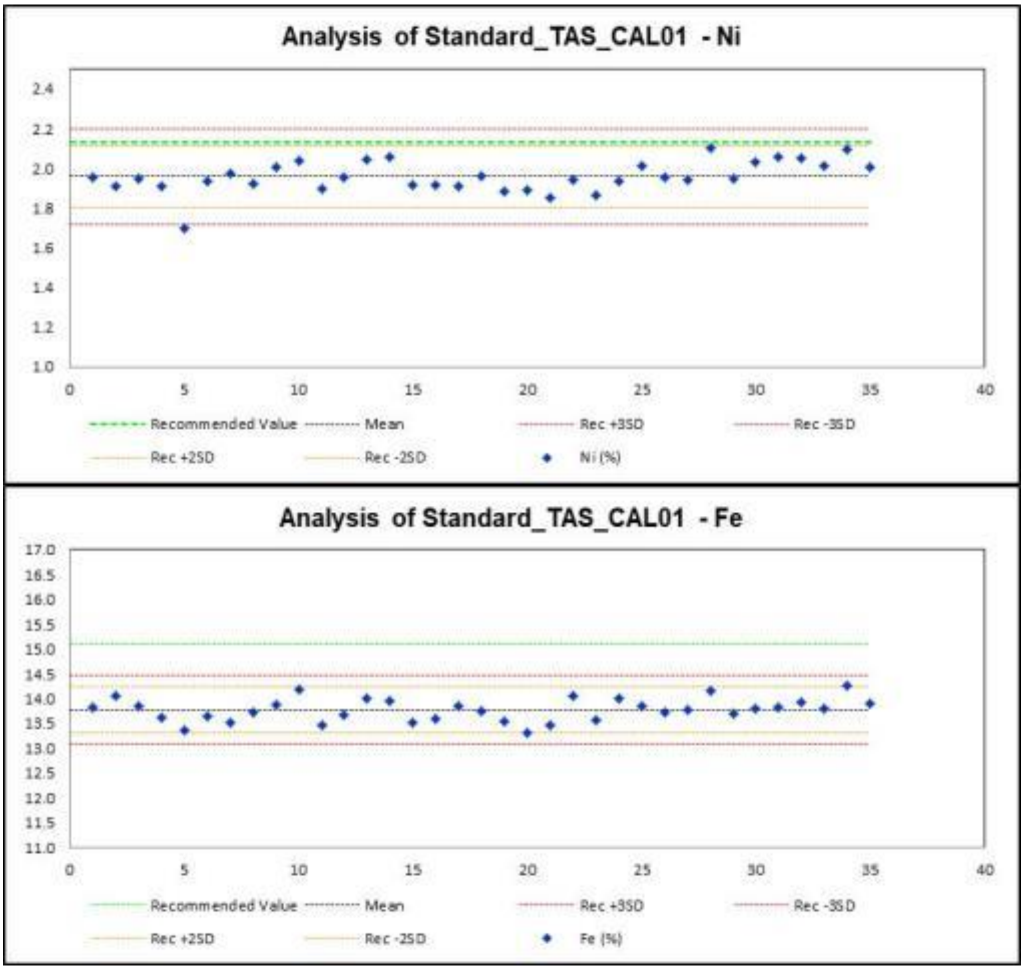
Source: PT TAS Exploration Drilling Report

Table 9-5. Statistical Summary of Standard Samples – CAL34

Standard CAL34	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	0.812	0.062	38.24	0.04	1.19	10.38
Mean	0.725	0.059	35.661	-0.005	6.114	11.431
STDEV	0.047	0.004	0.649	0.040	1.403	1.234
CV	6.440	6.237	1.821	-736.871	22.952	10.794
+3d	0.865	0.070	37.609	0.115	10.324	15.132
+2d	0.818	0.066	36.960	0.075	8.920	13.898
-2d	0.631	0.051	34.362	-0.086	3.307	8.963
-3d	0.585	0.048	33.712	-0.126	1.904	7.729
Max	0.791	0.065	36.799	0.068	8.919	13.891
Min	0.635	0.051	33.870	-0.069	3.223	9.361
Range	0.156	0.014	2.929	0.137	5.696	4.530
Bias	10.76%	5.56%	6.74%	113.62%	-413.77%	-10.12%
Total sample	**38**	**38**	**38**	**38**	**38**	**38**
Count sample error	0	0	0	0	0	0
% samples error	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: PT TAS Exploration Drilling Report

Figure 9-4. Standard Samples – CAL01 reading performance



Source: PT TAS Exploration Drilling Report

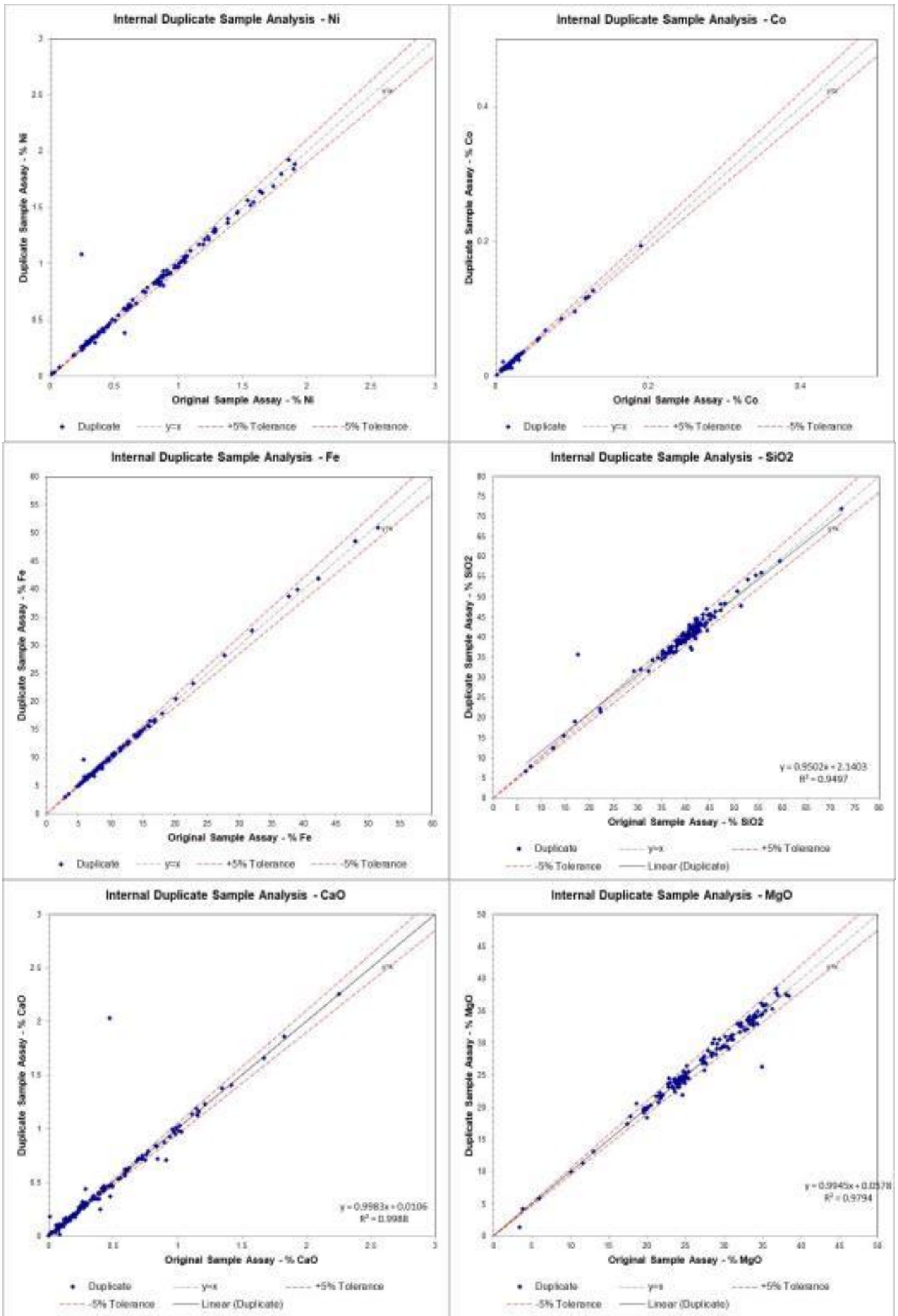
9.2.2. Internal Duplicates Samples

A total of 140 internal pulp duplicate samples were analysed at the on-site laboratory. The results of the duplicate samples for Ni, Co, Fe, SiO2 and MgO are shown in **Figure 9-5.**

The results of the internal duplicates indicate that most Ni falls mostly along the x = y trend line as expected with a small proportion outside the ± 5% error limits. The results for Fe are also similar. For Co, SiO_2, MgO and CaO, analytical bias can be observed in addition to moderate scatter for SiO_2 and MgO. The trend for Co is below the x=y line while the trend for SiO_2 and MgO is above the x=y line. The CaO assays appear to be on a separate trend.

The scatter outside the ±5% error limits is likely associated with sample preparation and the sample pulp not being completely homogenous. Some pulverization screen size testing should be applied to ensure the pulverised sample is of a – 200 mesh size fraction.

Figure 9-5. Scatterplots of Internal Duplicate Samples



Source: PT TAS Exploration Drilling Report

9.2.3. Internal Blank Samples

A total of 137 Internal blank samples were analysed to determine if any contamination between samples occurred during the sub-sampling/analytical procedure. Blank samples were inserted by the on-site laboratory at a frequency of one in every twenty samples. The blank samples used for the Project consisted of limestone. A summary of the Blank samples used are shown in **Table 9-6.**

The result of internal blank samples generally indicated no significant contamination, but one sample was almost certainly mis-labelled.

Table 9-6. Statistical Summary of Internal Blank Samples

Elements	Ni	Co	Al	CaO	Fe	MgO	SiO2
Recommended Value	0.063	0.004	-1.056	30.684	1.752	7.843	39.117
Mean	0.063	0.004	-1.056	30.684	1.752	7.843	39.117
STDEV	0.033	0.001	1.420	15.588	0.498	10.549	31.671
CV	52.300	19.480	-134.48	50.800	28.422	134.493	80.965
+3d	0.161	0.006	3.204	77.447	3.246	39.490	134.132
+2d	0.128	0.006	1.784	61.859	2.748	28.941	102.460
-2d	-0.003	0.002	-3.896	-0.491	0.756	-13.254	-24.226
-3d	-0.036	0.002	-5.316	-16.079	0.258	-23.803	-55.897
Max	0.341	0.012	1.864	49.661	6.848	32.995	74.470
Min	0.011	0.002	-8.005	-0.793	1.279	-5.707	-1.065
Range	0.330	0.010	9.869	50.454	5.569	38.702	75.535
Bias	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total sample	137	137	137	137	137	137	137
Count sample error	1	1	1	0	1	0	0
% samples error	**0.73%**	**0.73%**	**0.73%**	**0.00%**	**0.73%**	**0.00%**	**0.00%**
Acceptable samples	**99.27%**	**99.27%**	**99.27%**	**100.00%**	**99.27%**	**100.00%**	**100.00%**

Source: PT TAS Exploration Drilling Report

9.2.4. External Check Analyses

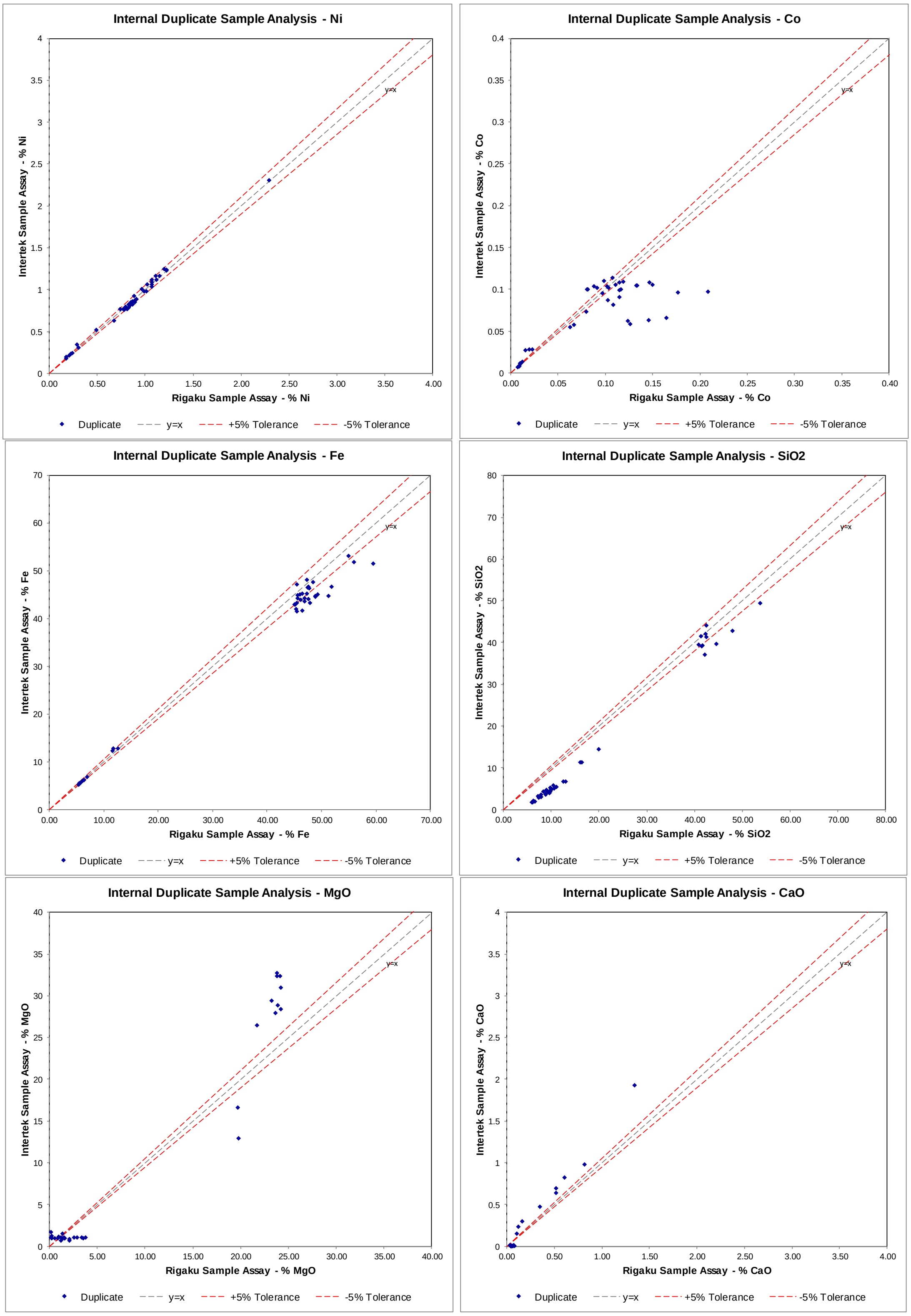
A total of 100 external repeats (external duplicate samples) were analysed for the Project. The external repeat samples were sent to two different external laboratories; Minertech Laboratories ("Minertech") at Kendari and the Intertek Laboratory in Jakarta ("Intertek"), both of which are independent, certified laboratories. The results of all external repeats are shown in **Figure 9-6 and Figure 9-7.**

For the 50 samples sent to Minertech, most Ni falls along the x = y trend line as expected with a small proportion outside the ± 5% error limits. For Fe, analytical bias can be observed in addition to moderate and high scatter for Co, SiO_2, MgO and CaO. The trend for Co and SiO_2 is below the x=y line while the trend for CaO is above the x=y line. The MgO assays appear to be on a separate trend.

The scatter outside the ±5% error limits is likely associated with sample preparation and the sample pulp not being completely homogenous. Implementing screen size testing should be applied to ensure the pulverised sample is of a – 200 mesh size fraction.

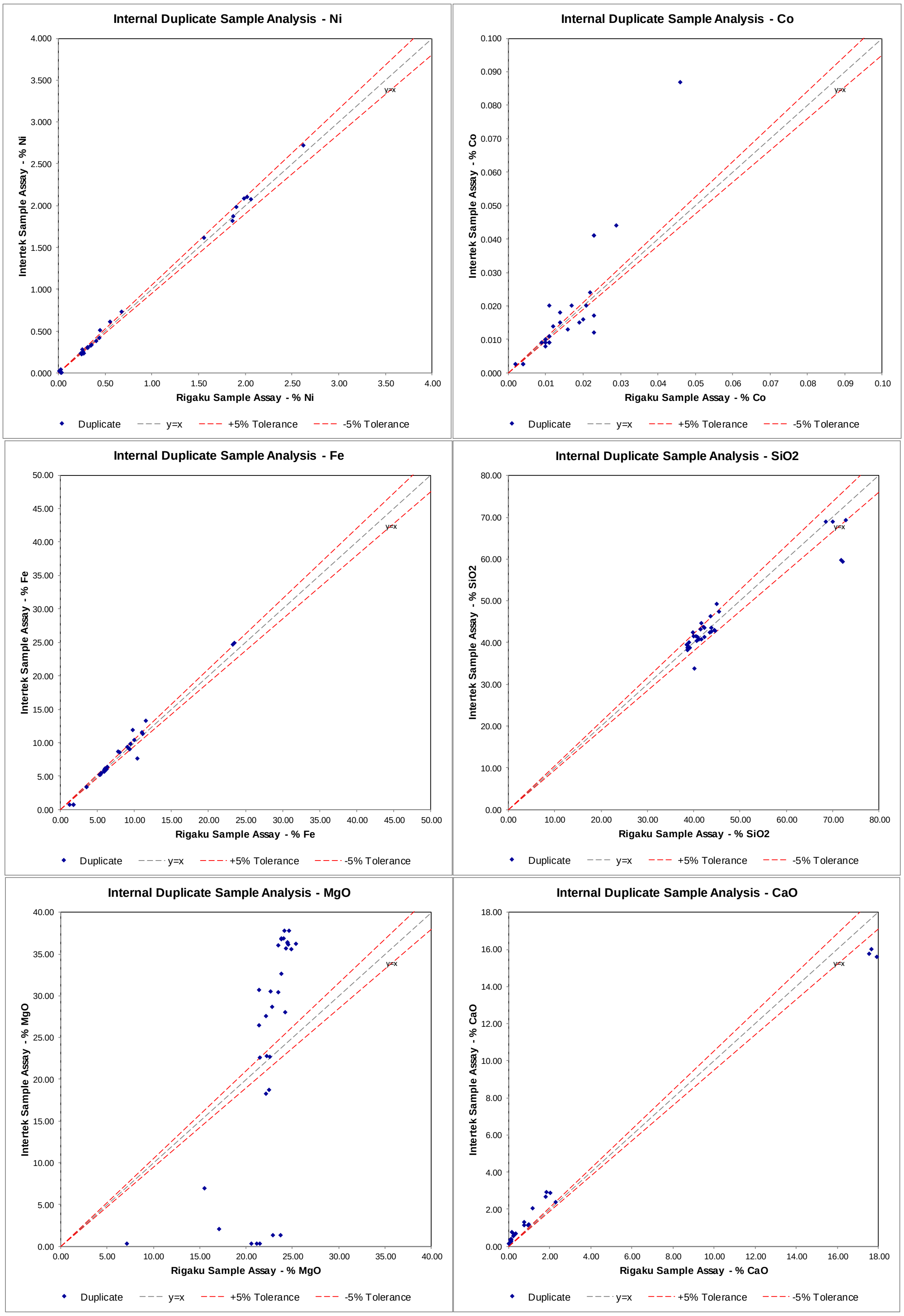
For the 50 samples sent to Intertek, most Ni falls along the x = y trend line as expected with a small proportion outside the ± 5% error limits. The results for Fe are also similar. For Co and SiO2 analytical bias can be observed in addition to moderate and high scatter for MgO and CaO. The trend for MgO and CaO are above the x=y line while the trend for Co assays appears to be on a separate trend.

Figure 9-6. Scatter plots of External Repeat Results from Minertech



Source: PT TAS Exploration Drilling Report

Figure 9-7. Scatter plots of External Repeat Results from Intertek



Source: PT TAS Exploration Drilling Report

9.2.5. CRM Samples

A total of 125 CRM samples were inserted and analysed. CRM samples were inserted by the on-site laboratory at a frequency of one in every drillhole. A total of five different CRM samples were used for the Project. All CRM samples used were sourced from the OREAS Australian Laboratory. A summary of each CRM used is shown in **Table 9-7 to Table 9-11**, while Shewchart plots for each CRM sample repeat are shown in **Figure 9-8 to Figure 9-12** for Ni results.

The CRM results for Ni show that the on-site laboratory displays a consistent low bias with most results falling below the control limits. The systematic bias is believed to be due to the different method of analysis between a fuse bead (for CRM) and manual pressed powder samples used at site.

Table 9-7. Statistic Summary of performance OREAS-181

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	451	11	429	472	418	483	2.41%	4.81%	7.22%	428	473
Fe2O3, wt%	35.94	0.205	35.53	36.35	35.33	36.56	0.57%	1.14%	1.71%	34.15	37.74
Ni, ppm	5123	59	5004	5242	4945	5301	1.16%	2.32%	3.48%	4867	5379

Table 9-8. Statistical Summary of performance OREAS-186

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	692	17	657	726	640	743	2.47%	4.94%	7.41%	657	726
Fe2O3, wt%	32.04	0.182	31.68	32.41	31.5	32.59	0.57%	1.13%	1.70%	30.44	33.64
Ni, ppm	1.23	0.013	1.21	1.26	1.19	1.278	1.06%	2.12%	3.18%	1.17	1.29

Table 9-9. Statistical Summary of performance OREAS-190

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	890	15	861	919	846	933	1.63%	3.27%	4.90%	845	934
Fe2O3, wt%	35.48	0.149	35.18	35.77	35.03	35.92	0.42%	0.84%	1.26%	33.7	37.25
Ni, ppm	1.64	0.012	1.61	1.66	1.6	1.67	0.72%	1.44%	2.16%	1.55	1.72

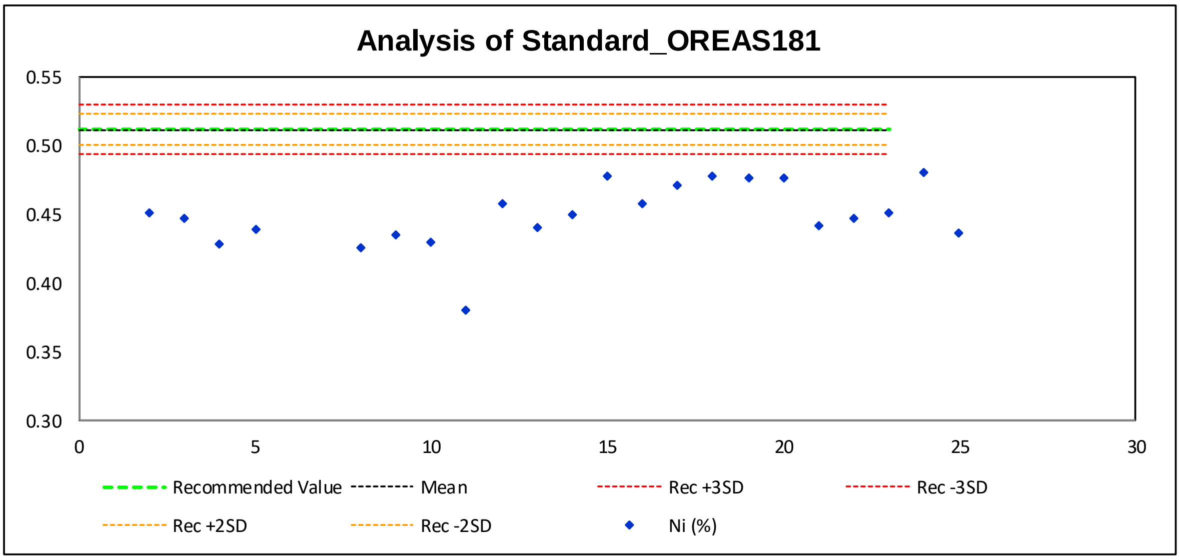
Table 9-10. Statistical Summary of performance OREAS-193

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	495	14	468	523	454	537	2.78%	5.56%	8.34%	471	520
Fe2O3, wt%	19.51	0.104	19.31	19.72	19.2	19.82	0.54%	1.07%	1.61%	18.53	20.49
Ni, ppm	1.93	0.019	1.89	1.96	1.87	1.98	1.00%	2.01%	3.01%	1.83	2.02

Table 9-11. Statistical Summary of performance OREAS-194

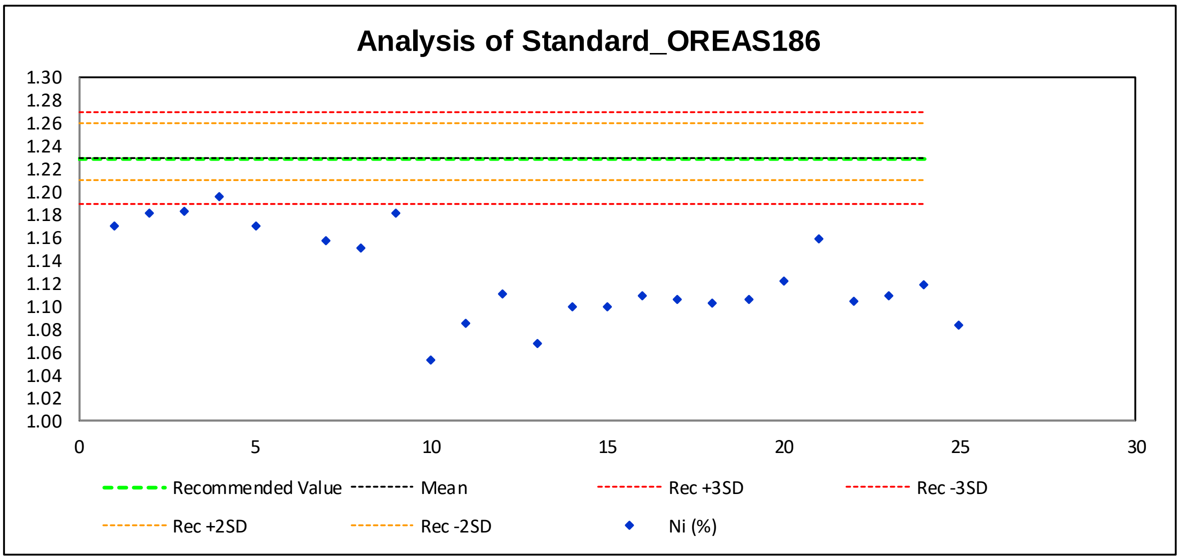
Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	428	12	405	452	393	463	2.72%	5.43%	8.15%	407	450
Fe2O3, wt%	16.47	0.086	16.3	16.64	16.21	16.73	0.52%	1.05%	1.57%	15.65	17.29
Ni, ppm	2.13	0.02	2.09	2.17	2.07	2.19	0.92%	1.84%	2.75%	2.02	2.24

Figure 9-8. OREAS 181 - Ni



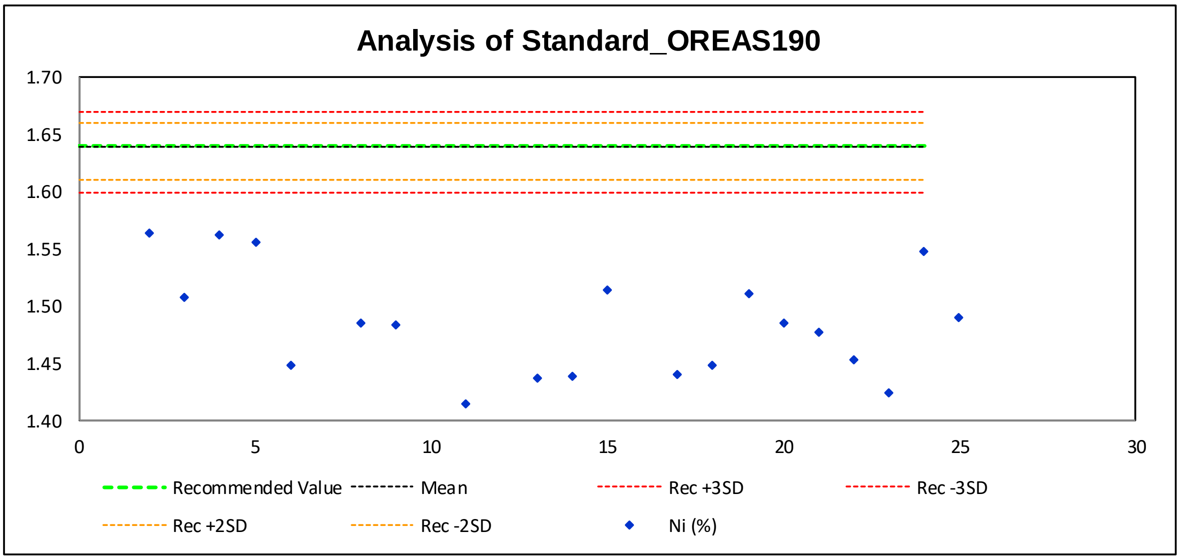
Source: PT TAS Exploration Drilling Report

Figure 9-9. OREAS 186 - Ni



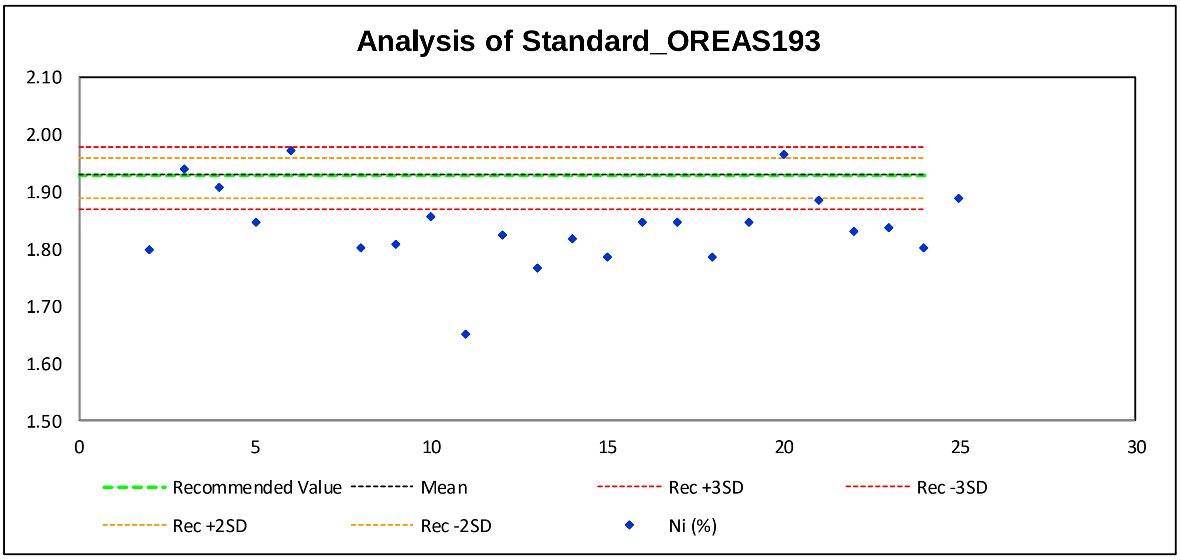
Source: PT TAS Exploration Drilling Report

Figure 9-10. OREAS 190 - Ni



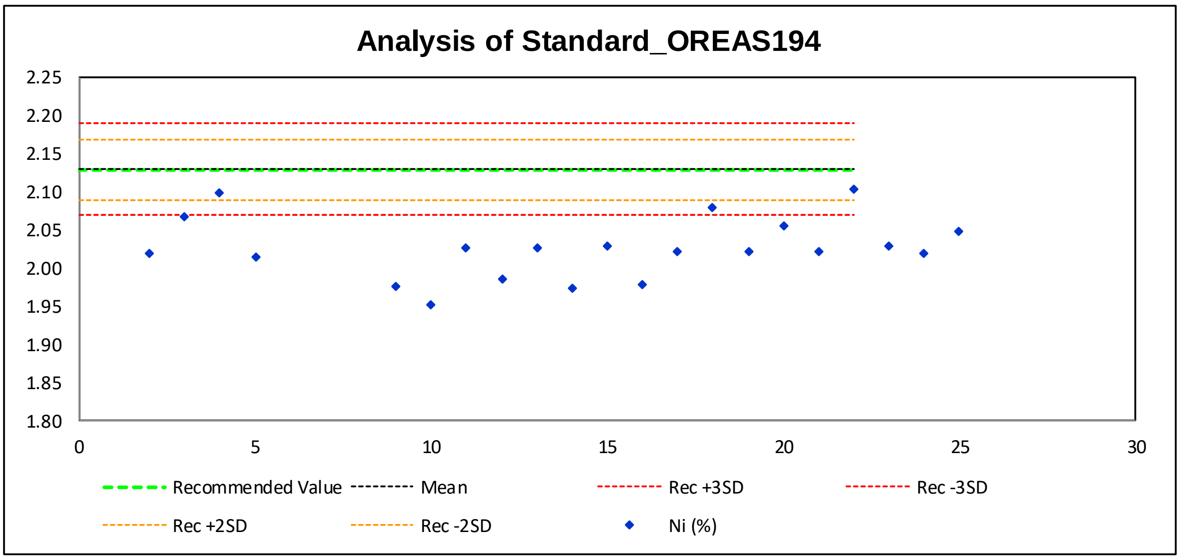
Source: PT TAS Exploration Drilling Report

Figure 9-11. OREAS 193 - Ni



Source: PT TAS Exploration Drilling Report

Figure 9-12. OREAS 194 - Ni



Source: PT TAS Exploration Drilling Report

9.2.6. Summary of Analytical QA/QC Review

Analysis of the internal standards results indicates that most results for all standards are inside the upper and lower warning limits and therefore acceptable. There are only a small number of samples that fall outside the warning limits.

The results of the internal repeats from the on-site laboratories indicate that most Ni and Fe results fall along the x = y trend line and are within the ±10% error limits.

The results of the internal blank samples indicates that a small number of samples may have been mixed up or mis-labelled as blanks or some minor contamination occurred at the laboratory, however these samples comprise only 9% of the blanks analyses.

The external repeat results from the Minertech laboratory show most results are along the x = y trend and within the ±5% error limits for Ni and For Fe analytical bias can be observed in addition to moderate and high scatter for Co, SiO_2, MgO and CaO. The trend for Co and SiO_2 is below the x=y line while the trend for CaO are above the x=y line. The MgO assays appear to be on a separate trend.

Analyses of external repeats from Intertek show that most Ni fall mostly along the x = y trend line as expected with a small proportion is outside the ± 5% error limits. The results for Fe are also similar. For Co and SiO_2 analytical bias can be observed in addition to moderate and high scatter for MgO and CaO. The trend for MgO and CaO are above the x=y line while the trend for Co assays appear to be on a separate trend.

The CRM results for Ni show that the on-site laboratory displays a consistent low bias with most results falling below the control limits.

It is recommended that screen size checks on the sample pulp be implemented consistently and to increase the frequency of internal and external repeat analysis. Further investigation is required to assess the systematic bias between the pressed pellet XRF determinations vs the CRM data to improve assay confidence for future Mineral Resources.

10. GEOLOGICAL MODELLING AND DATA ANALYSIS

10.1 Database Review

Databases were checked to determine if there were any invalid entries. This was conducted for all numeric fields by determining the minimum, maximum and average values. The review of the Buleleng and Torete databases identified the following:

- Buleleng database review:
  - 568 samples with no Ni and Fe assay results,
  - 622 samples with no Co assay results,
  - 616 samples with no SiO_2 assay results,
  - 632 samples with no MgO assay results,
  - 811 samples with no CaO assay results,
  - No assay results less than zero.
- Torete database review:
  - 15 samples with no Ni, and Fe assay results,
  - 19 samples with no Co assay results,
  - 17 samples with no SiO_2 assay results,
  - 139 samples with no MgO assay results,
  - 5,609 samples with no CaO assay results
  - No assay results less than zero,

Data validation steps were also completed including:

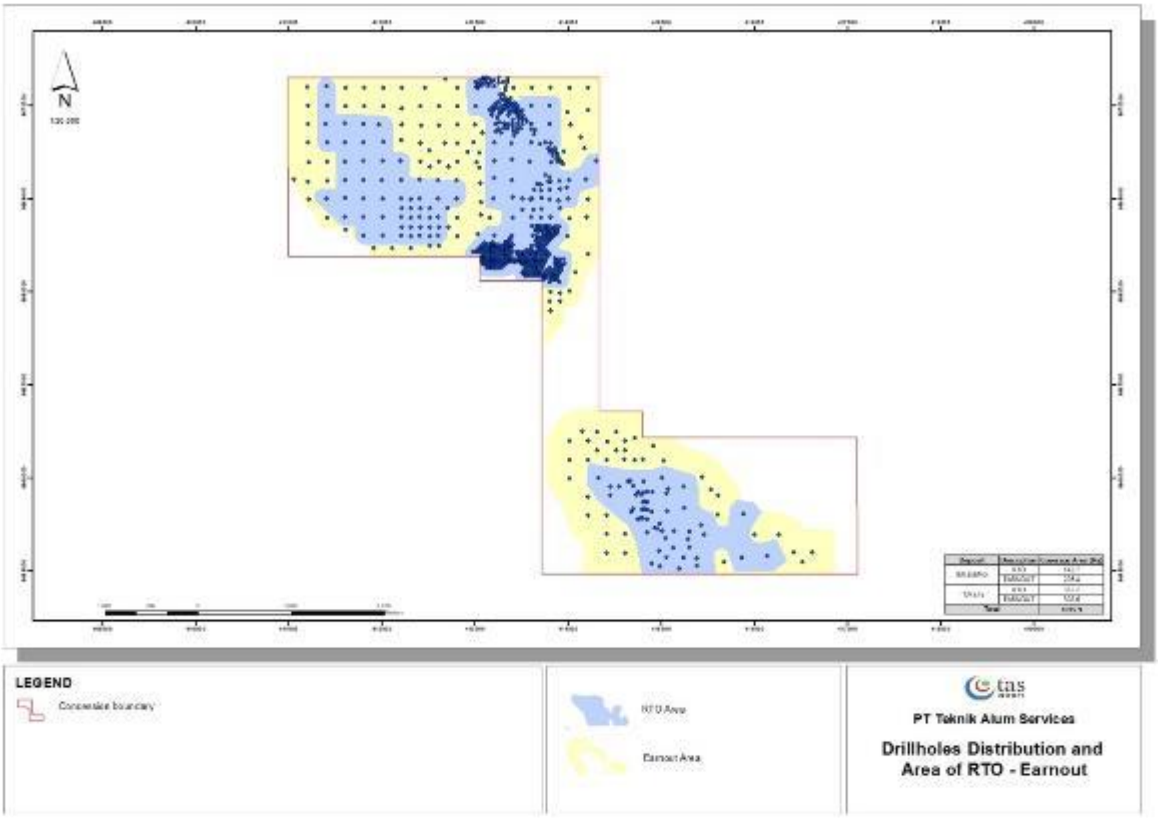
- Checking down-hole survey depths did not exceed the depth in the collar table;
- Ensuring dips were within the range of 0° and -90°;
- Ensuring assay and survey information was checked for duplicate records.

The validated drill hole database used contains 779 holes (9,275.6 m), with an average hole depth of 15.9 m, and 10,277 Ni assay samples (**Table 10-1**). The drill holes are distributed in quite a regular spacing with various drill holes spacing from 25 m x 25m up to 200 m x 200 m grid at Torete, but ridge and spur at Buleleng (**Figure 10-1**).

Table 10-1 Drill holes Database Used for Resources Calculation

Deposit	Total Holes	Total Metres (m)	Average Depth (m)	Total Samples						Coverage Area (Ha)
				Ni	Co	Fe	SiO2	MgO	CaO	
Buleleng	77	1,607	20.9	1,704	1,668	1,704	1,674	1,658	1,619	± 352.1
Torete	702	7,669	10.9	8,573	8,570	8,573	7,271	7,149	8,277	± 663.8
Total / Average	**779**	**9275.6**	**15.9**	**10,277**	**10,238**	**10,277**	**8,945**	**8,807**	**9,896**	**± 1015.9**

Figure 10-1 Drill hole Distribution: RTO vs Earnout area for the Project



Source: PT TAS Technical Report of Mineral Resources

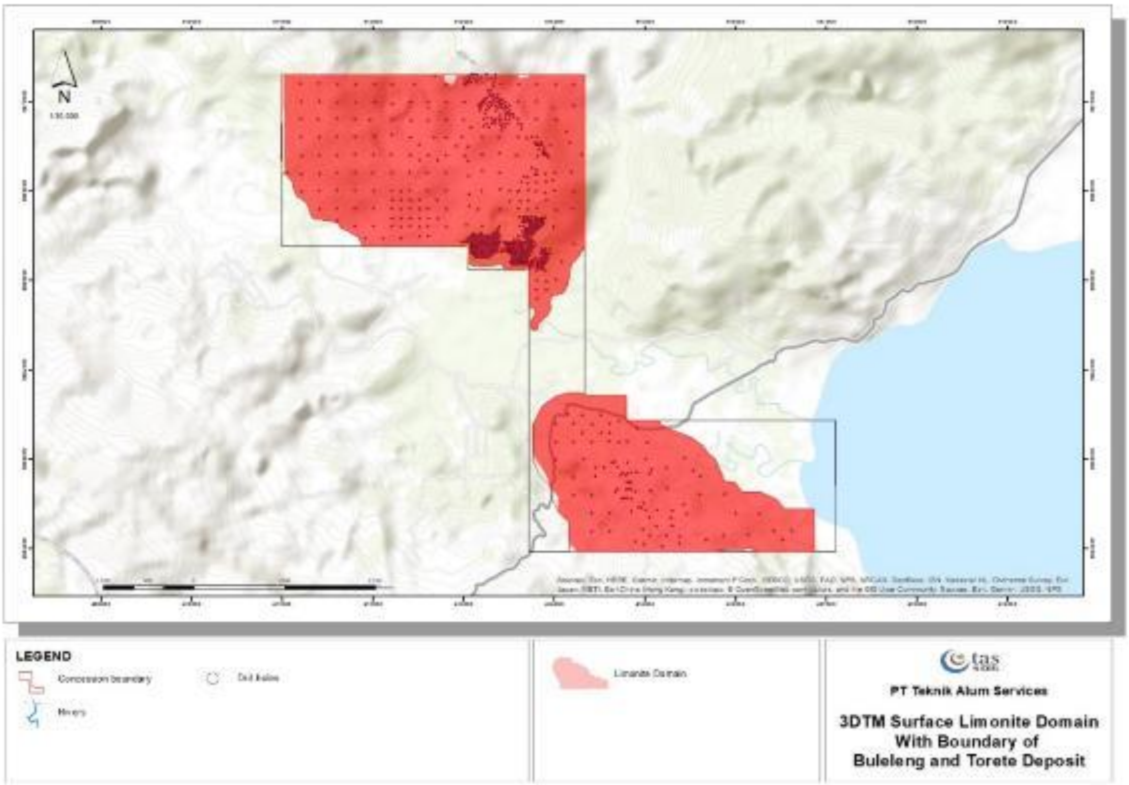
10.2 Geology Domains

Surfaces were constructed for the top of the limonite zone based on topography surfaces, base of the limonite zone, based on the saprolite, and the top of the bedrock domain for each deposit using qualitative geological logging information and quantitative assays for Ni, Fe and MgO. Limonite generally has > 30% Fe and < 10% MgO and Saprolite generally has < 30% Fe and > 10% MgO with nickel content more than 0.8%. This quantitative assay data was confirmed with the qualitative geological logging information.

The surfaces were checked to ensure there were no intersections between each surface then extrapolated beyond the block model extents to ensure all parts of the block model representing mineralised material could be coded. Plan views of the created surfaces for each domain are shown in **Figure 10-2 and Figure 10-3**. No other domains were used to constrain the mineralisation apart from boundary strings around the periphery of the drill holes at a distance approximately half the adjacent drill spacing or more.

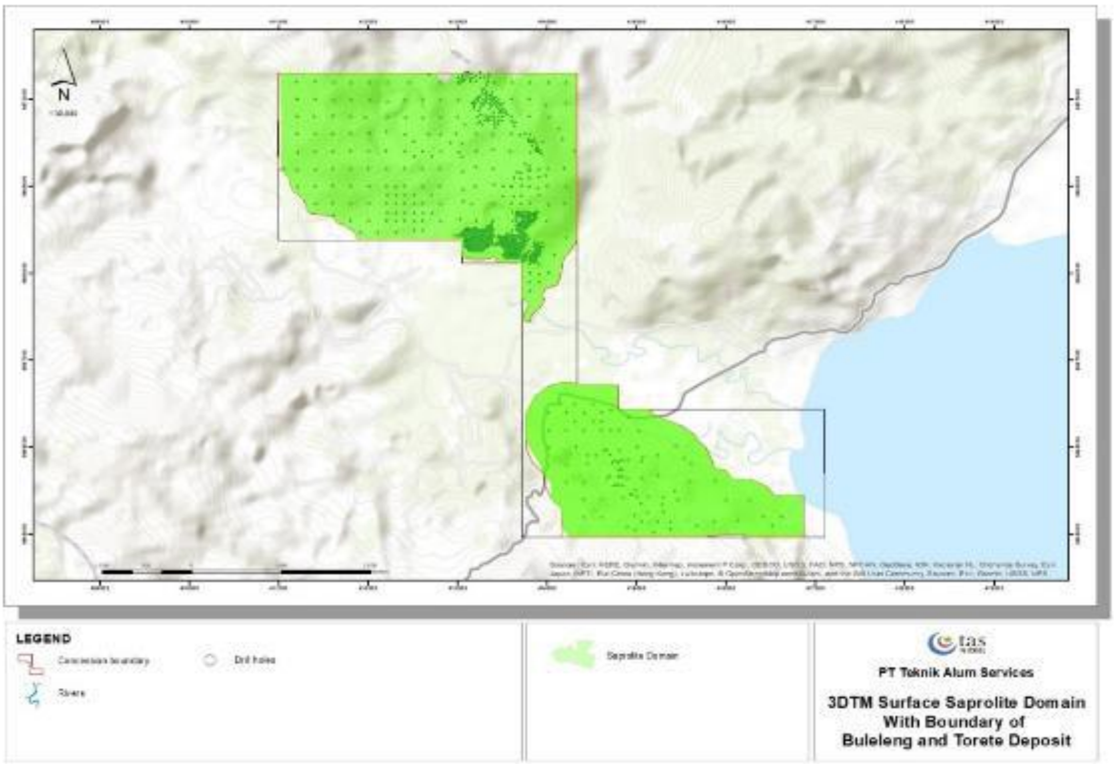
Figure 10-4 shows two cross sections through Buleleng illustrating the domain interpretation and **Figure 10-5** No shows two cross sections through Torete.

Figure 10-2 Plan View of Surface for the base of Limonite domain



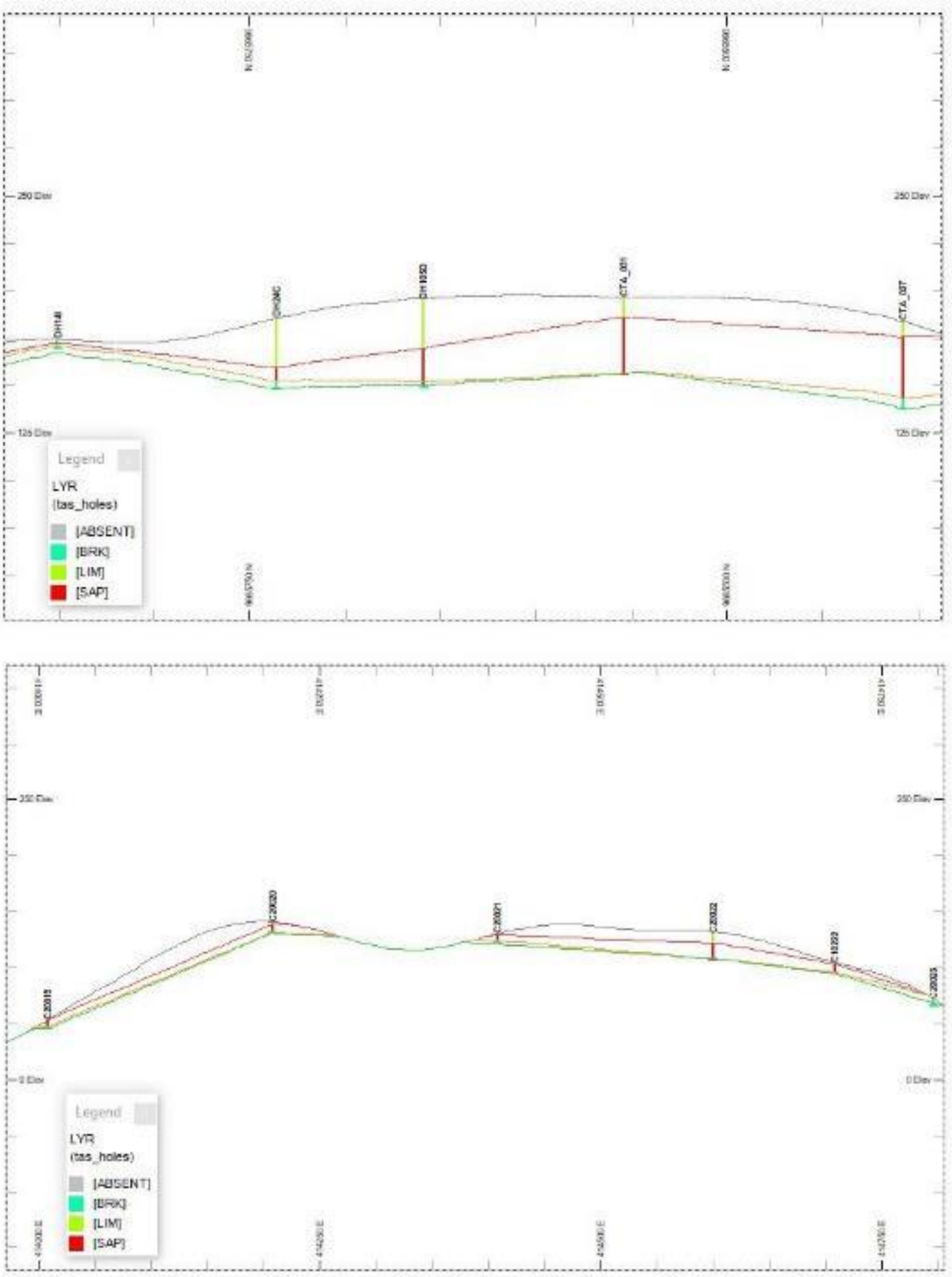
Source: PT TAS Technical Report of Mineral Resources

Figure 10-3 Plan View of Surfaces for Saprolite bottom domain



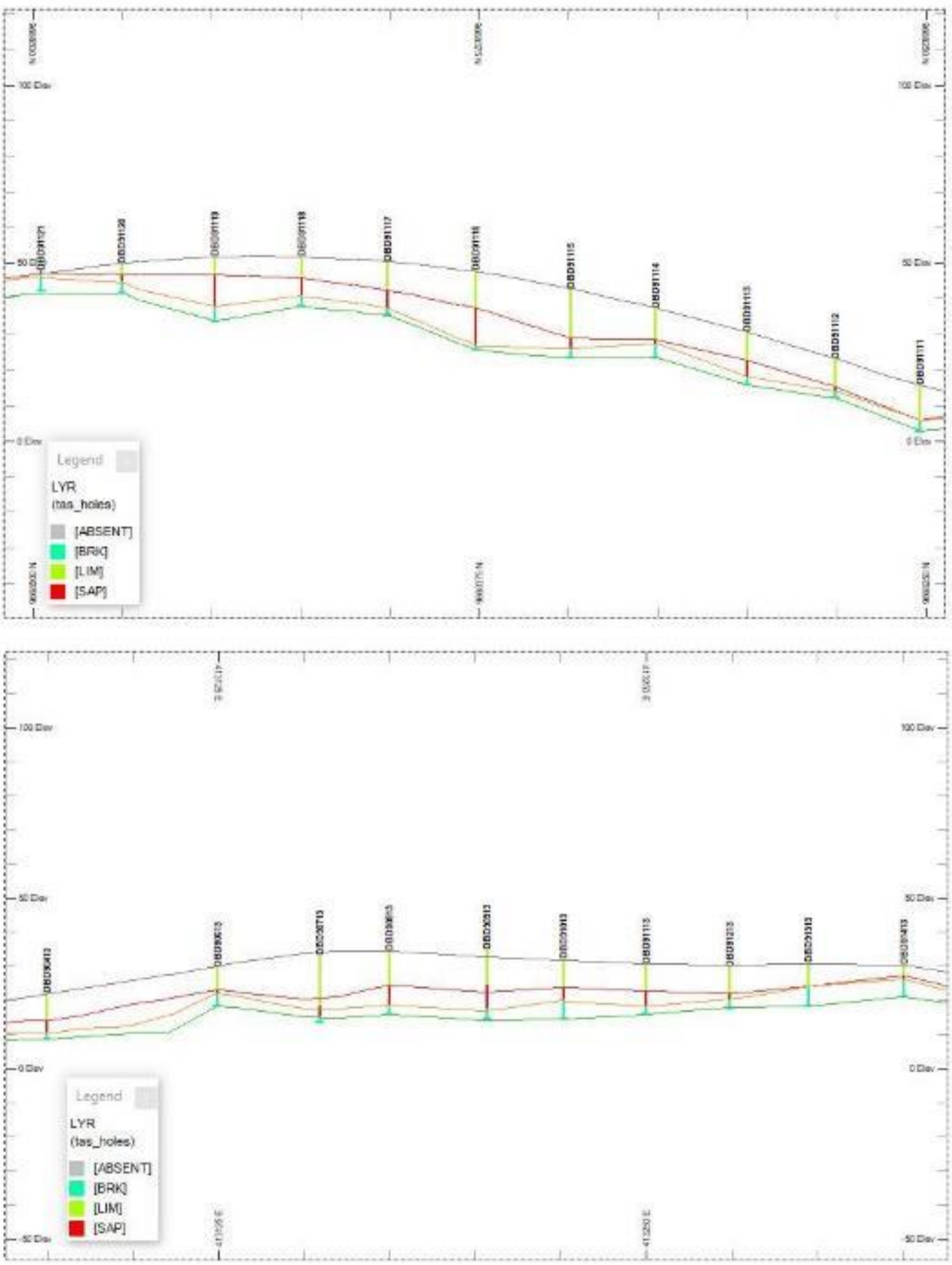
Source: PT TAS Technical Report of Mineral Resources

Figure 10-4 Section showing stratigraphic correlation within layer – Buleleng Block 414,850 mE and 9,666,200 mN



Source: PT TAS Technical Report of Mineral Resources

Figure 10-5 Section showing stratigraphic correlation within layer – Torete Block 413,250 mE and 9,668,300 mN



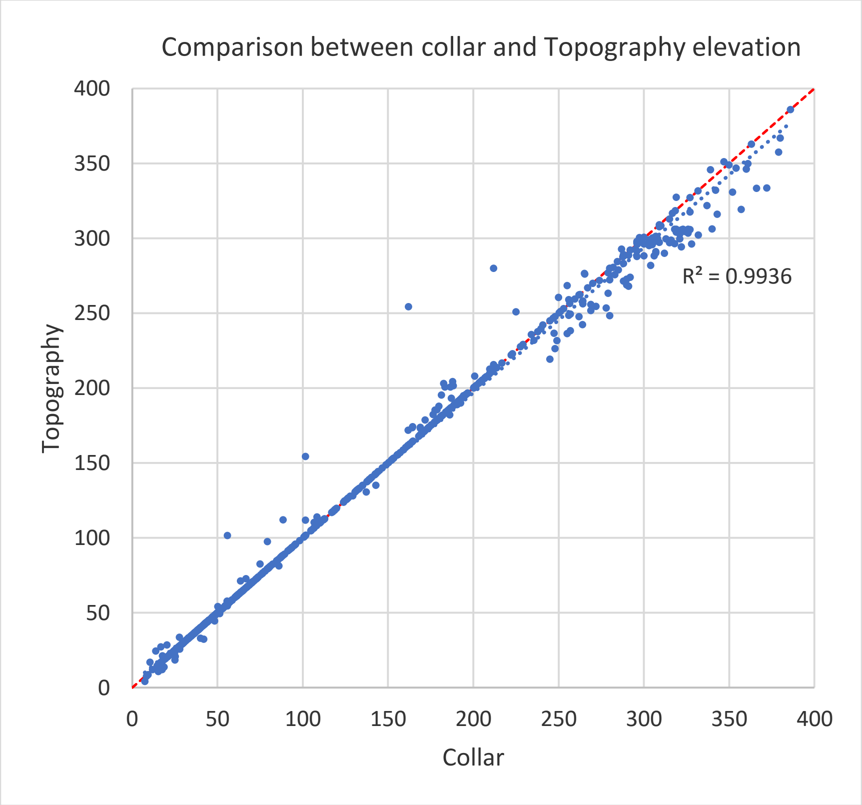
Source: PT TAS Technical Report of Mineral Resources

10.3 Topographic Surfaces

Topographic surfaces were generated from 1 m spaced contour data. A natural surface and a combined mined surface were available for the Project. This natural surface was then used to check the elevations of the drill hole collars were reasonable and there was no significant deviation from the elevation of the surface at the same location. Where the drill hole collar elevation was 0.5 m or more higher or lower than the topographic surface elevation, the drill hole collar elevation was changed to that of the topographic surface elevation. Areas of drill hole collars that showed a large elevation difference to the natural topographic surface were taken into account when the Mineral Resource estimate was classified.

Comparison between collar data and elevation of topography show some collars specially holes before 2018 have the same elevation with topography while for holes that were drilled during 2018 have some different elevation topography. Generally, collar elevation and topography has a strong correlation (R2=0.9936) (**Figure 10-6**). Due to these differences' elevation between collar and topography, all collar had been adjusted to topography. PT TAS used topographic surface update as mined surface based on data on 27th May 2019.

Figure 10-6 Comparison elevation between collar and ground original topography



Source: PT TAS Technical Report of Mineral Resources

10.4 Statistical Analysis: Drill Hole Samples

A review of the drill hole database was done using histograms for all primary elements and X/Y scatter plots of element pairs. Features assessed included outliers and irregularities in the element statistics.

10.4.1 Buleleng

Table 10-2 presents univariate statistics for the Buleleng limonite and saprolite zones of Ni, Co, Fe, SiO_2, MgO and CaO, whilst **Figure 10-7** presents histograms for the limonite zone and **Figure 10-8** shows histograms for the saprolite zone.

Nickel in Limonite shows a normal distribution with average nickel gradeof 0.97%, Fe shows a negative skew due to a lot of high iron content in limonite layers whereas, SiO_2, MgO and Co show a positive skewed distribution**.**

Ni, Fe, and SiO_2 in saprolite show a single distribution with average nickel grade of 1.14%. Co and CaO exhibit a positive skew while MgO in saprolite shows more than one population.

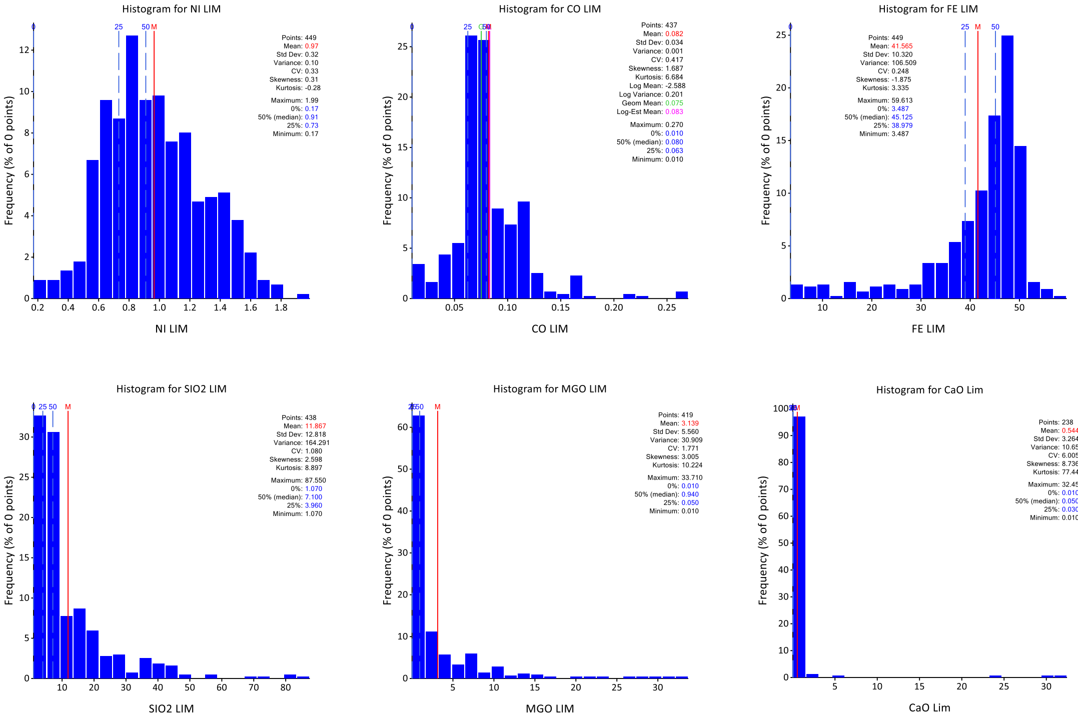
Table 10-2 Raw assay statistics Buleleng

Statistic	sample_raw_lim						sample_raw_sap					
	Ni	**Co**	**Fe**	**SiO2**	**MgO**	**CaO**	**Ni**	**Co**	**Fe**	**SiO2**	**MgO**	**CaO**
Samples	449	437	449	438	419	238	987	942	987	951	952	941
Minimum	0.17	0.01	3.49	1.07	0.01	0.01	0.038	0.01	0.75	8.52	0.05	0.01
Maximum	1.99	0.27	59.61	87.55	33.71	32.45	3.67	0.29	48.61	92.13	40.99	4.97
Mean	0.97	0.08	41.57	11.87	3.14	0.54	1.135	0.034	14.937	44.278	18.298	0.725
Standard deviation	0.32	0.03	10.32	12.82	5.56	3.26	0.517	0.022	7.827	12.491	8.323	0.578
CV	0.33	0.42	0.25	1.08	1.77	6	0.456	0.655	0.524	0.282	0.455	0.797
Variance	0.1	0	106.51	164.29	30.91	10.66	0.267	0	61.258	156.03	69.264	0.334
Percentiles												
10%	0.59	0.05	28.17	2.28	0.05	0.02	0.45	0.02	7.66	29.203	5.586	0.101
20%	0.68	0.06	37.46	3.56	0.05	0.03	0.67	0.02	8.994	36.072	10.384	0.21
30%	0.78	0.07	40.5	4.61	0.1	0.04	0.88	0.02	10.259	39.446	14.42	0.313
40%	0.85	0.07	43.49	6.03	0.43	0.04	0.986	0.03	11.516	41.454	16.918	0.46
50%	0.91	0.08	45.13	7.1	0.94	0.05	1.113	0.03	12.561	43.445	19.43	0.6
60%	1.01	0.08	46.48	8.71	1.48	0.06	1.234	0.03	14.09	46.472	21.066	0.75
70%	1.13	0.09	47.42	12.75	2.34	0.08	1.363	0.04	16.581	49.868	23.23	0.967
80%	1.25	0.1	48.45	17.66	4.88	0.14	1.531	0.04	20.057	53.39	25.78	1.178
90%	1.43	0.12	49.81	26.96	9.09	0.47	1.78	0.06	24.94	57.955	28.666	1.449
95%	1.54	0.13	50.7	38.22	14.03	1.05	1.999	0.07	32.112	63.242	30.574	1.769
97.50%	1.59	0.17	51.82	43.6	21.56	1.97	2.27	0.08	36.127	74.042	32.824	2.02
99%	1.7	0.21	54.02	64.74	28.36	16.62	2.531	0.11	40.777	80.167	33.794	2.478

Source: PT TAS Technical Report of Mineral Resources

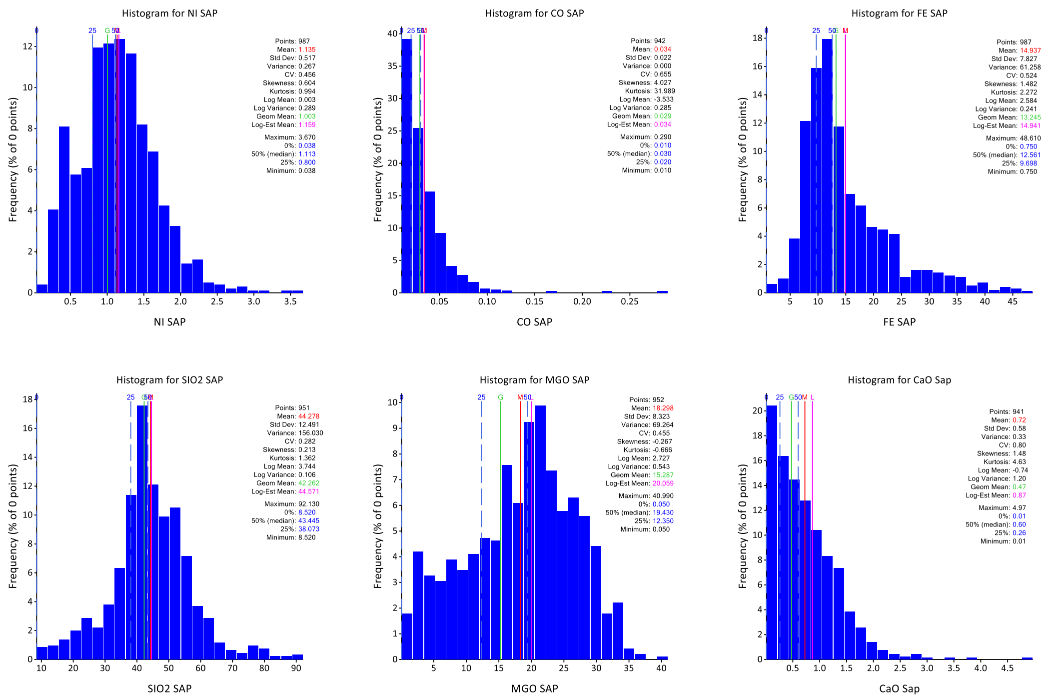
Table 10-3 presents a correlation matrix for the Buleleng limonite and saprolite zones of Ni, Co, Fe, SiO2, MgO and CaO. In general, nickel does not have correlation with other elements in either the limonite or saprolite zone. In limonite, Fe has a strong negative correlation with SiO_2, while in the saprolite zone cobalt and iron have a strong positive correlation.

Figure 10-7 Histogram for major elements in Limonite layer – Buleleng Deposit



Source: PT TAS Technical Report of Mineral Resources

Figure 10-8 Histogram for major elements in Saprolite layer – Buleleng Deposit



Source: PT TAS Technical Report of Mineral Resources

Table 10-3 Coefficient of Correlation matrix for Limonite and Saprolite layer – Buleleng Deposit

Deposit	Layer	Indep/Dep	Ni	Co	Fe	SiO2	MgO	CaO
Buleleng	LIM	**Ni**	**1**					
		Co	0.494006	**1**				
		Fe	0.363323	0.457549	**1**			
		SiO2	-0.39064	-0.37948	-0.8848	**1**		
		MgO	-0.22242	-0.25093	-0.66396	0.504126	**1**	
		CaO	-0.26618	-0.28845	-0.38736	0.075944	0.200045	**1**
	SAP	**Ni**	**1**					
		Co	0.161394	**1**				
		Fe	0.240721	0.759926	**1**			
		SiO2	-0.39424	-0.57305	-0.73455	**1**		
		MgO	-0.04826	-0.53182	-0.64229	0.229427	**1**	
		CaO	0.005307	-0.14909	-0.22955	0.098476	0.274299	**1**

Source: PT TAS Technical Report of Mineral Resources

10.4.2 Torete

Table 10-4 presents univariate statistics for the Torete limonite and saprolite zones of Ni, Co, Fe, SiO_2, MgO and CaO, whilst **Figure 10-9** presents histograms for the limonite zone and **Figure 10-10** shows histograms for the saprolite zone.

In the Limonite zone there are single populations for Ni, and Co, with nickel showing a normal distribution with an average grade of 0.92%. Fe shows a negative skew due to a lot of high iron content in limonite layers whereas, SiO_2, MgO and Co show a positive skewed distribution**.**

Ni, and SiO_2 in saprolite show single distributions, with the average nickel grade of 1.33%. Co and CaO have a positive skew while MgO shows more than one population.

Table 10-5 presents a correlation matrix for the Torete limonite and saprolite zones of Ni, Co, Fe, SiO2, MgO and CaO. In general, correlations are similar to Buleleng with nickel having no correlation with other elements in either the limonite or saprolite zone. In limonite, Fe has a strong negative correlation with SiO_2.

Table 10-4 Raw assay statistics Torete

Statistic	sample_raw_lim						sample_raw_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	2275	2275	2275	2031	1924	2118	3710	3710	3710	3046	3030	3636
Minimum	0.17	0	4.66	0.65	0	0	0.01	0.003	0.506	2.5	0.087	0.001
Maximum	2.56	0.7	56.28	42.67	36.47	1.28	3.64	0.886	48.68	62.15	42.534	8.35
Mean	0.92	0.09	44.02	6.31	1.5	0.06	1.326	0.026	14.34	34.887	16.579	0.343
Standard deviation	0.29	0.05	5.54	6.03	3.05	0.1	0.603	0.025	6.589	6.917	7.468	0.494
CV	0.32	0.56	0.13	0.96	2.03	1.78	0.455	0.932	0.459	0.198	0.45	1.442
Variance	0.08	0	30.68	36.39	9.28	0.01	0.363	0.001	43.415	47.848	55.776	0.245
Percentiles												
10%	0.58	0.04	36.47	1	0.01	0.01	0.56	0.01	8.03	26.13	7.25	0.04
20%	0.67	0.06	40.85	2.14	0.05	0.02	0.811	0.01	9.172	29.959	9.662	0.07
30%	0.75	0.07	42.98	2.14	0.12	0.02	0.96	0.018	10.28	32.131	11.662	0.11
40%	0.82	0.08	44.31	2.36	0.22	0.02	1.11	0.02	11.23	34.22	13.53	0.153
50%	0.89	0.09	45.38	4.28	0.35	0.02	1.271	0.02	12.4	36.269	16.15	0.211
60%	0.95	0.1	46.32	6.42	0.59	0.03	1.436	0.022	13.78	36.768	18.8	0.29
70%	1.03	0.11	47.13	8.18	0.99	0.04	1.603	0.03	15.811	38.5	21.14	0.38
80%	1.14	0.12	48.01	10.7	2.02	0.06	1.815	0.035	18.68	40.64	23.13	0.493
90%	1.28	0.15	49.07	14.97	4.3	0.13	2.16	0.05	24.056	42.78	25.954	0.722
95%	1.43	0.18	50.13	18.49	7.05	0.25	2.43	0.06	28.515	43.944	30.035	1.024
97.50%	1.54	0.22	51.03	21.39	10.1	0.38	2.621	0.076	31.405	45.053	32.41	1.392
99%	1.76	0.28	51.93	26.72	14.46	0.55	2.808	0.1	35.278	47.06	34.336	2.058

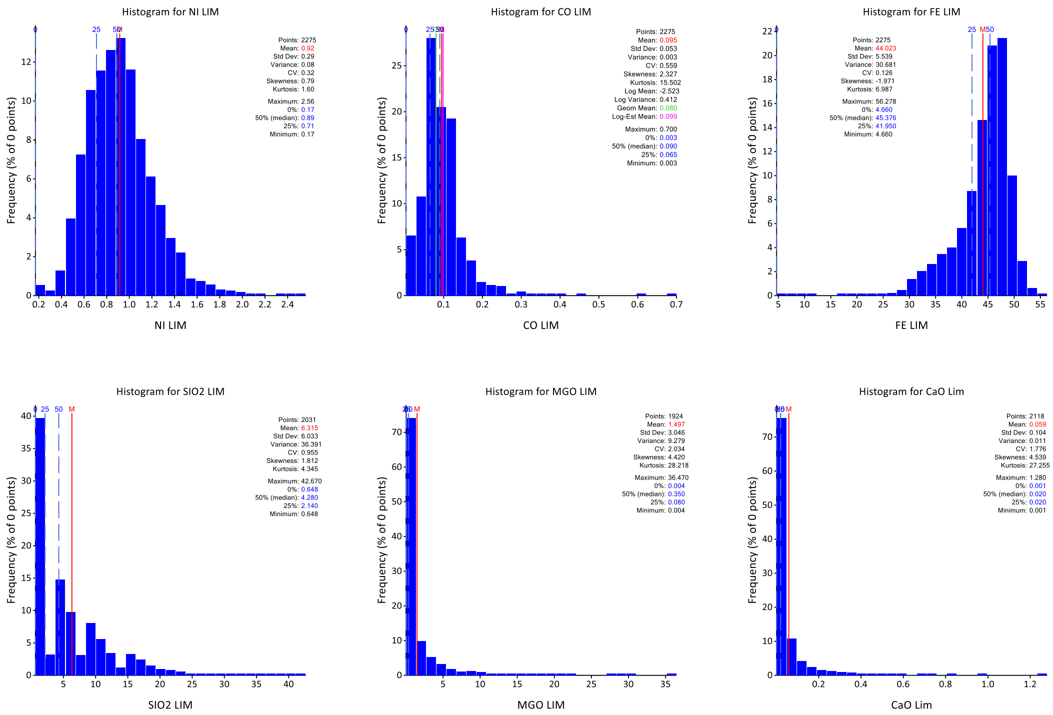
Source: PT TAS Technical Report of Mineral Resources

Table 10-5 Coefficient of Correlation matrix for Limonite and Saprolite layer – Torete Deposit

Deposit	Layer	Indep/Dep	Ni	Co	Fe	SiO2	MgO	CaO
Torete	LIM	**Ni**	**1**					
		Co	0.469342	**1**				
		Fe	-0.17622	0.210748	**1**			
		SiO2	0.268229	-0.15002	-0.88163	**1**		
		MgO	0.242672	-0.03614	-0.68225	0.736151	**1**	
		CaO	0.166699	-0.11458	-0.56571	0.581802	0.43841	**1**
	SAP	**Ni**	**1**					
		Co	0.13283	**1**				
		Fe	0.181991	0.663264	**1**			
		SiO2	-0.22262	-0.50898	-0.66063	**1**		
		MgO	-0.18639	-0.37035	-0.57301	0.580885	**1**	
		CaO	-0.14129	-0.02992	-0.09401	0.101511	-0.08822	**1**

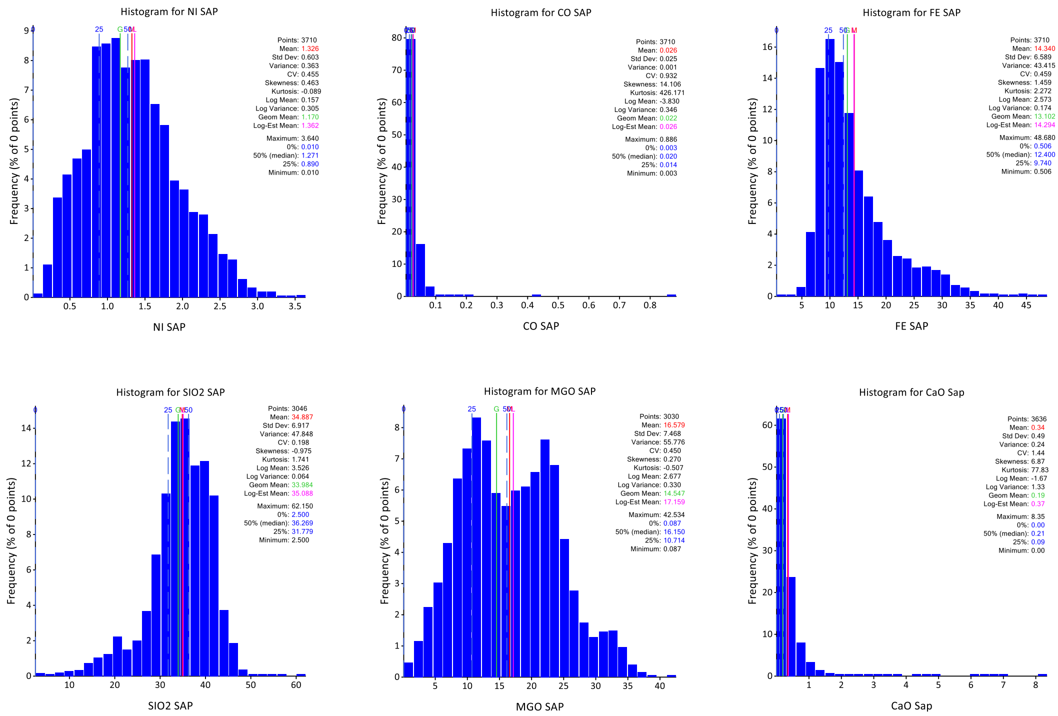
Source: PT TAS Technical Report of Mineral Resources

Figure 10-9 Histogram for major elements in Limonite layer – Torete Deposit



Source: PT TAS Technical Report of Mineral Resources

Figure 10-10 Histogram for major elements in Saprolite layer – Torete Deposit



Source: PT TAS Technical Report of Mineral Resources

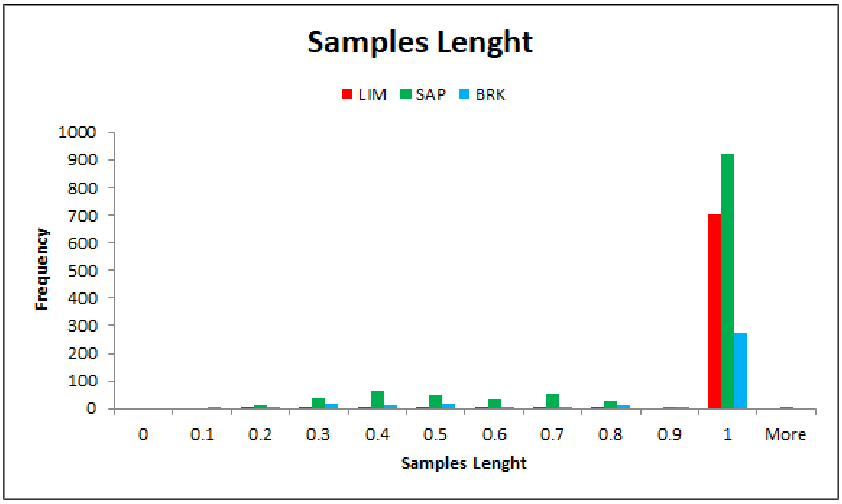
10.5 Compositing

10.5.1 Buleleng

Samples from within each geological domain were used to conduct a sample length analysis. Samples were composited to a standard 1 m interval, which is close to the original sampling interval (**Figure 10-11**).

The composites were checked for spatial correlation within the geological domains, the location of the rejected composites and zero composite values. Individual composite files were created for each of the geological domains. The composite data was analysis for basic statistics and compared with the drill hole samples. Statistics for the limonite and saprolite domains are summarised in **Table 10-6**, while probability plots are shown in **Figure 10-12 and Figure 10-13**.

Figure 10-11 Sample length distribution for Buleleng



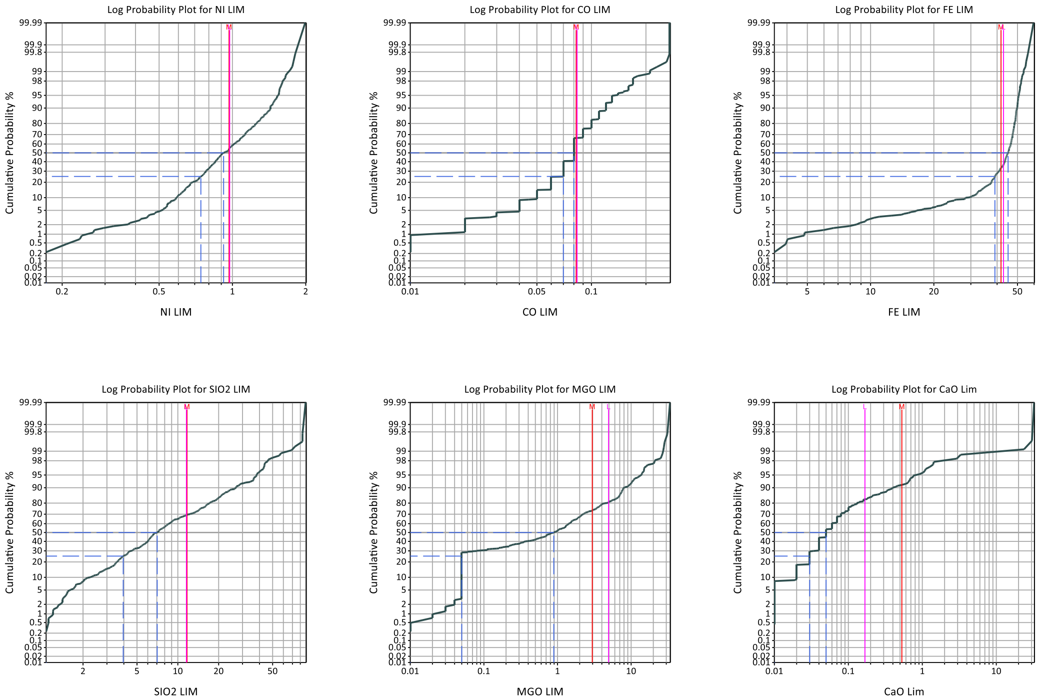
Source: PT TAS Technical Report of Mineral Resources

Table 10-6 Composite statistics for all elements and domains - Buleleng

Statistic	comps_lim						comps_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	442	430	442	431	412	231	888	852	888	855	856	846
Minimum	0.17	0.01	3.49	1.07	0.01	0.01	0.038	0.005	0.75	8.52	0.05	0.01
Maximum	1.99	0.27	59.61	87.55	33.71	32.45	3.67	0.29	48.61	90.76	40.99	4.97
Mean	0.97	0.08	41.75	11.69	2.97	0.53	1.143	0.035	15.217	44.032	18.068	0.723
Standard deviation	0.32	0.03	10.06	12.73	5.2	3.3	0.507	0.023	7.784	12.213	8.043	0.557
CV	0.33	0.41	0.24	1.09	1.75	6.24	0.444	0.651	0.512	0.277	0.445	0.771
Variance	0.1	0	101.12	162.11	27.08	10.89	0.257	0.001	60.588	149.159	64.695	0.311
Percentiles												
10%	0.59	0.05	28.61	2.25	0.05	0.02	0.467	0.02	8.123	28.995	5.793	0.114
20%	0.69	0.06	37.57	3.55	0.05	0.03	0.7	0.02	9.37	35.98	10.712	0.23
30%	0.78	0.07	40.94	4.55	0.08	0.04	0.883	0.02	10.478	39.303	14.43	0.34
40%	0.85	0.07	43.55	6.01	0.37	0.04	1.008	0.03	11.75	41.41	16.762	0.47
50%	0.92	0.08	45.12	7.05	0.89	0.05	1.123	0.03	12.73	43.74	19.33	0.6
60%	1.02	0.08	46.48	8.58	1.43	0.06	1.249	0.03	14.319	46.7	20.816	0.77
70%	1.13	0.09	47.42	12.22	2.24	0.08	1.362	0.04	16.819	49.885	22.838	0.97
80%	1.26	0.1	48.46	17.14	4.59	0.13	1.532	0.044	20.082	53.16	25.292	1.18
90%	1.43	0.12	49.81	26.85	8.04	0.4	1.77	0.06	25.367	57.61	28.204	1.476
95%	1.54	0.14	50.76	38.19	13.65	0.82	1.988	0.07	32.157	62.592	29.696	1.72
97.50%	1.59	0.17	51.89	43.67	19.12	1.41	2.25	0.08	36.474	70.599	31.096	1.924
99%	1.71	0.21	53.52	65.53	27.19	17.36	2.519	0.11	42.02	77.147	33.448	2.155

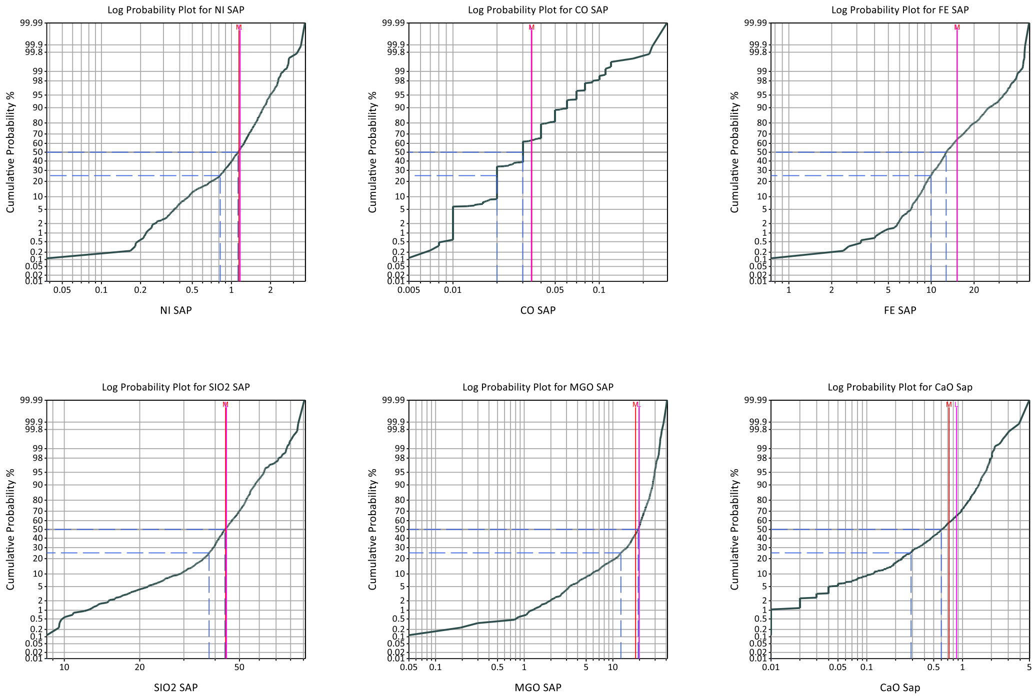
Source: PT TAS Technical Report of Mineral Resources

Figure 10-12 Probability Plots for major elements in Limonite layer – Buleleng Deposit



Source: PT TAS Technical Report of Mineral Resources

Figure 10-13 Probability Plots for major elements in Saprolite layer – Buleleng Deposit



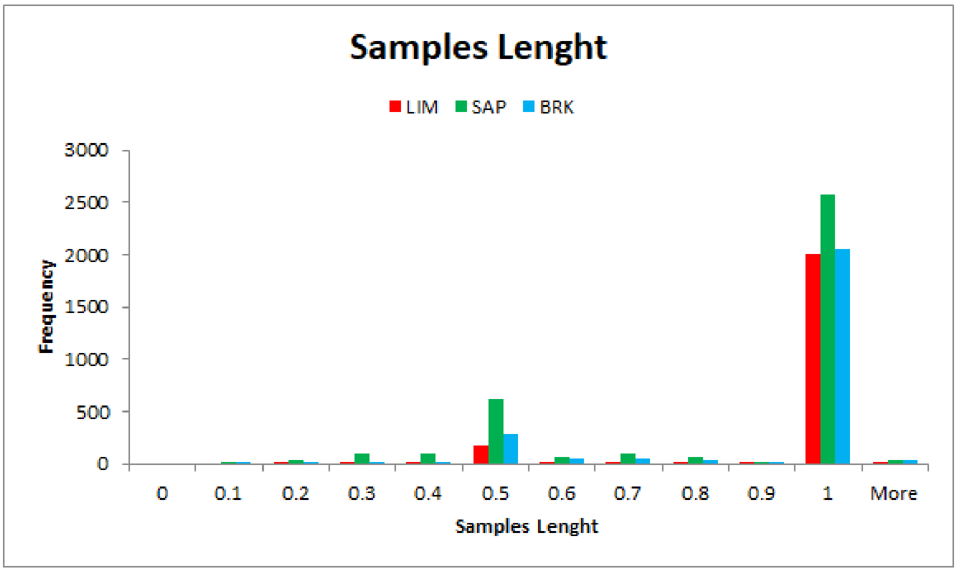
Source: PT TAS Technical Report of Mineral Resources

10.5.2 Torete

Samples from within each geological domain were used to conduct a sample length analysis. Samples were composited to a standard 1 m interval, which is close to the original sampling interval (**Figure 10-14**).

The composites were checked for spatial correlation within the geological domains, the location of the rejected composites and zero composite values. Individual composite files were created for each of the geological domains. The composite data was analysis for basic statistics and compared with the drill hole samples. Statistics for the limonite and saprolite domains are summarised in **Table 10-7**, while probability plots are shown in **Figure 10-15 and Figure 10-16**.

Figure 10-14 Sample length distribution for Buleleng



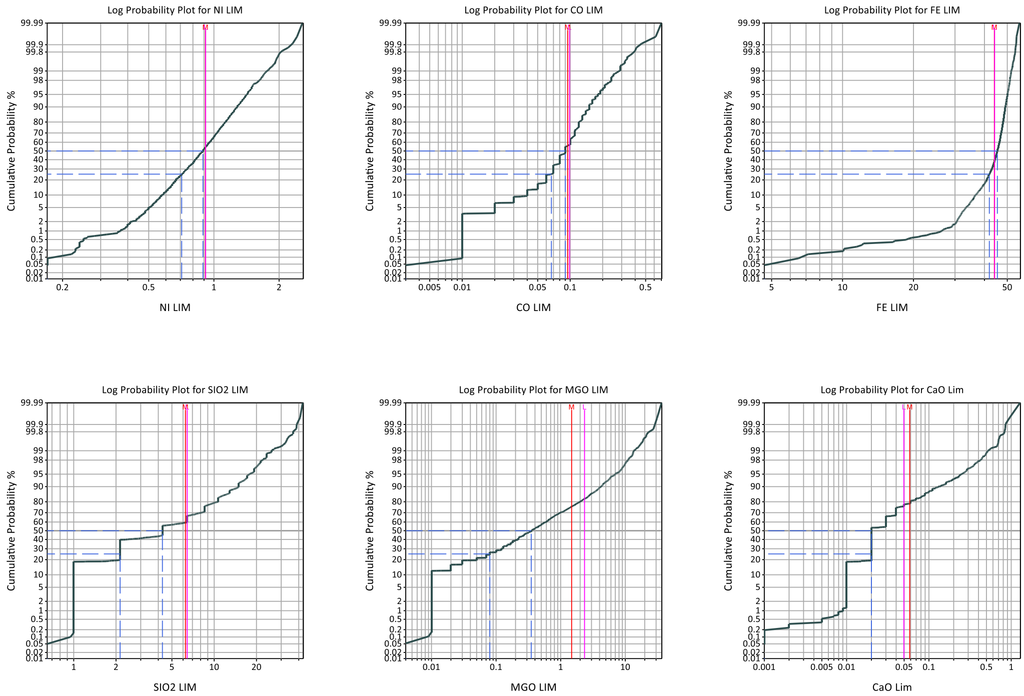
Source: PT TAS Technical Report of Mineral Resources

Table 10-7 Composite statistics for all elements and domains - Torete

Statistic	comps_lim						comps_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	2242	2242	2242	2001	1893	2086	3287	3287	3287	2666	2657	3245
Minimum	0.17	0	4.66	0.65	0	0	0.01	0.008	0.67	2.5	0.087	0.002
Maximum	2.56	0.7	56.28	42.67	36.47	1.28	3.64	0.339	48.68	62.15	37.12	6.46
Mean	0.91	0.09	44.07	6.24	1.48	0.06	1.322	0.026	14.316	35.168	16.757	0.326
Standard deviation	0.29	0.05	5.46	5.9	3	0.1	0.598	0.02	6.25	6.7	7.165	0.435
CV	0.32	0.56	0.12	0.95	2.03	1.77	0.453	0.753	0.437	0.191	0.428	1.334
Variance	0.08	0	29.78	34.83	9.02	0.01	0.358	0	39.061	44.891	51.334	0.189
Percentiles												
10%	0.58	0.04	36.65	1	0.01	0.01	0.57	0.01	8.41	26.735	7.865	0.04
20%	0.67	0.06	40.9	2.14	0.05	0.02	0.82	0.012	9.59	31.015	10.115	0.07
30%	0.75	0.07	42.98	2.14	0.12	0.02	0.96	0.018	10.501	32.757	12.005	0.11
40%	0.82	0.08	44.31	2.41	0.22	0.02	1.1	0.02	11.4	34.22	14.209	0.15
50%	0.89	0.09	45.39	4.28	0.35	0.02	1.26	0.02	12.54	36.36	16.521	0.205
60%	0.95	0.1	46.33	6.42	0.6	0.03	1.42	0.022	13.811	37.43	19.03	0.272
70%	1.03	0.11	47.11	8.13	0.98	0.04	1.593	0.03	15.559	38.713	21.145	0.36
80%	1.13	0.12	48.02	10.7	2.01	0.06	1.816	0.034	18.34	40.64	23.022	0.479
90%	1.28	0.15	49.06	14.97	4.22	0.13	2.143	0.048	22.831	42.78	25.736	0.695
95%	1.42	0.18	50.14	17.84	7.04	0.25	2.42	0.06	28.002	43.85	29.079	1
97.50%	1.54	0.22	51.08	21.18	10.07	0.37	2.63	0.072	30.898	45.103	31.529	1.279
99%	1.76	0.29	51.96	25.67	13.55	0.52	2.791	0.1	35.154	47.06	33.562	2.031

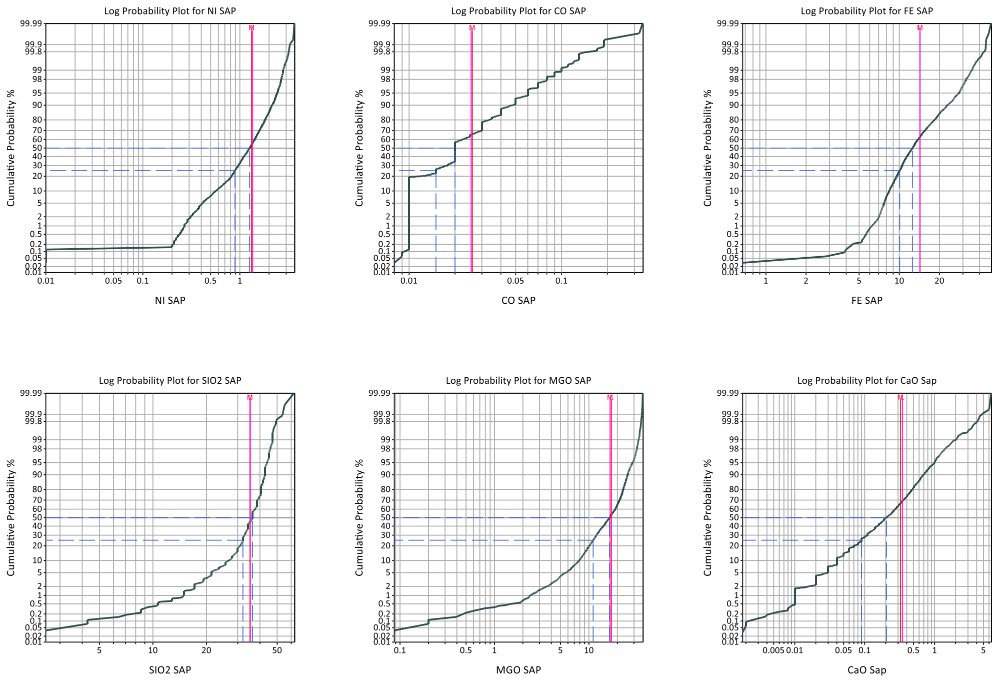
Source: PT TAS Technical Report of Mineral Resources

Figure 10-15 Probability Plots for major elements in Limonite layer – Torete Deposit



Source: PT TAS Technical Report of Mineral Resources

Figure 10-16 Probability Plots for major elements in Saprolite layer – Torete Deposit



Source: PT TAS Technical Report of Mineral Resources

10.6 Bulk Density and Moisture Data

Previous bulk density data came from limited test pit and drill core samples. A significant program of new measurements was completed as part of the 2018 drilling program. Moisture and bulk density estimates used for this resource estimate are presented in **Table 10-8.**

Table 10-8 Summary results of bulk density and moisture

Method	Deposit	Material Type	Wet Bulk Density (t/cu.m)	Moisture Content %	Dry Bulk Density (t/cu.m)	Data Used
CALIPER	BUL	LIM	1.70	40.91	1.01	9.00
CALIPER	BUL	SAP	1.68	37.83	1.04	4.00
CALIPER	BUL	BRK	2.19	5.23	2.08	3.00
CALIPER	TOR	LIM	1.70	29.16	1.21	5.00
CALIPER	TOR	SAP	1.69	22.56	1.33	6.00
CALIPER	TOR	BRK	2.28	5.63	2.15	14.00
ARCHIMEDES	BUL	LIM	1.71	39.75	1.03	12.00
ARCHIMEDES	BUL	SAP	1.52	27.41	1.10	28.00
ARCHIMEDES	BUL	BRK	2.61	3.74	2.52	2.00
ARCHIMEDES	TOR	LIM	1.73	30.71	1.20	3.00
ARCHIMEDES	TOR	SAP	1.44	24.14	1.09	16.00
ARCHIMEDES	TOR	BRK	2.37	5.63	2.24	14.00
AVERAGE	**BUL**	**LIM**	**1.71**	**40.33**	**1.02**	**21.00**
		SAP	**1.60**	**32.62**	**1.07**	**32.00**
		BRK	**2.40**	**4.49**	**2.30**	**5.00**
AVERAGE	**TOR**	**LIM**	**1.71**	**29.94**	**1.20**	**8.00**
		SAP	**1.56**	**23.35**	**1.21**	**22.00**
		BRK	**2.32**	**5.63**	**2.19**	**28.00**

Source: PT TAS Technical Report of Mineral Resources

10.7 High Grade Cuts

The statistics for each geological domain were analysed to determine if there were any significant outliers for any of the elements that would result in conditional bias within the estimate. These outliers would have to be cut to a lower value to remove their impact on the estimation. After analysis of the histograms and probability plots, no significant outliers were observed so no high-grade cuts were applied to the datasets.

10.8 Geostatistical Analysis

10.8.1 Variography

Mineralisation continuity within each geological domain was examined by variography. Variography examines the spatial relationship between composites and seeks to identify the directions of mineralisation continuity and to quantify the ranges of grade continuity. Variography was also used to determine the random variability or 'nugget effect' of each deposit. The results provide the basis for determining appropriate kriging parameters for resource estimation.

Experimental semivariograms were calculated of six elements within each geological domain for each deposit. The general orientation of the plane of mineralisation was found to be flat-lying, with no significant dip or plunge component. The experimental semivariograms were calculated with the first aligned along the main direction of mineralisation continuity ("major direction") while the second was aligned in the plane of mineralisation at 90° to the first orientation (“semi-major direction”). The third was orientated perpendicular to the mineralisation plane and across the width of the mineralisation (“minor direction”), which in these deposits was vertical. Then fitted semivariogram models to each of the experimental semivariograms.

The geostatistical analysis found that each domain displayed no anisotropy in the horizontal plane with similar or identical models being fitted for both the major and semi-major directions. For all domains, two-structured, nested spherical models were found to model the experimental semivariograms reasonably well. The natural variability or nugget value was determined using the down hole semivariogram for all domains and elements.

10.8.2 Kriging Parameters

The element grades were interpolated into block models using ordinary kriging (“OK”) with the nugget, sill values and ranges determined from the semivariogram models. The ranges obtained from the variogram models were used as a guide for the search ellipse parameters used in the Mineral Resource estimate. The kriging parameters from the semivariograms for each element and domain of both deposits are shown in **Table 10-9.**

Table 10-9 Kriging parameters from the semivariograms for element and domain

Deposit	Domain	Element	Major Direction	Nugget Co	Structure 1				Structure 2			
					Sill C1	Range A1	Maj/Semi1	Maj/Minor1	Sill C2	Range A2	Maj/Semi2	Maj/Minor2
BUL	LIM	Ni	00-->120	0.00	0.84	385	1.01	55.00	0.16	450	1.02	56.25
		Co	00-->120	0.12	0.43	549	1.01	109.80	0.45	681	1.01	61.91
		Fe	00-->120	0.04	0.37	328	1.01	20.50	0.59	389	1.01	22.88
		SiO2	00-->120	0.07	0.87	347	1.01	28.92	0.06	395	1.01	30.38
		MgO	00-->120	0.02	0.03	180	1.03	90.00	0.95	508	1.01	29.88
		CaO	00-->120	0.00	0.92	168	1.02	84.00	0.08	219	1.02	73.00
	SAP	Ni	00-->120	0.01	0.27	225	1.02	75.00	0.72	290	1.02	22.31
		Co	00-->120	0.11	0.34	147	1.01	49.00	0.55	306	1.02	27.82
		Fe	00-->120	0.11	0.41	93	1.03	18.60	0.48	123	1.03	7.69
		SiO2	00-->120	0.16	0.31	140	1.04	23.33	0.53	170	1.03	8.50
		MgO	00-->120	0.08	0.07	113	1.03	56.50	0.85	240	1.02	24.00
		CaO	00-->120	0.16	0.19	135	1.04	67.50	0.65	231	1.03	11.55
TOR	LIM	Ni	00-->125	0.00	0.82	25	1.09	6.25	0.18	50	1.04	10.00
		Co	00-->125	0.00	0.64	42	1.05	14.00	0.36	63	1.05	15.75
		Fe	00-->125	0.31	0.44	165	1.03	18.33	0.25	210	1.02	21.00
		SiO2	00-->125	0.12	0.49	245	1.02	18.85	0.39	280	1.02	20.00
		MgO	00-->125	0.03	0.31	125	1.02	62.50	0.66	335	1.01	20.94
		CaO	00-->125	0.01	0.22	95	1.06	8.64	0.66	335	1.01	20.94
	SAP	Ni	00-->105	0.00	0.84	68	1.05	9.71	0.16	106	1.03	13.25
		Co	00-->105	0.38	0.24	42	1.05	10.50	0.38	83	1.04	16.60
		Fe	00-->105	0.14	0.18	35	1.03	17.50	0.68	53	1.02	10.60
		SiO2	00-->105	0.13	0.13	61	1.02	30.50	0.74	83	1.04	10.38
		MgO	00-->105	0.03	0.24	79	1.03	39.50	0.73	147	1.01	11.31
		CaO	00-->105	0.27	0.31	64	1.05	32.00	0.42	143	1.02	14.30

Source: PT TAS Technical Report of Mineral Resources

11. MINERAL RESOURCE ESTIMATE

11.1 Block Model

The block dimensions were selected to provide sufficient resolution to the block model in the across-strike and down-dip direction and were approximately half the dominant drill spacing.

Two block models were created to model each of Buleleng and Torete. At Buleleng, the block dimensions used were 25 m NS by 25 m EW by 1 m vertical for parent blocks, with sub-cells of 12.5 m by 12.5 m by 0.5 m. At Torete the block dimensions used were 12.5 m NS by 12.5 m EW by 1 m vertical for parent blocks with no sub-cells. Block model parameters are listed in **Table 11-1 and Table 11-2**.

Table 11-1 Resource Model Definition (UTM WGS 84 Zone 51S) atributes and parameters for Buleleng

Model Name	280619_model_bul_ok.mdl		
	Y (Northing)	X (Easting)	Z (RL)
Block Model Origin	9,664,800	413,500	-20
Block Extents	9,666,800	417,000	300
Block Size (Sub-blocks)	25 (12.5)	25 (12.5)	1 (0.5)
Rotation	0°		
Attributes:			
ni_ok	Ni estimated grade		
co_ok	Co estimated grade		
fe_ok	Fe estimated grade		
sio2_ok	SiO2 estimated grade		
mgo_ok	MgO estimated grade		
cao_ok	CaO estimated grade		
bd_dry	Dry density		
bd_wet	Wet density		
mc	Moisture content		
min_dis	Distance to nearest sample		
ave_dis	Average distance to samples		
num_sam	Number of samples used for block grade interpolation		
ke	Kriging efficiency		
kv	Kriging variance		
neg_wt	Numbers of negative weights		
type	air (above topo), min (mineralisation), waste (below sapbot)		
lith	lim, sap, brk		
pass_ok	OK Estimation pass number		
desc	rto, earnout		
class	mea, ind, inf, unknown		
boundary	in or out		
licence	in or out		

Source: PT TAS Technical Report of Mineral Resources

Table 11-2 Resource Model Definition (UTM WGS 84 Zone 51S) atributes and parameters for Torete

Model Name	280619_model_bul_ok.mdl		
	Y (Northing)	X (Easting)	Z (RL)
Block Model Origin	9,667,000	410,500	-20
Block Extents	9,670,500	414,500	410
Block Size (Sub-blocks)	12.5 (12.5)	12.5 (12.5)	1 (1)
Rotation	0°		
Attributes:			
ni_ok	Ni estimated grade		
co_ok	Co estimated grade		
fe_ok	Fe estimated grade		
sio2_ok	SiO2 estimated grade		
mgo_ok	MgO estimated grade		
cao_ok	CaO estimated grade		
bd_dry	Dry density		
bd_wet	Wet density		
mc	Moisture content		
min_dis	Distance to nearest sample		
ave_dis	Average distance to samples		
num_sam	Number of samples used for block grade interpolation		
ke	Kriging efficiency		
kv	Kriging variance		
neg_wt	Numbers of negative weights		
type	air (above topo), min (mineralisation), waste (below sapbot)		
lith	lim, sap, brk		
pass_ok	OK Estimation pass number		
desc	rto, earnout		
mined	no or yes		
class	mea, ind, inf, unknown		
boundary	in or out		
licence	in or out		

Source: PT TAS Technical Report of Mineral Resources

11.2 Block Model Coding

The block model was coded by lithology/weathering and type in the “lith” attribute. Details of the procedure used to code the lithology/weathering attribute in the block model are shown in **Table 11-3.**

Table 11-3 Blocks Model Coding Methodology

Attributes	Value	Assignment Methodology
Lith	lim	Limonite ("lim") - blocks below natural surface DTM and above limonite floor DTM
	sap	Saprolite ("sap") – blocks above saprolite floor DTM and below limonite floor DTM
Type	air	Air - blocks above natural surface DTM
	min	Mineralisation ("min") - blocks below natural surface DTM and above saprolite floor DTM
	waste	Waste - blocks below saprolite floor DTM

Source: PT TAS Technical Report of Mineral Resources

11.3 Grade Interpolation

11.3.1 General

The ordinary kriging ("OK") algorithm was used for the grade interpolation and the lithology/weathering surfaces were used as hard boundaries for the grade estimation of each element in each d40ain. Element grades were estimated for the LIM and SAP domains only. No grades were estimated for blocks in the BRK domain as the material is not extracted due to low grades and is waste material (not economical).

11.3.2 Search Ellipsoid Parameters

A flat-lying search ellipsoid with no dip or plunge component was used to select data for interpolation. Each ellipsoid was oriented based on kriging parameters and were consistent with the interpreted geology. Author considered using an oriented search ellipsoid to match the parts of the deposits with minor differences of topographic and domain slope however found this was not necessary due to optimal selection of search distances and number of samples criteria used to estimate each block. This was confirmed after local grade validation following the estimation**.**

Three interpolation passes were used for the interpolation with a fixed maximum number of samples used for all passes and varying minimum number of samples for each pass. The final pass used a large search ellipsoid and a minimum sample of one to ensure all blocks were estimated. The estimation parameters are listed in **Table 11-4** and **Table 11-5.**

Table 11-4 Search ellipsoid parameters for Buleleng

Domain	**Limonite**				**Saprolite**			
Parameter	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4
Search Type	Ellipsoid				Ellipsoid			
Bearing	120				120			
Dip	0				0			
Plunge	0				0			
Major-Semi Major Ratio	1.01				1.03			
Major-Minor Ratio	55.21				32.65			
Search Radius	75	150	300	1000	75	150	300	1000
Minimum Samples	8	8	4	1	8	8	4	1
Maximum Samples	40	40	40	40	40	40	40	40
Max. Sam. per Hole	4	4	4	4	4	4	4	4
Block Discretisation	4X by 4Y by 2Z				4X by 4Y by 2Z			
Percentage Blocks Filled	18.94%	32.79%	37.38%	10.89%	40.36%	38.34%	20.33%	0.97%

Source: PT TAS Technical Report of Mineral Resources

Table 11-5 Search ellipsoid parameters for Torete

Domain	Limonite				Saprolite			
Parameter	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4
Search Type	Ellipsoid				Ellipsoid			
Bearing	125				105			
Dip	0				0			
Plunge	0				0			
Major-Semi Major Ratio	1.04				1.03			
Major-Minor Ratio	19.77				18.01			
Search Radius	37.5	75	150	500	37.5	75	150	500
Minimum Samples	8	8	4	1	8	8	4	1
Maximum Samples	40	40	40	40	40	40	40	40
Max. Sam. per Hole	4	4	4	4	4	4	4	4
Block Discretisation	4X by 4Y by 2Z				4X by 4Y by 2Z			
Percentage Blocks Filled	5.67%	5.98%	35.74%	52.59%	11.85%	10.97%	58.53%	18.64%

Source: PT TAS Technical Report of Mineral Resources

11.4 Density and Material Type

Bulk density values and moisture values were assigned to each domain in the block models based on the average determined from measurements made during 2018, and are considered reasonable. The bulk density and moisture content values assigned in the block models are shown below.

11.5 Model Validation

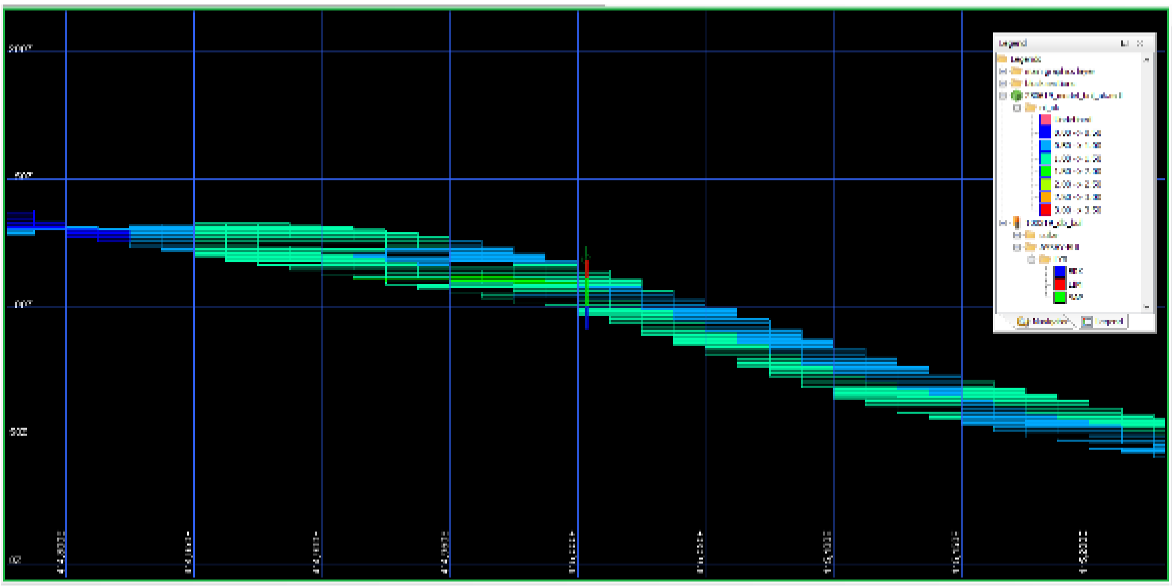
11.5.1 Validation of Estimation

A three-step process was used to validate the estimate at each deposit. Firstly, a qualitative and visual assessment was completed by slicing sections through the block model in positions coincident with drilling to assess the local validation. Overall, the assessment indicated that the block grades were very similar to the drill hole grades and consistent with the interpreted orientation of the geological domains (**Figure 11-1 to Figure 11-4**).

A quantitative assessment of the estimate was completed by comparing the global average grades of the sample composites input against the global block model average grades output for all domains. The comparative results for Ni and Fe are tabulated in **Table 11-6.** Very little difference can be observed between the average sample grades and the block model grades, confirming the high quality of the estimation process.

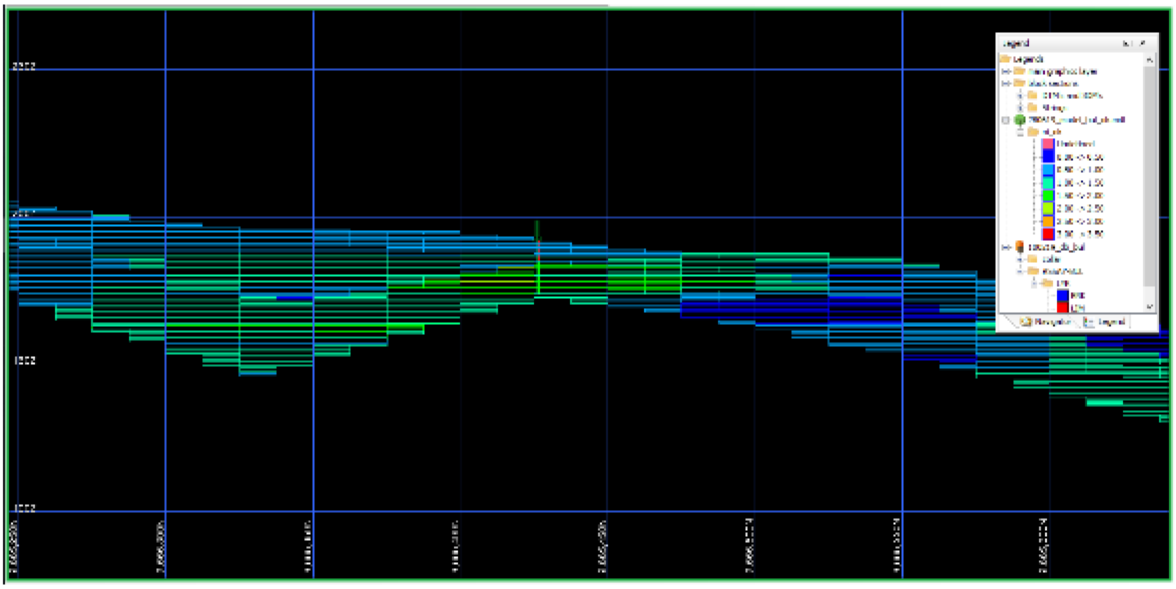
Validation was also carried out by comparing the average composite grades along northings, eastings and by elevation versus the average block grades along northings, eastings and by elevation. Swath plots were compiled to conduct the comparison for Ni and Fe and are shown in **Figure 11-5 to Figure 11-12.** The swath plots show a very close correlation between the average drill hole grades and the average block grades confirming the high quality of the estimation. In addition, the trends shown in the drill hole data are honoured in the block model. The comparisons show the effect of the interpolation, which results in smoothing of the block grades, compared to the composite grades as expected using the OK algorithm.

Figure 11-1 Cross-sections of Buleleng Block Model and Drill Hole, Section 9,666,000 m Northing



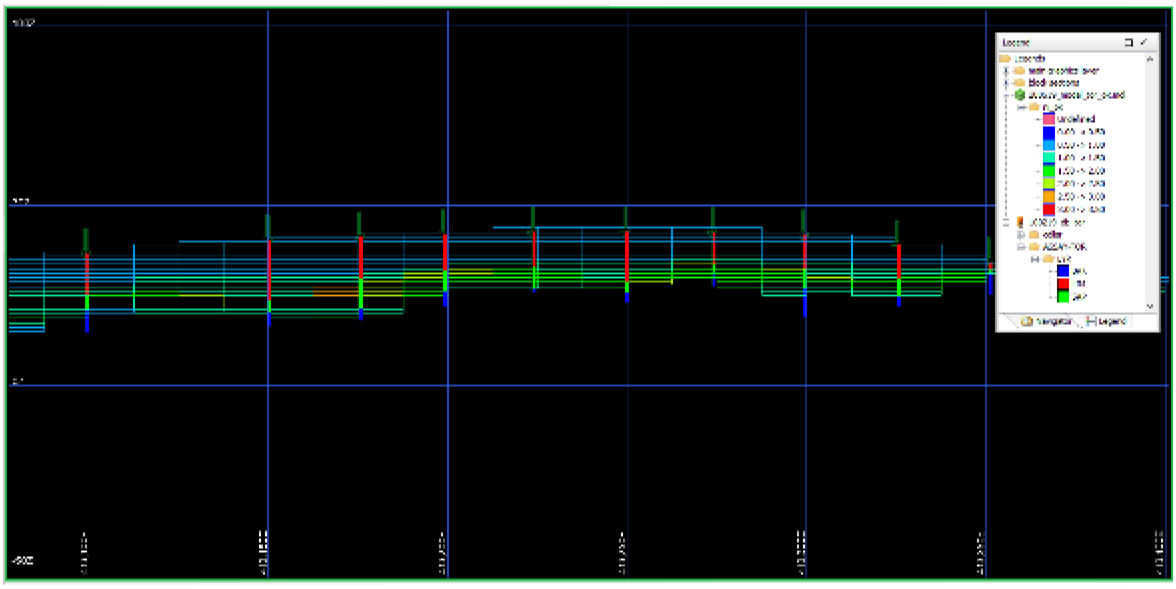
Source: PT TAS Technical Report of Mineral Resources

Figure 11-2 Cross-sections of Buleleng Block Model and Drill Hole, Section 415,000 m Easting



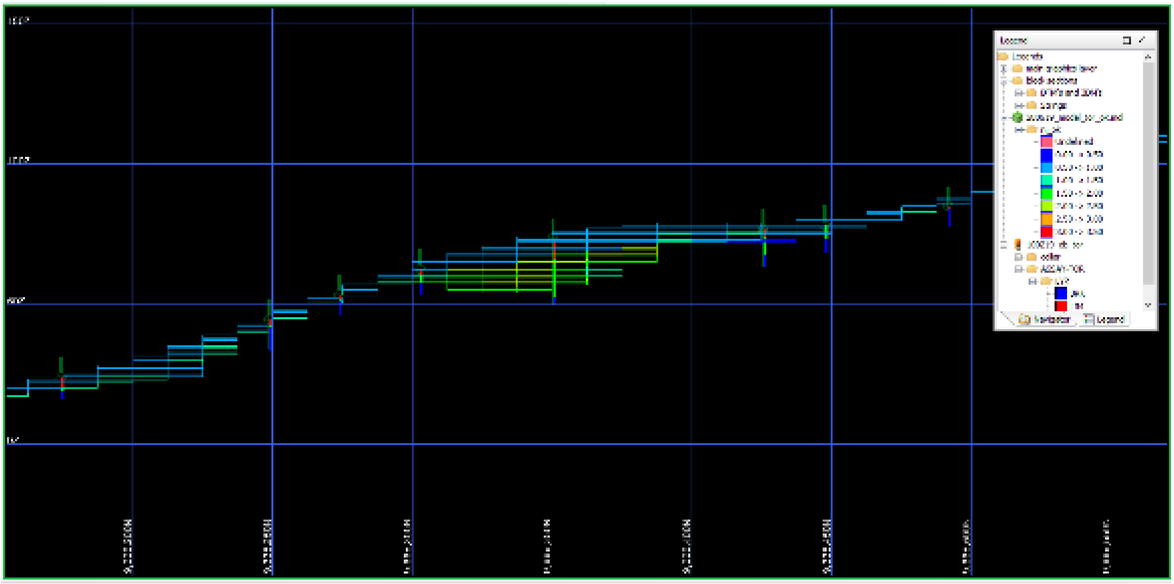
Source: PT TAS Technical Report of Mineral Resources

Figure 11-3 Cross-sections of Torete Block Model and Drill Hole, Section 9,668,350 m Northing



Source: PT TAS Technical Report of Mineral Resources

Figure 11-4 Cross-sections of Torete Block Model and Drill Hole, Section 413,600 m Easting



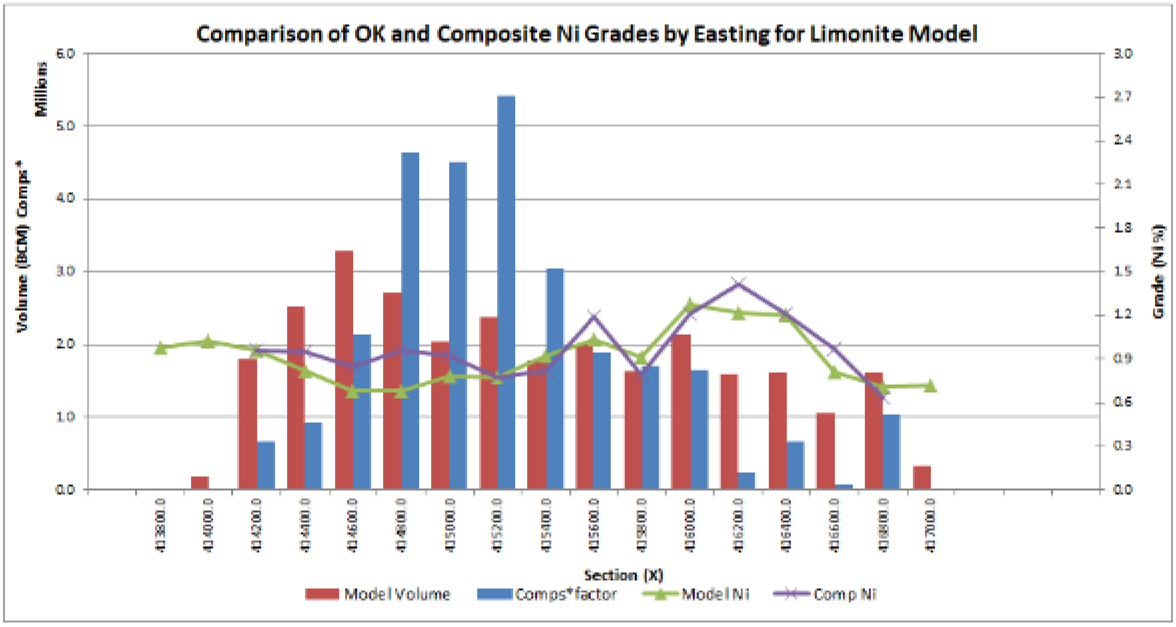
Source: PT TAS Technical Report of Mineral Resources

Table 11-6 Global average grades by lithology domains of block models versus sample composites for buleleng and Torete

Deposit	Lith	Raw		Composites		Block Model		Differences Comps - Model	Rel. Differences Comps - Model
		Number of Raws	Ni %	Number of Comps	Ni %	Resource Volume (m3)	Ni %	Ni %	Ni %
BUL	lim	449	0.970	442	0.970	28,604,453	0.889	0.081	0.0009
	sap	987	1.135	888	1.143	23,745,234	1.076	0.067	0.0006
TOR	lim	2,275	0.920	2,242	0.910	29,339,375	0.978	-0.068	-0.0007
	sap	3,710	1.326	3,287	1.322	21,483,281	1.121	0.201	0.0016

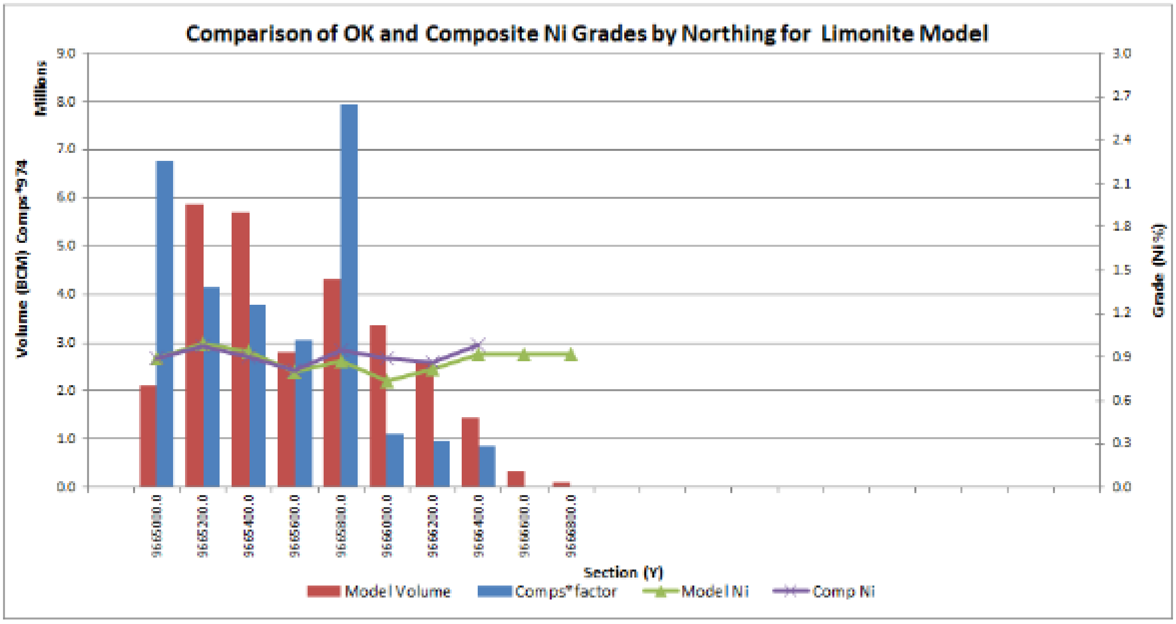
Source: PT TAS Technical Report of Mineral Resources

Figure 11-5 Validation Swath Plots for Composite Ni Grades by Easting for Limonite Model Buleleng Deposit



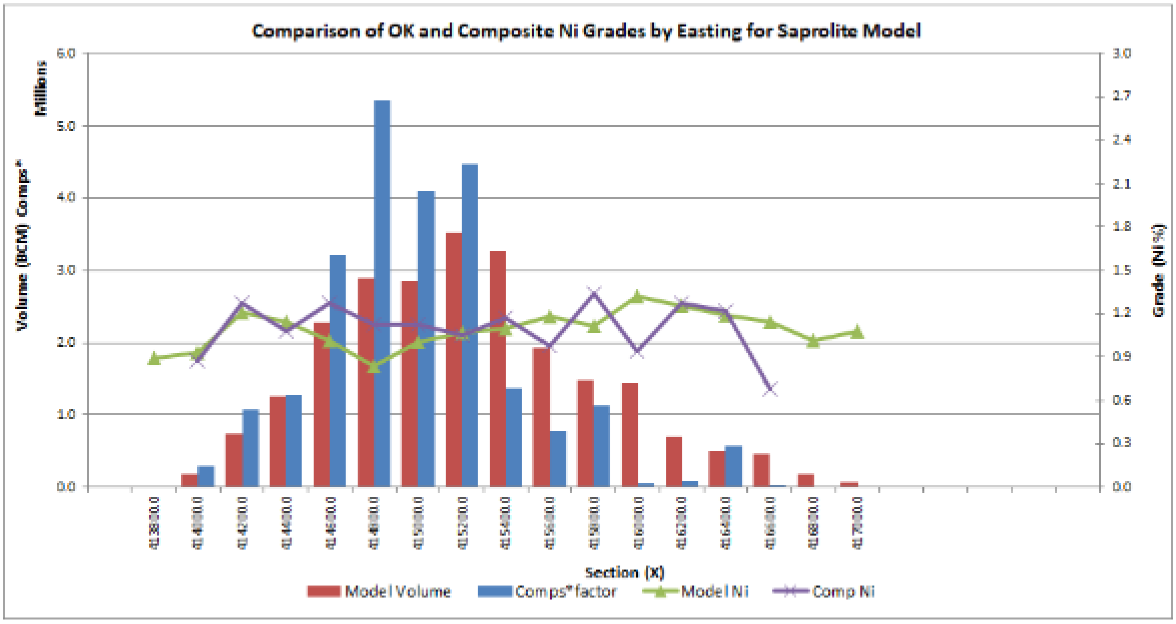
Source: PT TAS Technical Report of Mineral Resources

Figure 11-6 Validation Swath Plots for Composite Ni Grades by Northing for Limonite Model Buleleng Deposit



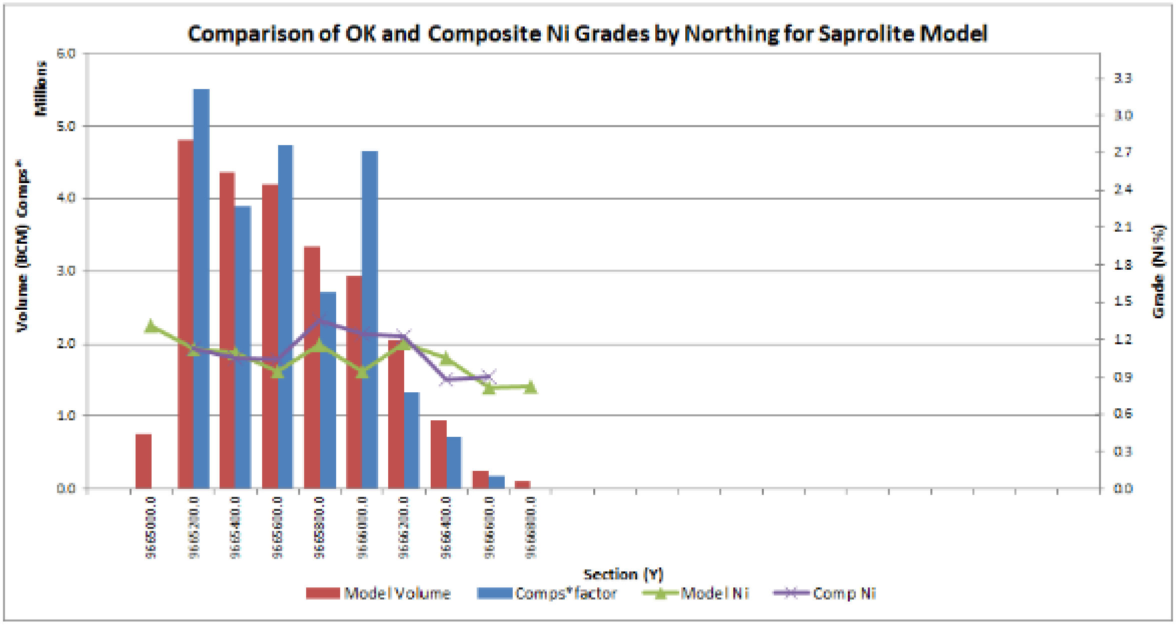
Source: PT TAS Technical Report of Mineral Resources

Figure 11-7 Validation Swath Plots for Composite Ni Grades by Easting for Saprolite Model Buleleng Deposit



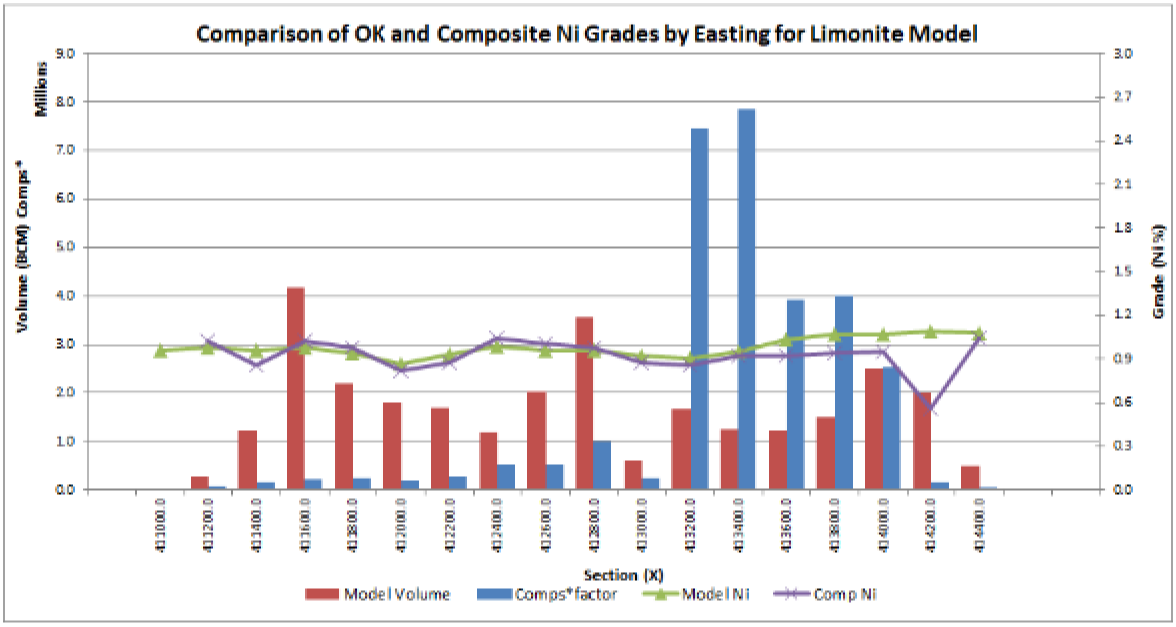
Source: PT TAS Technical Report of Mineral Resources

Figure 11-8 Validation Swath Plots for Composite Ni Grades by Northing for Saprolite Model Buleleng Deposit



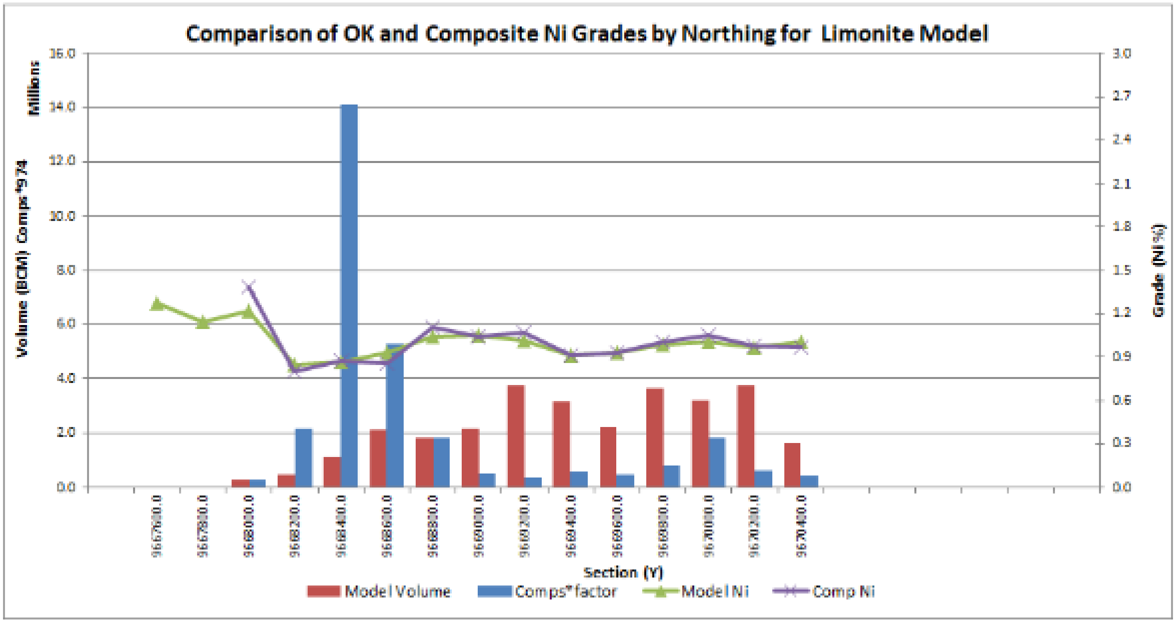
Source: PT TAS Technical Report of Mineral Resources

Figure 11-9 Validation Swath Plots for Composite Ni Grades by Easting for Limonite Model Torete Deposit



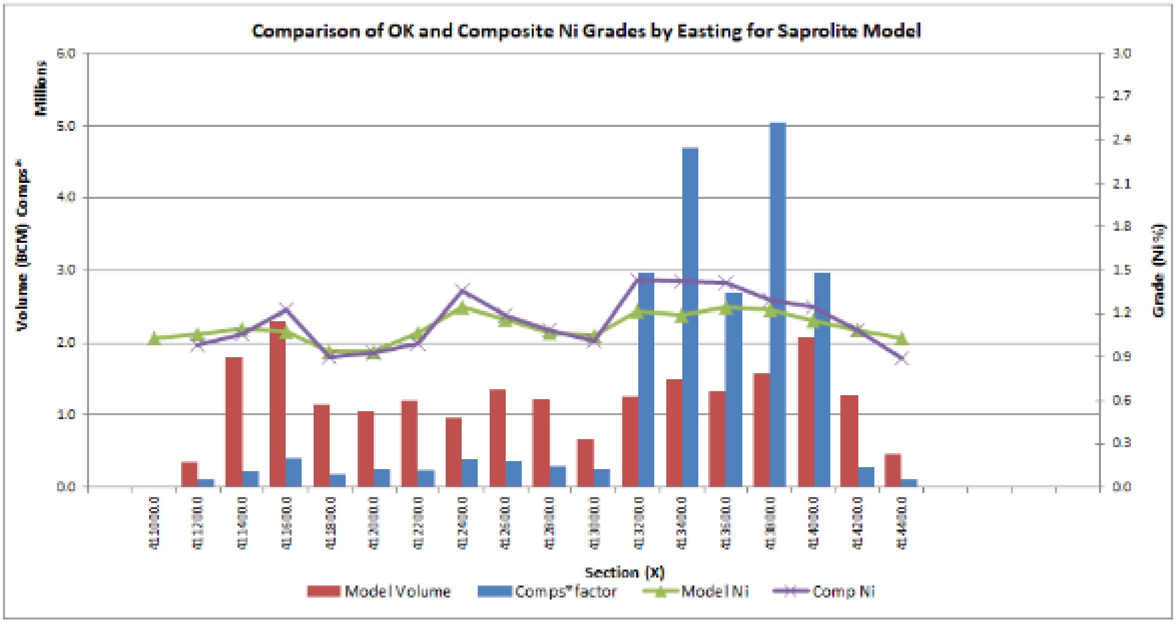
Source: PT TAS Technical Report of Mineral Resources

Figure 11-10 Validation Swath Plots for Composite Ni Grades by Northing for Limonite Model Torete Deposit



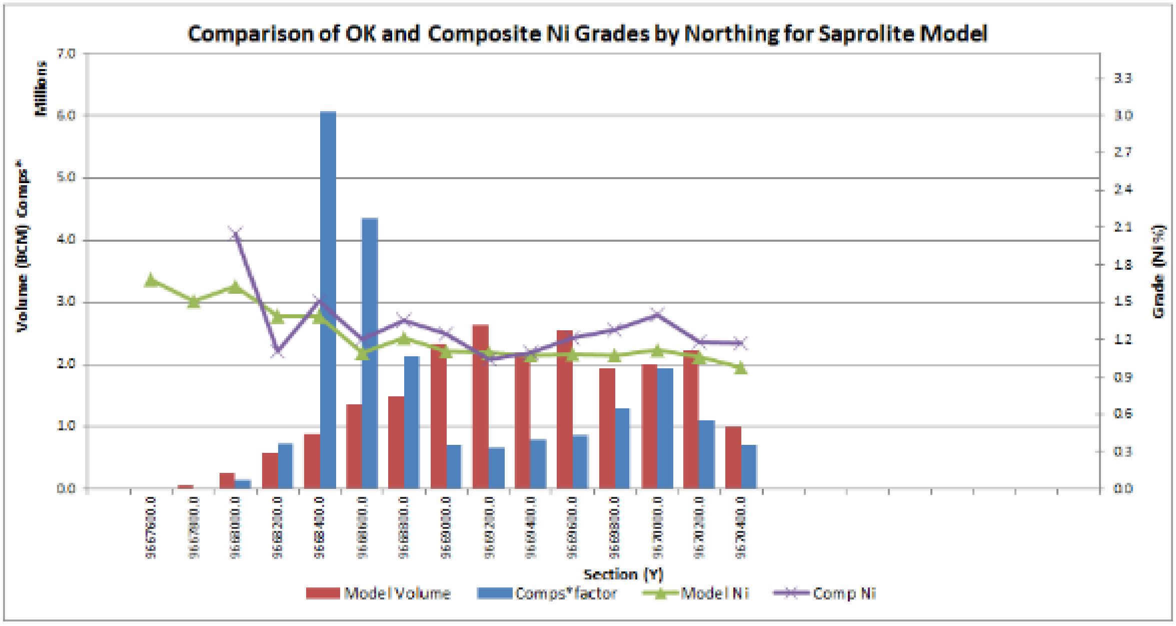
Source: PT TAS Technical Report of Mineral Resources

Figure 11-11 Validation Swath Plots for Composite Ni Grades by Easting for Saprolite Model Torete Deposit



Source: PT TAS Technical Report of Mineral Resources

Figure 11-12 Validation Swath Plots for Composite Ni Grades by Northing for Saprolite Model Torete Deposit



Source: PT TAS Technical Report of Mineral Resources

11.5.2 Reconciliation with Production data

Reconciliation was conducted between the mined quantities and grades in the block model compared to the historical, annual production data for each deposit. The production data consisted of total shipped tonnes and grade and also monthly trucked tonnes from each pit area for each deposit. The truck production data ranged from the start of 2015 to 20th May 2019.

The boundary of the mined-out area in each block was also available, which shows the areas that had been completely mined out and left as a pit area after mining was completed. This boundary also shows those areas that have been back-filled after mining. Identification of the different areas was required to allow coding of the block model correctly to determine all material that had been mined. The boundary of mined-out areas was used as the strings that identified the mined-out and back-filled areas and a cut-off grade of 1.4% Ni to determine the tonnage and grade of mined material in the block model. This was compared to the equivalent total tonnage and grades for each area contained in the truck production data for Torete and Buleleng..

The results indicated that the quantities of mined material reported from the block model for the Torete deposit was approximately equal to the reported total truck production data for the period with block model reporting around 5% less tonnes than the production data (**Table 11-7**). The production data for Torete used in the reconciliation also included wet tonnages of current stockpile material estimated at approximately 11,500 WMT. In addition, little variation in grade can be observed with the production data and block model indicating an average grade of 1.8% Ni.

For Buleleng, the quantities of mined material reported from the block model were also similar to the reported total truck production data for the period, with the block model reporting around 3% less tonnes than the production data (**Table 11-7**). The production data for Buleleng used in the reconciliation also included wet tonnages of current stockpile material estimated at approximately 54,200 WMT. Although the wet tonnage comparison result is close, the grade of the block model to the production data was slightly different with the block model reporting a grade of 1.63% Ni compared to the production grade of 1.70% Ni. It was assumed that blending of different ore types was carried out to produce material of specific grade ranges as is normal practice in mines in nickel laterite and can potentially account for any differences in the reconciliation.

Table 11-7 Reconciliation of Truck Production Data Compared to Block Models

Deposit	Truck Production		Block Model		% Different	
	Wet Tonnes	Ni %	Wet Tonnes	Ni %	Wet Tonnes	Ni
Torete	663,500	1.8	601,200	1.8	5%	0.3%
Buleleng	163,100	1.7	154,800	1.6	3%	2.3%
Total / Average	**826,600**	**1.8**	**756,000**	**1.8**	4%	0.7%

Source: PT TAS Technical Report of Mineral Resources

11.6 Resource Classification

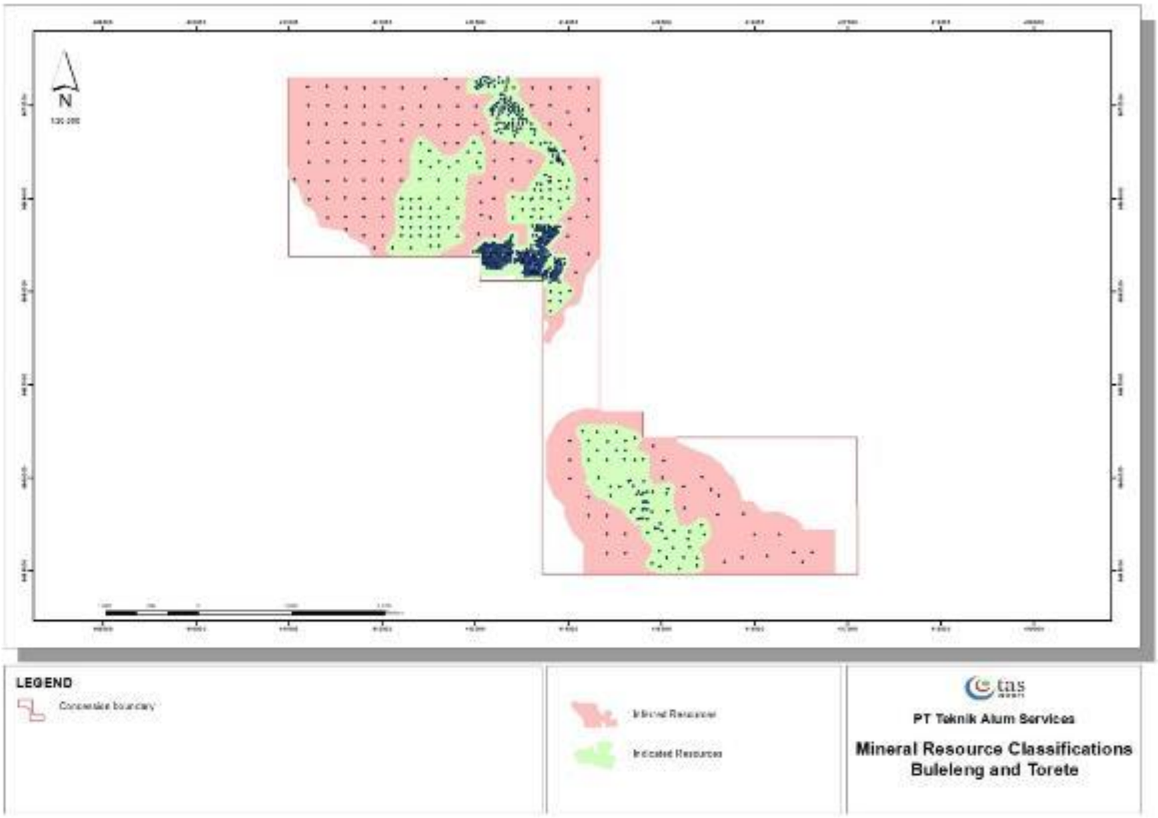
Mineralisation at the Project appears to be very consistent in terms of grade within most domains as demonstrated by the results of the statistical and geostatistical analyses.

The Mineral Resources were classified as Indicated and Inferred Mineral Resources based on data quality, sample spacing, and grade continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 50 m by 50 m and 100 m by 100 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 100 m by 100 m, often on the periphery of the Indicated Resources.

There are large areas of the project defined by drilling on 25 m by 25 m spacing or even closer. These areas could have been classified in the Measured category but were classified as Indicated due to limited data quality as was determined after analysis of the assay QA/QC data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited bulk density and moisture determinations.

The Mineral Resource has been constrained by an outer boundary around the periphery of the drill holes at a distance approximately half the adjacent drill spacing or less. The Mineral Resource has also been constrained by the licence boundaries. Plan views of the classified block models for each deposit are shown in **Figure 11-13.**

Figure 11-13 Plan view of classified block models for each block deposits



Source: PT TAS Technical Report of Mineral Resources

11.7 Reporting Cut-off Criteria

Mineral Resources are reported using three different cut-off criteria that are appropriate for different sales arrangements that PT TAS has, or is, negotiating with its potential customers:

- A low-grade nickel product with enriched cobalt (≥ 0.06% Co).
- A medium-grade nickel product that is cobalt depleted (Ni ≥ 1.0% and < 1.4%)
- A high-grade nickel product, that is cobalt depleted (≥ 1.40%)

GAS believes that there are reasonable prospects for eventual economic extraction of all three of these mineralisation types, based on the contract terms negotiated with clients and/or letters of intent covering these mineralisation types.

11.8 Mineral Resources

The updated Mineral Resource estimates for the Project as at 27th May 2019, reported using various Ni cut-off grades is 146.6 MWMT of which 87.0 MWMT are in the RTO area and the balance of 59.5 MWMT are in EARNOUT area. The estimate is summarised in **Table 11-8,** Detailed estimates using various cut-off grade of Ni and Co are reported in **Table 11-9, Table 11-10, Table 11-11 and Table 11-12** below.

The grade tonnage curves for the Mineral Resources are shown in **Figure 11-14 to Figure 11-17.**

Table 11-8 Total Mineral Resources.

Area and Category	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni (%)	Co (%)	Fe (%)
RTO: Measured	-	-	-	-	-
RTO: Indicated	44.3	30.0	0.99	0.05	22.8
RTO: Inferred	42.7	29.8	1.02	0.07	28.7
RTO: Subtotal	**87.0**	**59.8**	**1.00**	**0.06**	**25.8**
EARNOUT: Measured	-	-	-	-	-
EARNOUT: Indicated	12.5	8.6	1.06	0.07	29.7
EARNOUT: Inferred	47.0	32.2	0.99	0.06	28.1
EARNOUT: Subtotal	**59.5**	**40.8**	**0.99**	**0.07**	**28.4**
CONCESSION: Measured	**-**	**-**	**-**	**-**	**-**
CONCESSION: Indicated	**56.8**	**38.6**	**1.00**	**0.06**	**24.6**
CONCESSION: Inferred	**89.7**	**62.0**	**1.00**	**0.06**	**28.4**
CONCESSION: Total	**146.6**	**100.5**	**0.99**	**0.06**	**26.9**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table 11-9 RTO Area: Cobalt-rich Nickel Mineral Resources.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
RTO	Buleleng	Inferred	Ni < 1.0	Co ≥ 0.03	Lim	2.1	1.2	0.81	0.07	35.08	9.82	2.47	0.04	1.71	1.02	40.33
					Sap	0.8	0.5	0.89	0.04	16.18	42.53	18.11	0.63	1.60	1.07	32.62
					Sub-total	2.8	1.8	0.84	0.06	29.46	19.55	7.12	0.21	1.68	1.03	38.04
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	3.9	2.3	1.16	0.09	40.44	10.23	2.87	0.02	1.71	1.02	40.33
					Sap	3.3	2.2	1.21	0.04	16.21	41.72	18.23	0.71	1.60	1.07	32.62
					Sub-total	7.1	4.5	1.18	0.07	28.63	25.57	10.35	0.36	1.66	1.04	36.57
			Ni ≥ 1.40	Co ≥ 0.03	Lim	0.7	0.4	1.50	0.11	44.33	5.18	0.45	0.00	1.71	1.02	40.33
					Sap	0.5	0.3	1.61	0.04	18.64	36.19	16.08	0.77	1.60	1.07	32.62
					Sub-total	1.2	0.8	1.55	0.08	32.64	19.29	7.56	0.35	1.66	1.04	36.82
			Total - Inferred			11.2	7.0	1.14	0.07	29.27	23.38	9.24	0.32	1.66	1.04	36.97
		Indicated	Ni < 1.0	Co ≥ 0.03	Lim	6.3	3.7	0.73	0.07	35.37	9.65	1.61	0.05	1.71	1.02	40.33
					Sap	2.5	1.6	0.84	0.04	14.81	42.85	17.05	0.91	1.60	1.07	32.62
					Sub-total	8.7	5.4	0.76	0.06	29.08	19.80	6.33	0.31	1.68	1.04	37.97
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	1.9	1.1	1.16	0.08	41.82	8.15	1.28	0.04	1.71	1.02	40.33
					Sap	4.3	2.9	1.20	0.04	16.60	41.48	15.53	0.82	1.60	1.07	32.62
					Sub-total	6.2	4.0	1.19	0.05	23.67	32.14	11.53	0.60	1.63	1.06	34.78
			Ni ≥ 1.40	Co ≥ 0.03	Lim	0.3	0.2	1.49	0.11	41.89	6.28	0.60	0.02	1.71	1.02	40.33
					Sap	2.1	1.4	1.68	0.04	17.90	38.67	15.29	0.81	1.60	1.07	32.62
					Sub-total	2.3	1.5	1.66	0.05	20.54	35.10	13.67	0.73	1.61	1.06	33.47
			Total - Indicated			17.3	11.0	1.04	0.06	25.89	26.49	9.28	0.48	1.65	1.05	36.16
	Torete	Inferred	Ni < 1.0	Co ≥ 0.001	Lim	13.2	9.3	0.92	0.10	40.36	11.61	3.29	0.11	1.71	1.20	29.94
					Sap	5.4	4.2	0.81	0.03	14.96	35.66	16.88	0.39	1.56	1.21	23.35
					Sub-total	18.6	13.5	0.88	0.08	32.44	19.11	7.53	0.20	1.66	1.20	27.88
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	4.4	3.1	1.08	0.11	40.34	10.21	3.08	0.18	1.71	1.20	29.94
					Sap	5.0	3.9	1.13	0.03	14.57	35.37	16.63	0.35	1.56	1.21	23.35
					Sub-total	9.4	7.0	1.11	0.06	26.10	24.11	10.56	0.27	1.63	1.21	26.30
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.1	0.1	1.40	0.34	46.19	3.89	1.44	0.01	1.71	1.20	29.94
					Sap	0.2	0.2	1.51	0.03	16.65	32.42	19.81	0.27	1.56	1.21	23.35
					Sub-total	0.3	0.3	1.48	0.12	25.25	24.11	14.46	0.19	1.60	1.21	25.27
			Total - Inferred			28.4	20.7	0.97	0.07	30.21	20.86	8.64	0.22	1.65	1.20	27.32
		Indicated	Ni < 1.0	Co ≥ 0.001	Lim	3.1	2.2	0.90	0.09	41.66	9.28	2.34	0.11	1.71	1.20	29.94
					Sap	1.5	1.2	0.85	0.03	14.18	32.49	15.48	0.49	1.56	1.21	23.35
					Sub-total	4.7	3.4	0.88	0.07	31.92	17.51	7.00	0.24	1.66	1.20	27.60
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	5.1	3.6	1.08	0.10	40.16	11.76	3.46	0.17	1.71	1.20	29.94
					Sap	4.2	3.2	1.19	0.03	13.78	33.97	16.61	0.41	1.56	1.21	23.35
					Sub-total	9.3	6.8	1.14	0.07	27.59	22.34	9.72	0.28	1.64	1.20	26.80
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.0	0.0	1.42	0.30	45.48	4.23	1.57	0.03	1.71	1.20	29.94
					Sap	1.8	1.4	1.64	0.03	13.75	32.16	15.85	0.27	1.56	1.21	23.35

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
					Sub-total	1.8	1.4	1.63	0.03	14.44	31.55	15.54	0.26	1.56	1.21	23.50
			Total - Indicated			15.7	11.6	1.12	0.06	27.27	22.04	9.63	0.27	1.63	1.21	26.64

RTO	Buleleng	**Total - Inferred**	**11.2**	**7.0**	**1.14**	**0.07**	**29.27**	**23.38**	**9.24**	**0.32**	**1.66**	**1.04**	**36.97**
		Total - Indicated	**17.3**	**11.0**	**1.04**	**0.06**	**25.89**	**26.49**	**9.28**	**0.48**	**1.65**	**1.05**	**36.16**
	Torete	**Total - Inferred**	**28.4**	**20.7**	**0.97**	**0.07**	**30.21**	**20.86**	**8.64**	**0.22**	**1.65**	**1.20**	**27.32**
		Total - Indicated	**15.7**	**11.6**	**1.12**	**0.06**	**27.27**	**22.04**	**9.63**	**0.27**	**1.63**	**1.21**	**26.64**
GRAND TOTAL			**72.6**	**50.3**	**1.04**	**0.07**	**28.46**	**22.71**	**9.09**	**0.30**	**1.65**	**1.15**	**30.43**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table 11-10 RTO Area: Cobalt-depleted Nickel Mineral Resources.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
RTO	Buleleng	Inferred	Ni < 1.0	Co < 0.03	Lim	0.2	0.1	0.26	0.02	12.02	4.72	0.08	0.00	1.71	1.02	40.33
					Sap	0.8	0.5	0.68	0.02	9.25	32.58	14.01	0.45	1.60	1.07	32.62
					Sub-total	1.0	0.6	0.60	0.02	9.79	27.16	11.30	0.36	1.62	1.06	34.12
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Sap	1.8	1.2	1.24	0.03	13.63	45.54	19.51	0.38	1.60	1.07	32.62
					Sub-total	1.8	1.2	1.24	0.03	13.63	45.54	19.51	0.38	1.60	1.07	32.62
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.4	0.2	1.49	0.03	13.03	49.92	18.76	0.40	1.60	1.07	32.62
					Sub-total	0.4	0.2	1.49	0.03	13.03	49.92	18.76	0.40	1.60	1.07	32.62
			Total - Inferred			3.1	2.1	1.07	0.02	12.38	40.41	16.90	0.37	1.61	1.07	33.08
		Indicated	Ni < 1.0	Co < 0.03	Lim	2.3	1.4	0.21	0.01	15.12	3.07	0.56	0.03	1.71	1.02	40.33
					Sap	5.9	3.9	0.55	0.02	9.06	32.19	12.01	0.53	1.60	1.07	32.62
					Sub-total	8.2	5.3	0.46	0.02	10.65	24.57	9.02	0.40	1.63	1.06	34.64
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	0.0	0.0	1.14	0.01	33.44	1.05	0.08	0.00	1.71	1.02	40.33
					Sap	2.2	1.5	1.17	0.02	12.16	45.53	17.30	0.75	1.60	1.07	32.62
					Sub-total	2.2	1.5	1.17	0.02	12.29	45.26	17.20	0.74	1.60	1.07	32.67
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.9	0.6	1.63	0.02	14.15	36.75	18.70	0.77	1.60	1.07	32.62
					Sub-total	0.9	0.6	1.63	0.02	14.15	36.75	18.70	0.77	1.60	1.07	32.62
			Total - Indicated			11.3	7.4	0.70	0.02	11.26	29.73	11.46	0.50	1.62	1.06	34.07
	Torete	Inferred	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Inferred			-	-	-	-	-	-	-	-	-	-	-
		Indicated	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Indicated			-	-	-	-	-	-	-	-	-	-	-

RTO	Buleleng	**Total - Inferred**	**3.1**	**2.1**	**1.07**	**0.02**	**12.38**	**40.41**	**16.90**	**0.37**	**1.61**	**1.07**	**33.08**
		Total - Indicated	**11.3**	**7.4**	**0.70**	**0.02**	**11.26**	**29.73**	**11.46**	**0.50**	**1.62**	**1.06**	**34.07**
	Torete	**Total - Inferred**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
GRAND TOTAL			**14.4**	**9.5**	**0.78**	**0.02**	**11.51**	**32.06**	**12.65**	**0.47**	**1.62**	**1.06**	**33.86**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table 11-11 Earnout Area: Cobalt-rich Nickel Mineral Resources.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
EARNOUT	Buleleng	Inferred	Ni < 1.0	Co ≥ 0.03	Lim	10.3	6.1	0.80	0.07	32.84	15.79	6.76	0.92	1.71	1.02	40.33
					Sap	0.8	0.6	0.83	0.06	21.75	39.18	15.58	0.34	1.60	1.07	32.62
					Sub-total	11.1	6.7	0.80	0.07	31.92	17.73	7.49	0.87	1.70	1.02	39.69
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	1.9	1.1	1.11	0.09	38.27	13.94	5.18	0.24	1.71	1.02	40.33
					Sap	1.6	1.1	1.18	0.04	16.67	39.10	18.82	0.48	1.60	1.07	32.62
					Sub-total	3.5	2.2	1.14	0.07	27.73	26.23	11.84	0.36	1.66	1.04	36.57
			Ni ≥ 1.40	Co ≥ 0.03	Lim	0.0	0.0	1.43	0.10	44.93	5.59	2.43	0.02	1.71	1.02	40.33
					Sap	0.1	0.1	1.52	0.04	17.70	39.82	18.95	0.32	1.60	1.07	32.62
					Sub-total	0.1	0.1	1.51	0.05	20.99	35.68	16.95	0.28	1.61	1.06	33.55
			Total - Inferred			14.7	9.0	0.89	0.07	30.78	19.99	8.65	0.74	1.69	1.03	38.86
		Indicated	Ni < 1.0	Co ≥ 0.03	Lim	2.5	1.5	0.89	0.09	40.45	15.02	4.08	0.11	1.71	1.02	40.33
					Sap	0.0	0.0	0.93	0.03	16.78	37.64	20.08	0.94	1.60	1.07	32.62
					Sub-total	2.5	1.5	0.89	0.09	40.34	15.13	4.15	0.11	1.71	1.02	40.29
			1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	0.3	0.2	1.09	0.09	39.52	16.10	5.53	0.16	1.71	1.02	40.33
					Sap	0.2	0.2	1.27	0.03	16.47	38.01	19.58	0.63	1.60	1.07	32.62
					Sub-total	0.5	0.3	1.17	0.07	28.84	26.25	12.04	0.38	1.66	1.04	36.76
			Ni ≥ 1.40	Co ≥ 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.2	0.2	1.52	0.04	17.91	34.96	18.72	0.36	1.60	1.07	32.62
					Sub-total	0.2	0.2	1.52	0.04	17.91	34.96	18.72	0.36	1.60	1.07	32.62
			Total - Indicated			3.3	2.0	0.99	0.08	36.60	18.60	6.65	0.17	1.69	1.03	39.08
	Torete	Inferred	Ni < 1.0	Co ≥ 0.001	Lim	11.4	8.0	0.93	0.10	40.74	12.78	4.78	0.15	1.71	1.20	29.94
					Sap	2.4	1.8	0.88	0.03	14.63	35.37	20.27	0.50	1.56	1.21	23.35
					Sub-total	13.8	9.8	0.92	0.09	35.87	16.99	7.67	0.21	1.68	1.20	28.71
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	4.8	3.4	1.09	0.11	39.36	12.59	4.85	0.22	1.71	1.20	29.94
					Sap	7.3	5.6	1.12	0.03	14.32	36.65	22.85	0.35	1.56	1.21	23.35
					Sub-total	12.1	9.0	1.11	0.06	23.75	27.59	16.07	0.30	1.62	1.21	25.83
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.0	0.0	1.45	0.12	40.59	10.30	4.32	0.13	1.71	1.20	29.94
					Sap	0.7	0.6	1.57	0.03	13.18	35.19	23.09	0.40	1.56	1.21	23.35
					Sub-total	0.8	0.6	1.57	0.03	14.36	34.12	22.28	0.39	1.57	1.21	23.63
			Total - Inferred			26.6	19.5	1.03	0.07	29.59	22.43	12.01	0.26	1.65	1.20	27.22
		Indicated	Ni < 1.0	Co ≥ 0.001	Lim	3.8	2.7	0.89	0.10	39.98	12.53	5.52	0.09	1.71	1.20	29.94
					Sap	0.7	0.5	0.89	0.03	15.19	36.91	19.44	0.66	1.56	1.21	23.35
					Sub-total	4.5	3.2	0.89	0.09	35.93	16.51	7.80	0.19	1.69	1.20	28.86
			1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	0.8	0.6	1.11	0.09	40.35	12.32	3.72	0.14	1.71	1.20	29.94
					Sap	1.6	1.2	1.19	0.03	14.74	35.68	18.59	0.47	1.56	1.21	23.35
					Sub-total	2.4	1.8	1.16	0.05	23.00	28.14	13.79	0.37	1.61	1.21	25.48
			Ni ≥ 1.40	Co ≥ 0.001	Lim	0.3	0.2	1.48	0.11	42.87	9.60	4.36	0.09	1.71	1.20	29.94
					Sap	0.4	0.3	1.87	0.03	13.44	34.66	17.73	0.46	1.56	1.21	23.35
					Sub-total	0.7	0.5	1.73	0.06	24.02	25.65	12.92	0.32	1.61	1.21	25.72

Description	Deposit	Classification	Cut-off Grade %	Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
			Total - Indicated		7.6	5.5	1.06	0.07	30.57	21.18	10.24	0.26	1.65	1.20	27.46

EARNOUT	Buleleng	**Total - Inferred**	**14.7**	**9.0**	**0.89**	**0.07**	**30.78**	**19.99**	**8.65**	**0.74**	**1.69**	**1.03**	**38.86**
		Total - Indicated	**3.3**	**2.0**	**0.99**	**0.08**	**36.60**	**18.60**	**6.65**	**0.17**	**1.69**	**1.03**	**39.08**
	Torete	**Total - Inferred**	**26.6**	**19.5**	**1.03**	**0.07**	**29.59**	**22.43**	**12.01**	**0.26**	**1.65**	**1.20**	**27.22**
		Total - Indicated	**7.6**	**5.5**	**1.06**	**0.07**	**30.57**	**21.18**	**10.24**	**0.26**	**1.65**	**1.20**	**27.46**
GRAND TOTAL			**52.2**	**35.9**	**0.99**	**0.07**	**30.51**	**21.32**	**10.47**	**0.39**	**1.66**	**1.14**	**31.29**

- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

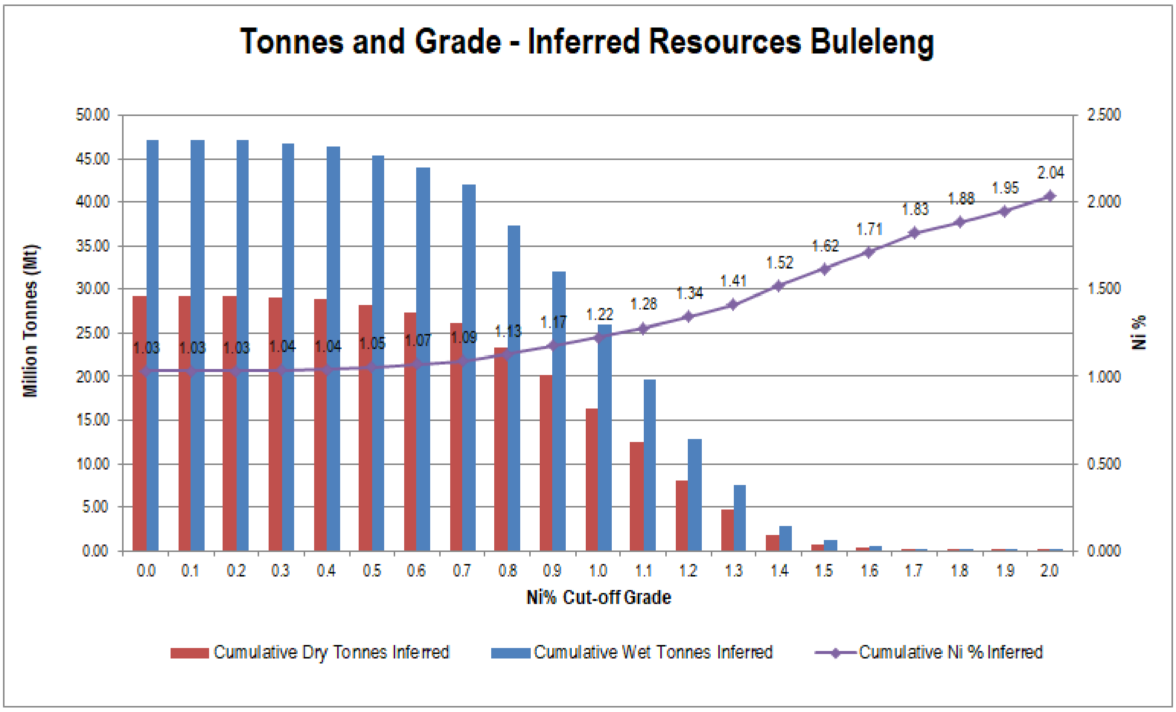
Table 11-12 Earnout Area: Cobalt-depleted Nickel Mineral Resources.

Description	Deposit	Classification	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
EARNOUT	Buleleng	Inferred	Ni < 1.0	Co < 0.03	Lim	1.3	0.8	0.59	0.02	18.35	27.42	17.91	6.48	1.71	1.02	40.33
					Sap	1.0	0.7	0.77	0.02	12.05	40.20	22.01	0.76	1.60	1.07	32.62
					Sub-total	2.3	1.4	0.67	0.02	15.42	33.36	19.82	3.82	1.66	1.04	36.75
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	0.0	0.0	1.15	0.01	10.60	28.75	22.19	1.21	1.71	1.02	40.33
					Sap	3.2	2.2	1.15	0.02	12.66	41.02	23.87	0.50	1.60	1.07	32.62
					Sub-total	3.2	2.2	1.15	0.02	12.65	40.98	23.87	0.50	1.60	1.07	32.64
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.1	0.1	1.66	0.02	12.98	47.36	22.35	0.15	1.60	1.07	32.62
					Sub-total	0.1	0.1	1.66	0.02	12.98	47.36	22.35	0.15	1.60	1.07	32.62
			Total - Inferred			5.7	3.7	0.98	0.02	13.74	38.19	22.25	1.78	1.62	1.06	34.24
		Indicated	Ni < 1.0	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.6	0.4	0.89	0.02	13.03	43.74	23.02	0.81	1.60	1.07	32.62
					Sub-total	0.6	0.4	0.89	0.02	13.03	43.74	23.02	0.81	1.60	1.07	32.62
			1.0 ≤ Ni < 1.4	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.8	0.5	1.17	0.02	12.96	40.81	24.46	0.61	1.60	1.07	32.62
					Sub-total	0.8	0.5	1.17	0.02	12.96	40.81	24.46	0.61	1.60	1.07	32.62
			Ni ≥ 1.40	Co < 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	0.3	0.2	1.70	0.02	10.84	39.69	28.58	0.26	1.60	1.07	32.62
					Sub-total	0.3	0.2	1.70	0.02	10.84	39.69	28.58	0.26	1.60	1.07	32.62
			Total - Indicated			1.6	1.1	1.17	0.02	12.61	41.61	24.69	0.62	1.60	1.07	32.62
	Torete	Inferred	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Total - Inferred			-	-	-	-	-	-	-	-	-	-	-
		Indicated	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-
			Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
					Sap	-	-	-	-	-	-	-	-	-	-	-
					Sub-total	-	-	-	-	-	-	-	-	-	-	-

Description	Deposit	Classification	Cut-off Grade %	Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni	Co	Fe	Sio2	Mgo	Cao	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
			Total - Indicated		-	-	-	-	-	-	-	-	-	-	-
EARNOUT	Buleleng	**Total - Inferred**			**5.7**	**3.7**	**0.98**	**0.02**	**13.74**	**38.19**	**22.25**	**1.78**	**1.62**	**1.06**	**34.24**
		Total - Indicated			**1.6**	**1.1**	**1.17**	**0.02**	**12.61**	**41.61**	**24.69**	**0.62**	**1.60**	**1.07**	**32.62**
	Torete	**Total - Inferred**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
GRAND TOTAL					**7.3**	**4.8**	**1.02**	**0.02**	**13.48**	**38.97**	**22.81**	**1.52**	**1.62**	**1.06**	**33.87**

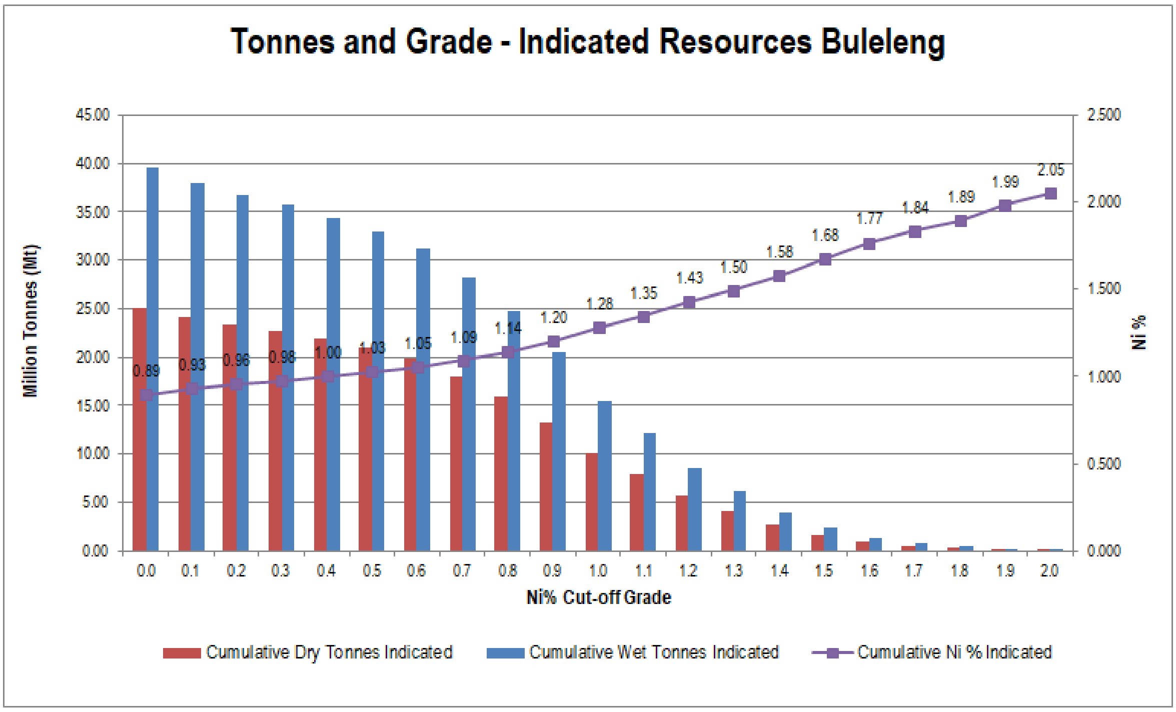
- All Mineral Resources figures reported in this table represent estimates depleted using topographic survey data as at 27th May 2019.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Figure 11-14 Grade-Tonnage Curve for Buleleng Inferred Resources



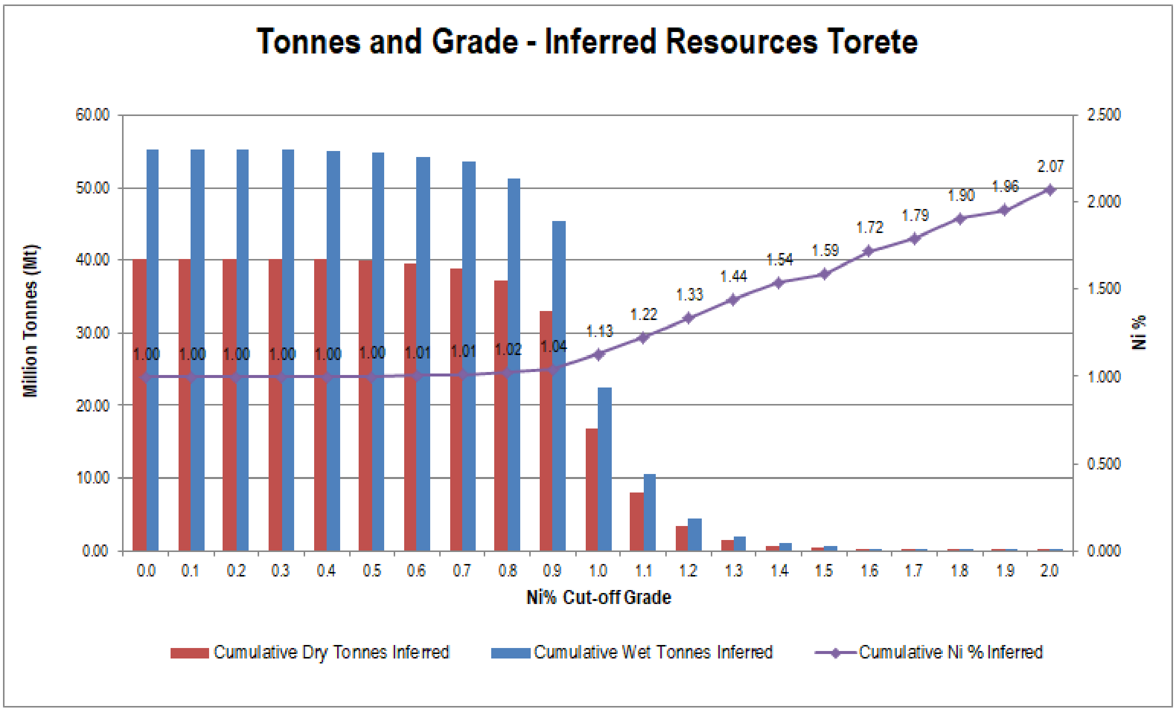
Source: PT TAS Technical Report of Mineral Resources

Figure 11-15 Grade-Tonnage Curve for Buleleng Indicated Resources



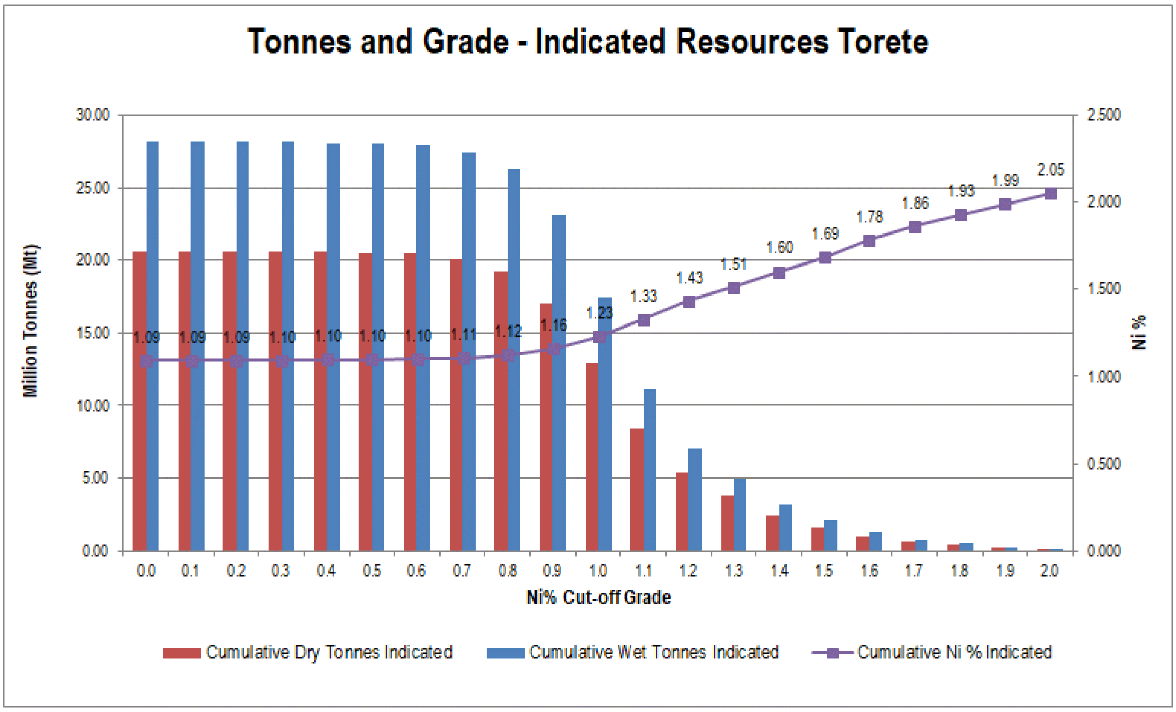
Source: PT TAS Technical Report of Mineral Resources

Figure 11-16 Grade-Tonnage Curve for Torete Inferred Resources



Source: PT TAS Technical Report of Mineral Resources

Figure 11-17 Grade-Tonnage Curve for Torete Indicated Resources



Source: PT TAS Technical Report of Mineral Resources

12. ORE RESERVES

12.1 Approach

The engineering properties relevant to this level of study were developed through reference to previous studies, geology reports, experience with similar ore deposits and materials, as well as discussions with TAS personnel. Some of the engineering properties are well defined, others are assumed. Each of the properties reported here was referenced to those criteria.

Pit shells from the current operation were used as the basis for detailed practical pit designs discussed in this Report; and then the pit shells were updated to reflect the mining position.

12.2 Mining Constraints

Mining constraints include the concession boundary and the extent of current geotechnical studies. TAS advised that the optimisations should not be limited by rivers or the need for future diversions. The practical pits that have been created used a smaller pit shell and included the constraints of roads and infrastructure that currently exist and are not relocatable.

A depth limit of approximately 270-370 m below the original surface level for both deposits was applied to the design of the pit shells. Further, a 100 m depth buffer was applied to the Torete pit from the Torete River.

The existing pit slopes and their performance at Torete and Buleleng using a 45 degree overall slope angle for both high walls and low walls delivers stable conditions (**Figure 12-1 and Figure 12-2**).

Figure 12-1 Pit Slopes at Torete

Source: PT TAS Life of Mine Report

Figure 12-2 Pit Slopes at Buleleng

Source: PT TAS Life of Mine Report

12.2.1 Torete

The pit parameters used in the optimisation for Torete pit are shown in **Table 12-1.**

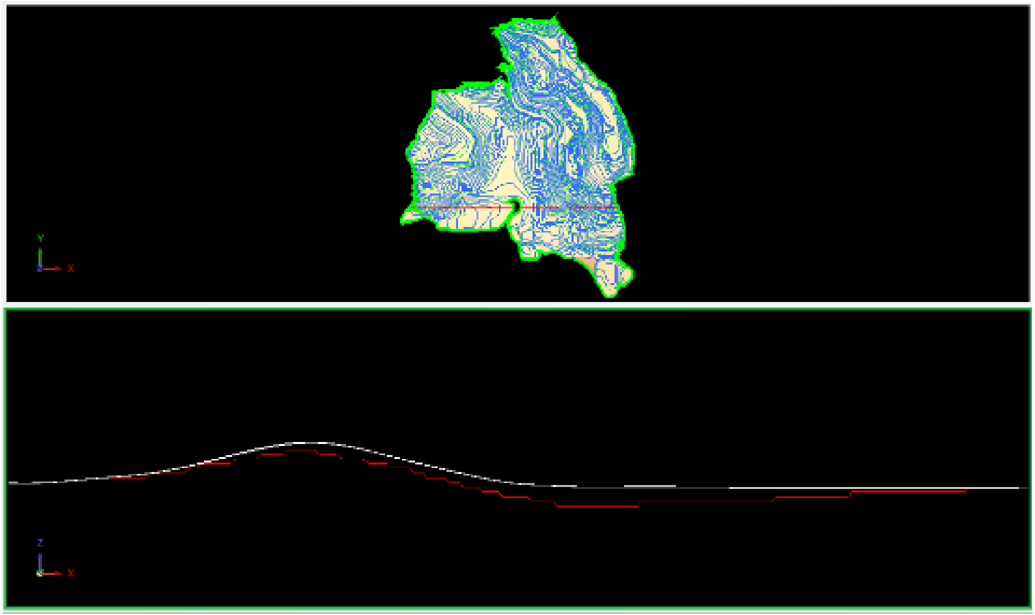
Table 12-1 Pit Parameters – Torete

Parameter	Units	
- Overall slope	Degree	45
- Single slope	Degree	56
- Bench height	m	5
- Safety Berm Width	m	3
- Pit Depth Limit	m	370
- Ramp width	m	10
- Ramp gradient	%	8

Source: PT TAS Life of Mine Report

These pit parameters were applied and various pit shells produced. A practical pit design (**Figure 12-3**) was created for three products i.e. Co ≥ 0.06%, 1.0% ≥ Ni < 1.4% and Ni ≥ 1.4%, with an average strip ratio of 0.01.

Figure 12-3 Plan and section of Torete pit shell, Section 9,666,000 mN



Source: PT TAS Life of Mine Report

12.2.2 Buleleng

The pit parameters used in the optimisation for Buleleng pit are shown in **Table 12-2**

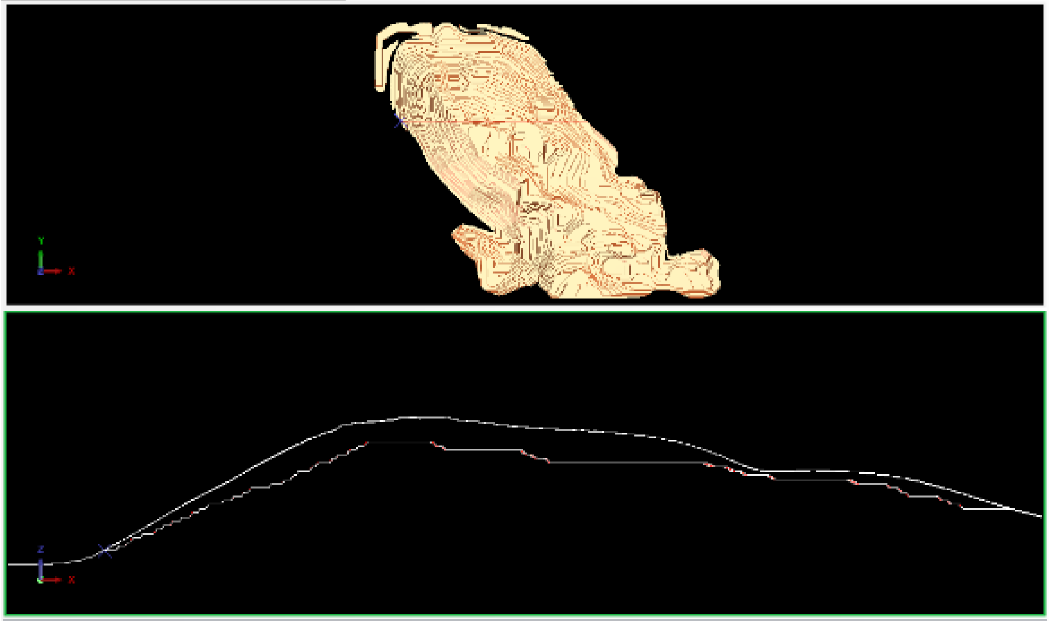
Table 12-2 Pit Parameters – Buleleng

Parameter	Units	
- Overall slope	Degree	45
- Single slope	Degree	56
- Bench height	m	5
- Safety Berm Width	m	3
- Pit Depth Limit	m	270
- Ramp width	m	10
- Ramp gradient	%	8

Source: PT TAS Life of Mine Report

These pit parameters were applied and various pit shells produced. A practical pit design (**Figure 12-4**) was created generating one main pit to produce three products i.e. Co ≥ 0.06%, 1.0% ≥ Ni < 1.4% and Ni ≥ 1.4%, plus two additional small pits for product >1.60% Ni, with an average strip ratio of 0.49.

Figure 12-4 Plan and section of Buleleng pIt shell, Section 9,666,000 mN



Source: PT TAS Life of Mine Report

12.3 Mining Factors

There are two stages in calculating the conversion of ore in the ground (in situ) to ore sold to market (product):

- In situ ore: Exploration reveals details of the mineralisation in its undisturbed state. Typically, most ore is in the saprolite layer and has internal waste. In situ ore comprises all the ore within the pit shell.
- Run of Mine (ROM) ore: There are four factors that can modify the in situ ore volume that is mined: design criteria based on the block model, selective mining of ore in practice, mining losses and mining dilution. When allowances are made for

all of these factors the in situ ore is converted to ROM ore i.e. the ore that is actually mined and delivered to the barges.

The factors for modifying the in situ ore volume and quality to that which is mined as ROM ore are detailed below:

- Ore recovery: The factors used for each pit are shown in **Table 12-3.**
- Dilution and ore loss (**Table 12-4**): It is assumed that an average of 3% of waste material will be mined. The 3% was based on minimum results of reconciliation history of tonnes comparison between production record to block model and the dilution grade was assumed to be Ni 0.7%.
- An adjustment of 1% was applied to the Buleleng and Torete ROM ore to allow for an increase in moisture.

Table 12-3 Pit Ore Recovery Factors

Item	Average Ore Recovery factors	Data Source
Buleleng	97%	Mine Operation TAS
Torete	97%	Mine Operation TAS

Source: PT TAS Life of Mine Report

Table 12-4 Mining Factors

Mining Factor	Value
Ore Loss	3%
Dilution	3%

Source: PT TAS Life of Mine Report

Once a theoretical economic pit-shell (optimised pit) was selected for each mining area, it was converted into a practical pit design. This step incorporates practical considerations such as consistency of the pit floor level, access restrictions and the removal of areas that are impractical to mine.

12.4 Waste Dump Design

Surface dump designs were completed with parameters summarised in **Table 12-5 and Table 12-6** and are shown in **Figure 12-5 and Figure 12-6.**

Figure 12-7 and Figure 12-8 show the designed waste dumps in relation to the practical pit designs.

Table 12-5 Waste dump parameters Torete

Parameters	Unit	Torete
Waste Haulage Distance	km	≤ 1
Target Ni Grade	%	< 0.8 %
Overall Slope Angle	degree	30˚
Bench Height	m	5
Berm Width	m	5
Ramp Width (m)	m	12
Max Ramp Gradient	%	12

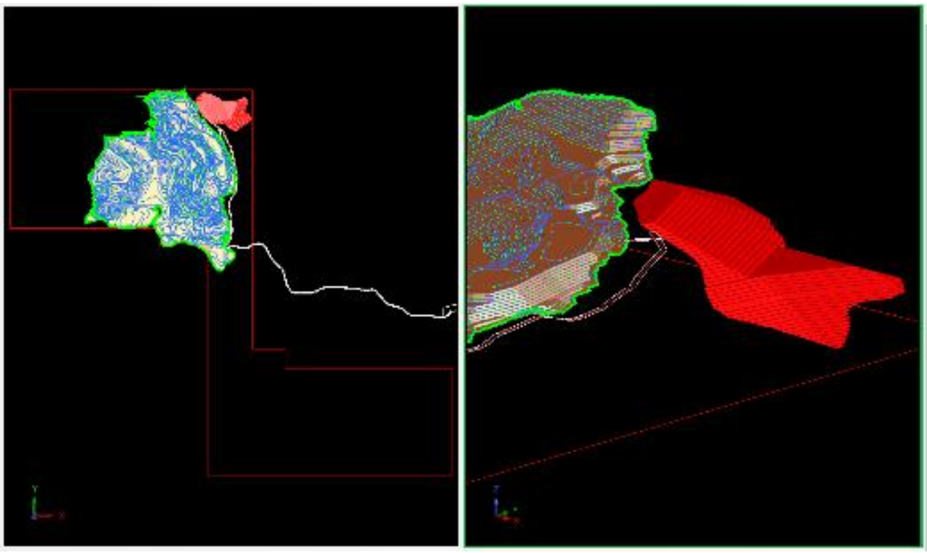
Source: PT TAS Life of Mine Report

Table 12-6 Waste dump parameters Buleleng

Parameters	Unit	Buleleng
Waste Haulage Distance	km	≤ 1
Target Ni Grade	%	< 0.8 %
Overall Slope Angle	degree	30˚
Bench Height	m	5
Berm Width	m	5
Ramp Width (m)	m	12
Max Grade Ramp Gradient	%	12

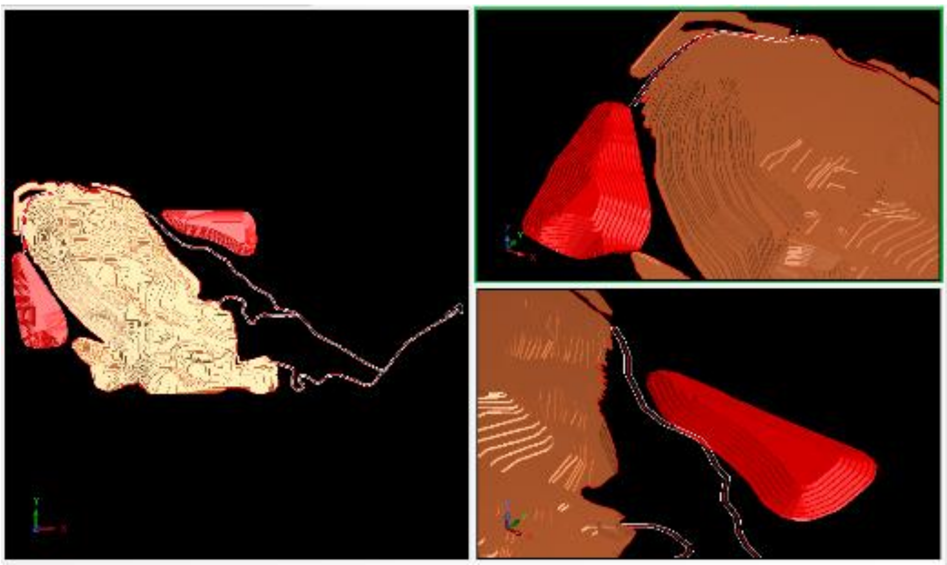
Source: PT TAS Life of Mine Report

Figure 12-5 Waste dump design – Torete



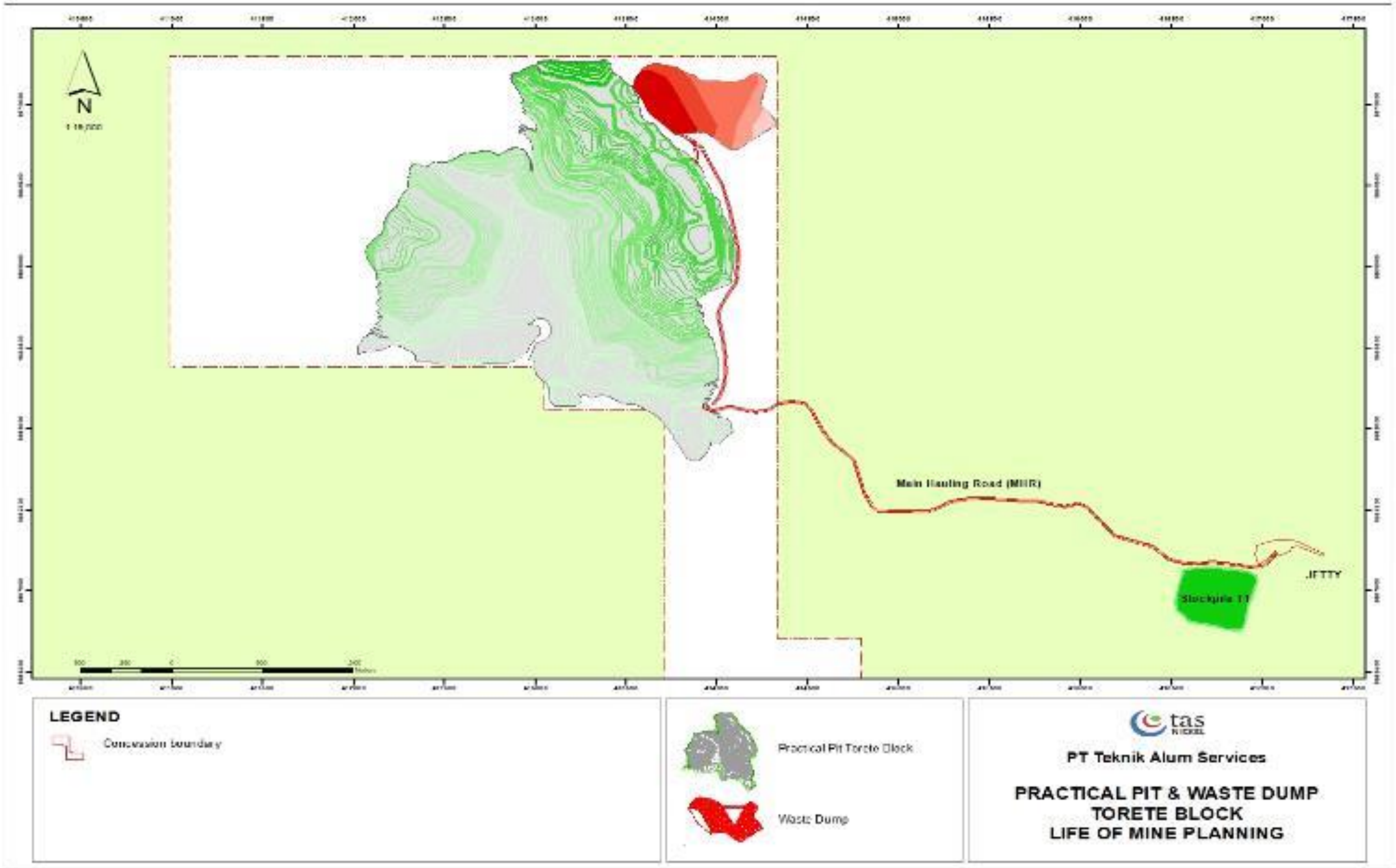
Source: PT TAS Life of Mine Report

Figure 12-6 Waste dump design – Buleleng



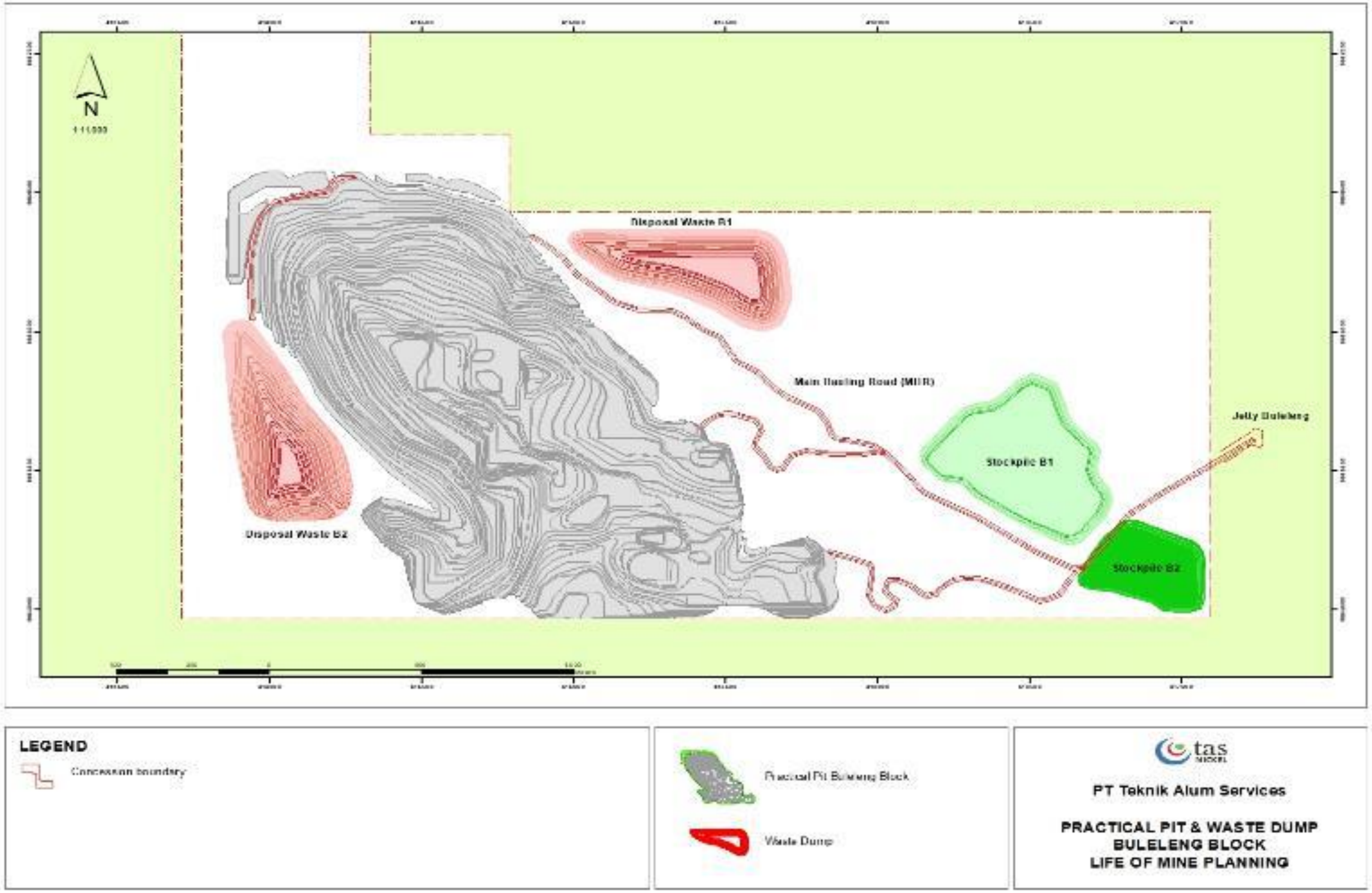
Source: PT TAS Life of Mine Report

Figure 12-7 Practical Pit – Torete



Source: PT TAS Life of Mine Report

Figure 12-8 Practical Pit – Buleleng



Source: PT TAS Life of Mine Report

12.5 Stockpile

Stockpiles will be constructed between the pits and the port or Jetty. The location will be as close as possible to the port or jetty in order to optimise truck productivity and ore blending to achieved the ore specification. The advantages of stockpiles are:

- Blending activity can be undertaken between materials from different mining faces to meet specification requirements from PT TAS.
- Managing the stockpile in accordance with product categories will be simpler.
- Reducing the moisture content through sun drying activity to meet shipment requirements from PT TAS.

The stockpile construction parameters are listed below (**Table 12-7**) and shown in **Figure 12-9 and Figure 12-10.**

Table 12-7 Stockpile parameters

Parameters	Unit	Torete & Buleleng
Ore Haulage Distance	km	≤ 1
Area	Hectare	34.60
Capacity	m³	2,076,269
Target Ni & Co Grades	%	(1) Co ≥ 0.06% (2) Ni ≥ 1.0% and Ni < 1.40%, and (3) Ni ≥ 1.40%
Overall Slope Angle	degree	30˚
Bench Height	m	5
Berm Width	m	5
Ramp Width (m)	m	12
Max Ramp Gradient	%	12

Source: PT TAS Life of Mine Report

Figure 12-9 Stockpile and Jetty PT TAS – Torete

Source: PT TAS Life of Mine Report

Figure 12-10 Stockpile and Jetty PT TAS – Buleleng

Source: PT TAS Life of Mine Report

12.6 Ore Reserve Classification

An Ore Reserve as defined by the JORC Code as the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted. Ore Reserves are sub-divided in order of increasing confidence into Probable Reserves and Proved Reserves:

- **Probable** – the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. A Probable Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit; and
- **Proved** – the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.

The choice of the appropriate category of Ore Reserve is determined primarily by the relevant level of confidence in the Mineral Resource and after considering any uncertainties in the Modifying Factors.

The Ore Reserves of TAS have been classified based on the level of detail completed in the mine planning, practical pit design and the level of confidence in the Mineral Resources. On this basis, all the Ore Reserves are considered as **Probable Reserves.** The Mineral Resources are reported inclusive of Ore Reserves, (that is, Ore Reserves are not additional to Mineral Resources).

12.7 Ore Reserves Estimation

PT TAS internally prepared Ore Reserves for each deposit with three cut-off grade options as Probable classification. A cutoff grade of **Ni < 1.0% and Co ≥ 0.001% at Torete** and **Ni < 1.0% and Co ≥ 0.03% at Buleleng** has been applied to achieve the blended target grade for Co ≥ 0.06 within the pit. Secondly, a cut-off grade of **Ni ≥ 1.0% and Ni < 1.40%** for a target product. Thirdly, a cut-off grade **Ni ≥ 1.40%** for a high-grade target product. The estimates are summarised in **Table 12-8, Table 12-9 and Table 12-10** below.

Table 12-8 Ore Reserves for product Co ≥ 0.06%, a cutoff grade of Ni < 1.0% and Co ≥ 0.001% at Torete and Ni < 1.0% and Co ≥ 0.03% at Buleleng

Deposit	Class	Area	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni	Co	Fe	Sio2	Mgo	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
Torete	Probable	RTO	4.2	3.0	0.89	0.07	33.18	16.46	6.36	1.66	1.2	27.93
		Earnout	4.1	2.9	0.89	0.09	36.78	15.64	7.43	1.69	1.2	29.1
Buleleng	Probable	RTO	8.5	5.2	0.76	0.06	29.84	18.62	5.77	1.68	1.03	38.25
		Earnout	2.4	1.4	0.89	0.09	40.4	15.09	4.13	1.71	1.02	40.31
Total			**19.3**	**12.6**	**0.83**	**0.07**	**33.38**	**17.07**	**6.04**	**1.68**	**1.1**	**34.32**

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.

Table 12-9 Ore Reserves for product Ni ≥ 1.0% and Ni < 1.40%, a cut-off grade of Ni ≥ 1.0% and Ni < 1.40% for Torete and Buleleng

Deposit	Class	Area	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni	Co	Fe	Sio2	Mgo	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
Torete	Probable	RTO	8.6	6.3	1.13	0.07	29.13	21.03	8.92	1.65	1.2	27.2
		Earnout	1.9	1.4	1.15	0.05	23.78	27.27	12.95	1.61	1.21	25.71
Buleleng	Probable	RTO	8	5.2	1.18	0.05	21.55	34.67	12.55	1.63	1.06	34.47
		Earnout	1.2	0.8	1.17	0.04	19.69	34.6	19.27	1.63	1.06	34.39
Total			**19.6**	**13.7**	**1.16**	**0.06**	**24.95**	**28.01**	**11.43**	**1.63**	**1.14**	**30.46**

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.

Table 12-10 Ore Reserves for target product Ni ≥ 1.40%, a cut-off grade Ni ≥ 1.40% for Torete and Buleleng

Deposit	Class	Area	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni	Co	Fe	Sio2	Mgo	Wet Bulk Density (t/cu.m)	Dry Bulk Density (t/cu.m)	Moisture Content %
Torete	Probable	RTO	1.6	1.2	1.63	0.03	14.58	31.43	15.26	1.56	1.21	23.53
		Earnout	0.6	0.4	1.71	0.06	26.51	23.42	11.25	1.63	1.21	26.27
Buleleng	Probable	RTO	3	2.0	1.64	0.04	19.02	35.26	14.74	1.61	1.07	33.35
		Earnout	0.5	0.3	1.61	0.03	14.14	37.46	23.99	1.6	1.07	32.62
Total			**5.6**	**4.0**	**1.64**	**0.04**	**18.11**	**33.2**	**15.36**	**1.6**	**1.12**	**29.85**

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.

Ore qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources. Firstly, the Mineral Resource qualities are based on Inferred and Indicated Resources while Ore Reserves qualities are only for Indicated Mineral Resources within the mineable pit shell, which does not match the Indicated and Inferred Resources boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.

Also, the Ore Reserves are scheduled to be sold as separate commodities from each pit based on the individual Ni products and impurity levels i.e. being blended for an optimised product.

12.8 LOM Inventory

For its LOM study, PT TAS included some Inferred Mineral Resources in the schedule to meet its production targets. These Inferred Resources need more detailed exploration work to increase the confidence level for potential conversion to Ore Reserves. The same cut-off grades used for the Ore Reserves have been applied for the LOM Inventory:

- Cut-off grade of Ni < 1.0% and Co ≥ 0.001% at Torete and Ni < 1.0% and Co ≥ 0.03% at Buleleng has been applied to achieve the blended target grade for Co ≥ 0.06% within the pit.
- Cut-off grade of Ni ≥ 1.0% and Ni < 1.40% for second target product.
- Cut-off grade Ni ≥ 1.40% for third target product.

The estimates have been summarised in **Table 12-11, Table 12-12 and Table 12-13** below.

The optimised LOM Planning study covers an area of ± 520 ha (Torete ± 311 ha and Buleleng ± 210 ha).

Table 12-11 LOM Inventory for product Co ≥ 0.06%

Deposit	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni %	Co %	Fe %	Moisture Content %
Torete	14.2	10.2	0.88	0.08	33.5	28.19
Buleleng	17.6	10.8	0.79	0.07	32.3	38.82
Total	**31.8**	**21.0**	**0.83**	**0.07**	**32.9**	**34.07**

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.

Table 12-12 LOM Inventory for product Ni ≥ 1.0% and Ni < 1.40%

Deposit	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni %	Co %	Fe %	Moisture Content %
Torete	11.4	8.4	1.14	0.07	27.4	26.7
Buleleng	9.8	6.4	1.18	0.04	20.9	34.36
Total	**21.2**	**14.8**	**1.16**	**0.06**	**24.4**	**30.25**

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.

Table 12-13 LOM Inventory for target product Ni ≥ 1.40%

Deposit	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni %	Co %	Fe %	Moisture Content %
Torete	2.4	1.8	1.66	0.04	17	24.09
Buleleng	3.8	2.5	1.64	0.04	18.3	33.2
Total	**6.1**	**4.3**	**1.65**	**0.04**	**17.8**	**29.7**

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
2. All grades are reported on a dry basis.

13. MINING, PROCESSING AND OTHER FACTORS

13.1 Forecast Production Tonnes

Currently both Buleleng and Torete produce medium grade saprolite material with an average grade of 1.8 % Ni that is shipped to a domestic smelter.

The approach to completing the 2019 LOM plan involved defining pit limits for each pit and evaluating development strategies for both individual pits and the mine. This was followed by detailed LOM production and dump scheduling plus stage plans to illustrate pit development.

The LOM plan shows that mining activities will be conducted only in Torete area during 2019 – 2023. Then it will be conducted in both blocks (Torete and Buleleng) for the next four years (2024 – 2027) and later from 2028 – 2033 the mining activity will be solely carried out in Buleleng. The total life of mine in all areas is approximately 15 years starting from 2019 to 2033, with total production of 59.1 MWMT.

The LOM plan is based on three production activities:

1. Mining of cobalt-rich nickel ≥ 0.06% Co starting from 2019 to 2027 (9 years) at Torete with total production of 14.2 Mt at an average of 1.6 Mt per year. Production at Buleleng will start from 2024 up to 2033 with a total production of 17.6 Mt, at an average of 1.8 Mt per year.
2. Mining of Ni ≥ 1.0% and Ni < 1.40% starting from 2019 up to 2027 (9 years) at Torete area with total production of 11.4 Mt at an average of 1.3 Mt per year. Production at Buleleng will start from 2024 up to 2033 with a total of 9.8 Mt, at an average of 1.0 Mt per year.
3. Mining of Ni ≥ 1.40% starting from 2019 up to 2027 (9 years) at Torete with total production of 2.4 Mt of ore at an average of 0.3 Mt per year. Production at Buleleng will start from 2024 up to 2033 with a total production of 3.8 Mt, at an average of 0.4 Mt per year.

The preferred development strategy involves a strip mining and haul-back mining method. There is no need for any blasting as overburden and ore are all soft material with little fragments of rock. The selected mining method is an open cut, truck and excavator mining method where dumping is initially ex-pit and then in-pit dumping where possible using a haul-back method. The mining factors applied to the resource models for deriving mining quantities were selected based on the use of excavators and trucks.

Three final options for the LOM production schedule were produced and analysed;

- The first schedule is to supply ore with target grades of 0.8% Ni and 0.07% Co. This schedule targeted a peak ore production target of 3.2 Mtpa in the year 2023, while the average yearly production is 2.1 Mtpa. The total LOM production is 31.8 Mt.
- The second schedule is to supply ore with a target grade of 1.2% Ni. This schedule targeted a peak ore production target of 2.1 Mtpa in the year 2020, while the average yearly production is 1.4 Mtpa. The total LOM production is 21.2 Mt.
- The third schedule is to supply ore with a target grade of 1.7% Ni. This schedule targeted a peak ore production target of 0.9 Mtpa in the year 2027, while the average yearly production is 0.4 Mtpa. The total LOM production is 6.1 Mt.

The key results of this study are as follows:

- The deposit characteristics are suited to flexible, selective mining methods.

- The operation of the pits is to be undertaken by PowerChina (the mining contractor), using a mix of hydraulic excavators, dozers, loaders and haul trucks.

Based on the LOM plan results, there is 31.8 Mt of mineable product with grades of 0.83% Ni and 0.07% Co, 21.2 Mt of mineable product with a grade of 1.16% Ni, and 6.1 Mt of mineable product with a grade of 1.65% Ni. The total ore scheduled is 59.1 Mt.

A series of strategic schedules were developed to obtain the optimum production schedule. The scheduling iterations used can be divided into three distinct iterations based on the production schedule target of Co and Ni; the first production schedule is for Co ≥ 0.06% product, the second production schedule is for Ni ≥ 1.0% and Ni < 1.40% product, and the third production schedule is for Ni ≥ 1.4% product, as summarised in **Table 13-1** and detailed in **Table 13-2.**

Table 13-1 Production Schedule Target with three distinct iteration targets

Description	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Co > 0.06% (Other Sales)	Million WMT	0.43	0.56	1.62	2.72	3.15	2.34	1.90	2.01	2.30	2.29	2.44	2.17	2.23	2.47	3.22	**31.82**
1.0% < Ni < 1.4% (Smelter JV Sales)	Million WMT	0.84	2.13	1.56	1.04	0.88	1.47	1.74	1.46	1.09	1.86	1.48	1.84	1.69	1.38	0.69	**21.15**
Ni ≥ 1.4% (Local)	Million WMT	0.13	0.32	0.35	0.01	0.00	0.19	0.61	0.77	0.87	0.36	0.59	0.51	0.60	0.72	0.08	**6.13**
TOTAL		**1.40**	**3.01**	**3.53**	**3.77**	**4.04**	**4.00**	**4.25**	**4.24**	**4.25**	**4.51**	**4.51**	**4.51**	**4.52**	**4.57**	**3.98**	**59.10**

Source: PT TAS Life of Mine Report

Table 13-2 Detailed Annual Production Schedule

Deposit	Production & Sales Schedule	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
TORETE	**OB**	Overburden (M WMT)	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0							**0.4**
		Ni OB (%)	0.9	0.9	0.8	0.9	0.9	0.7	0.7	0.7	0.0							**0.7**
		Co OB (%)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00							**0.03**
		Fe OB (%)	13.6	13.5	13.6	14.8	15.7	15.0	36.7	20.9	0.0							**23.5**
		Moisture OB (%)	23.4	23.4	23.4	23.4	23.4	23.4	27.8	25.8	0.0							**25.3**
	Co ≥ 0.06% (Other Sales)	Ore (M WMT)	0.4	0.6	1.6	2.7	3.2	1.8	1.4	1.7	0.9							**14.2**
		Ni Ore (%)	1.0	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.9							**0.9**
		Co Ore (%)	**0.07**	**0.07**	**0.08**	**0.09**	**0.08**	**0.06**	**0.08**	**0.07**	**0.07**							**0.08**
		Fe Ore (%)	31.8	29.3	35.7	36.7	31.7	28.4	34.1	34.5	37.1							**33.5**
		Moisture Ore (%)	28.5	27.4	28.8	28.9	27.5	27.0	28.0	28.7	29.6							**28.2**
	Ni ≥ 1.0% - ≤ 1.4% (Smelter Sales)	Ore (M WMT)	0.8	2.1	1.6	1.0	0.9	1.5	1.6	1.3	0.5							**11.4**
		Ni Ore (%)	**1.1**	**1.1**	**1.2**	**1.2**	**1.1**	**1.1**	**1.1**	**1.1**	**1.2**							**1.1**
		Co Ore (%)	0.06	0.06	0.08	0.05	0.05	0.07	0.07	0.07	0.05							**0.07**
		Fe Ore (%)	27.2	26.6	25.7	23.4	24.3	28.0	30.4	32.1	25.3							**27.4**
		Moisture Ore (%)	27.7	26.9	26.2	25.4	25.8	26.8	27.3	27.5	25.7							**26.7**
	Ni ≥ 1.4% (Local)	Ore (M WMT)	0.1	0.3	0.4	0.0	0.0	0.2	0.5	0.6	0.2							**2.4**
		Ni Ore (%)	**1.6**	**1.6**	**1.6**	**1.4**	**1.5**	**1.6**	**1.6**	**1.8**	**1.8**							**1.7**
		Co Ore (%)	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.02							**0.04**
		Fe Ore (%)	12.0	12.6	12.9	14.9	14.9	15.2	22.1	19.6	14.4							**16.9**
		Moisture Ore (%)	23.4	23.4	23.4	23.4	23.4	23.4	25.0	24.7	23.4							**24.1**
	TOTAL ORE (M WMT)		**1.4**	**3.0**	**3.5**	**3.8**	**4.0**	**3.4**	**3.6**	**3.6**	**1.6**							**27.9**
	BOUNDARY AREA (HA)		**16.4**	**18.1**	**54.2**	**25.0**	**42.3**	**63.9**	**50.8**	**39.9**	**0.0**							**310.7**
BULELENG	**OB**	Overburden (M WMT)						0.1	0.2	0.5	1.0	4.6	0.9	2.0	0.7	0.9	4.5	**15.3**
		Ni OB (%)						0.8	0.5	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	**0.2**
		Co OB (%)						0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.00	0.00	**0.01**
		Fe OB (%)						13.1	7.9	7.1	10.0	9.9	12.0	4.3	6.1	2.3	2.2	**6.3**
		Moisture OB (%)						32.0	21.4	20.8	29.5	28.7	32.1	14.2	17.4	9.6	9.4	**19.5**
	Co ≥ 0.06% (Other Sales)	Ore (M WMT)						0.5	0.5	0.3	1.4	2.3	2.4	2.2	2.2	2.5	3.2	**17.6**
		Ni Ore (%)						0.7	0.7	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.9	**0.8**

Deposit	Production & Sales Schedule	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
		Co Ore (%)						0.09	0.09	0.08	0.07	0.07	0.06	0.05	0.06	0.07	0.08	0.07
		Fe Ore (%)						44.2	43.4	40.0	33.6	31.9	28.5	24.9	30.3	32.8	36.5	32.3
		Moisture Ore (%)						40.3	40.3	39.9	38.8	38.5	37.9	36.7	38.5	39.7	40.1	38.8
	Ni ≥ 1.0% - ≤ 1.4% (Smelter Sales)	Ore (M WMT)						0.0	0.1	0.2	0.6	1.9	1.5	1.8	1.7	1.4	0.7	9.8
		Ni Ore (%)						1.3	1.3	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.2
		Co Ore (%)						0.03	0.03	0.03	0.05	0.06	0.04	0.04	0.05	0.04	0.04	0.04
		Fe Ore (%)						16.6	16.3	14.3	25.0	28.2	20.5	19.3	19.6	16.6	17.5	20.9
		Moisture Ore (%)						32.6	32.6	32.6	35.4	36.2	34.3	33.7	34.1	33.3	34.0	34.4
	Ni ≥ 1.4% (Local)	Ore (M WMT)						0.0	0.1	0.2	0.7	0.4	0.6	0.5	0.6	0.7	0.1	3.8
		Ni Ore (%)						1.5	1.5	1.6	1.8	1.6	1.6	1.6	1.6	1.6	1.5	1.6
		Co Ore (%)						0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.03	0.04
		Fe Ore (%)						17.2	17.3	16.4	19.7	19.9	19.6	18.6	16.7	17.2	12.9	18.3
		Moisture Ore (%)						32.6	32.6	32.6	33.1	33.7	33.3	33.4	33.0	33.2	32.6	33.2
	TOTAL ORE (M WMT)							0.6	0.7	0.7	2.7	4.5	4.5	4.5	4.5	4.6	4.0	31.2
	BOUNDARY AREA (HA)							3.5	2.6	2.6	27.8	31.2	16.5	23.5	21.6	25.0	55.3	209.5
TORETE & BULELENG	Total	Total Material (M WMT)	1.4	3.0	3.6	3.8	4.0	4.2	4.6	4.8	5.3	9.1	5.4	6.5	5.2	5.4	8.4	74.9
		Overburden (M WMT)	0.0	0.0	0.1	0.0	0.0	0.2	0.3	0.6	1.0	4.6	0.9	2.0	0.7	0.9	4.5	15.8
		Ore (M WMT)	1.4	3.0	3.5	3.8	4.0	4.0	4.2	4.2	4.3	4.5	4.5	4.5	4.5	4.6	4.0	59.1
		Stripping Ratio (t/t)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	1.0	0.2	0.4	0.2	0.2	1.1	0.3
		Area (Ha)	16.4	18.1	54.2	25.0	42.3	67.4	53.4	42.4	27.8	31.2	16.5	23.5	21.6	25.0	55.3	520.2

Source: PT TAS Life of Mine Report

Note: 1.Totals have been rounded to reflect the accuracy of the estimates.
- 2. All grades are reported on a dry basis

3. Tonnes are reported on a wet basis to reflect sales contracts

The steps followed in developing all iterations were broadly as follows:

- All schedules utilise the current conventional truck and excavator mining equipment fleet.
- Pit scheduling and dump scheduling was done based on block model ore locations using a "straight line distance" method. This method calculates the distance from the source block directly to the dump block with an adjustment to compensate for a maximum grade.
- The dump objective is to fill the entire waste dump and minimise dumping distance by initially utilising an out-of-pit dump then in-pit dumping whenever possible. A maximum gradient of 8% was applied to each road segment for the entire haulage route.

The qualified person (Ore Reserves) has reviewed the LOM plan and considers that it is realistic, achievable and fit-for-purpose.

13.2 Mine Operation

The mine currently produces high grade saprolite containing up to 1.8% Ni. After an initial box cut to final pit depth, waste is hauled back into the mined-out areas when operational dump space is available and the out-of-pit dump areas are then rehabilitated. The open cut operation uses appropriately sized hydraulic excavators and trucks to mine the ore and waste.

Ores from the Torete and Buleleng pits are transported to ROM ore stockpiles with haul distances between 1 km and 3 km depending on pit source. The ROM ore is covered with tarpaulins to maintain the moisture, and is then used for blending before re-handling onto the barge for shipment. The mine is currently producing approximately 30-50 kt per month from all operating pits.

Mining occurs concurrently from multiple pits as part of a PT TAS strategy to maintain a consistent product grade. Pits are mined using conventional strip mining methods with push-backs. Strip mining involves mining the ore deposit initially focusing on easily accessible ore near the surface, and then gaining additional ore through successive push-backs on the highwall and footwall. Waste rock is directed to adjacent surface dumps. Though this mining method provides for lower strip ratio ore and lower mining costs early in the mine life, both increase substantially as the mine matures.

13.2.1 Torete

The Torete pit is approximately 2.0 km in length by 2.1 km wide and PT TAS has used a pit design depth limit of about 370 m. For planning purposes, Torete has one main pit shell, with a life of nine years based on quality and quantity targets. Mining progresses from north to south until the mineable quantity is depleted.

13.2.2 Buleleng

The Buleleng pit is approximately 1.7 km in length by 0.9 km wide and PT TAS has used a pit design depth limit of about 270 m and a life of ten years. The strategy of mining is to prioritise the lowest stripping ratio and conduct selective mining.

13.3 Ore Handling Facilities

The infrastructure currently in place includes:

- Mine haulage roads

- Waste dumps
- ROM stockpiles
- Jetty and barge facilities

The infrastructure and site facilities have served the site well since production commenced in 2013. Buleleng and Torete have separate jetty facilities. At the temporary stockpiles, ore is stockpiled and blended before being loading onto 5,000 t to 8,000 t capacity barges. The ore is then barged and shipped to a domestic smelter.

13.4 Markets

The mine currently produces ore products with 1.7-1.8% Ni, 15-25% Fe, <2% SiO_2/MgO and <35% moisture content.

The ore grade from the mining operations varies, hence blending of ore is necessary to achieve the product target. In order to optimise the resources, supported by current market conditions and government regulation, starting from 2019, PT TAS is looking for opportunities in the domestic market to sell the low-grade saprolite ore and the limonite material for both its nickel content and its cobalt content.

13.5 Equipment

13.5.1 Diesel Hydraulic Excavators

Diesel hydraulic excavators are very versatile machines due to both their mobility and lack of electric cabling required for operation. Some key advantages of these machines are:

- Ability to dig a variety of materials in a range of conditions
- Ability to quickly change locations with relative ease
- Possess good breakout force
- Can be configured either as a backhoe or as a face shovel
- Diesel powered, which is a necessity where electricity supply is unavailable or unreliable

For these reasons, diesel powered hydraulic excavators are the preferred excavators for the mine They will load ore and waste directly into rear dump haul trucks for transport to either ROM stockpiles or to waste dumps.

13.5.2 Support Equipment

Support equipment for the mine includes:

- Small excavators/trucks for topsoil removal
- Dozers, front end loaders, and graders for clean up in the mine and for road construction and maintenance
- Water trucks for dust control in the operations
- Lighting plants for night-time operations
- Buses and light vehicles for personnel transport
- Diesel and electric pumps to remove groundwater and rainwater
- Service vehicles to service the mining equipment in the pit

13.6 Overburden and Interburden Mining

A combination of strip mining and haul-back mining is used at both Torete and Buleleng.

Strip mining initially allows the greatest amount of ore to be recovered for the lowest amount of waste removal. Starting at one end of the deposit, mining of the ore and overburden will progress using benching of the pit. Waste will be hauled out of the pit and placed in out-of-pit dumps. Strip mining will progress until the length of waste haul increases to the point where it becomes more economical to use haul-back mining.

Haul-back mining progresses from one end of the pit to the other. The terminology refers to overburden being 'hauled back' from the mining face to in-pit dumps. Initially, a box cut is established in an area where the strip mining has been completed. This method will reduce the overburden haulage cost at the deepest portion of the pit; reduce equipment noise to surrounding areas and help restore original ground surface within the mining area in preparation for rehabilitation.

13.7 Blasting

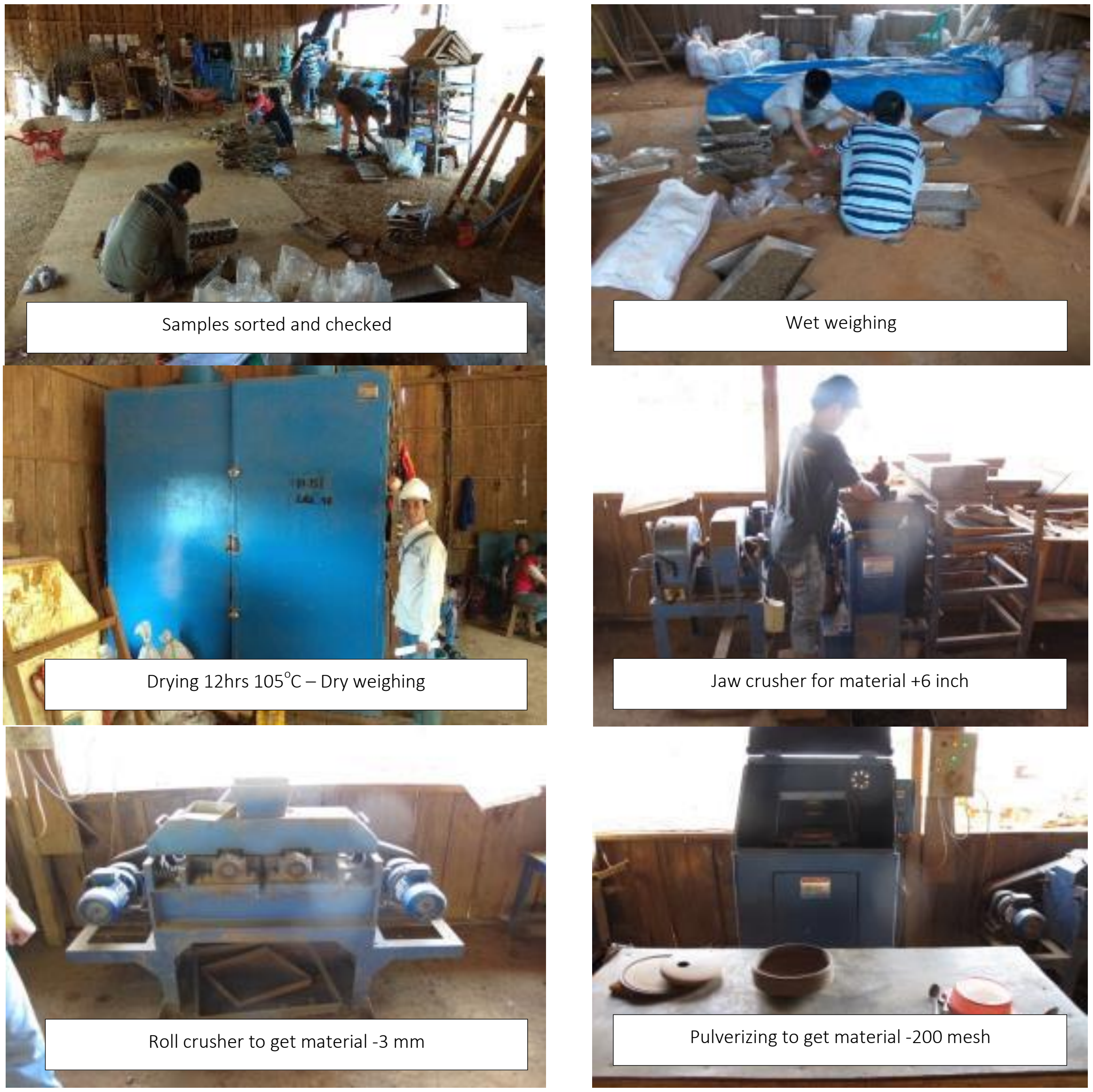
The waste rock types include topsoil, clay, silica box work and peridotite or ultramafic rock as a basement. Topsoil, clay material, and silica box work can be classified as soft material and can be dug without blasting. The ore does not require blasting as it is also soft material with small fragments of rock.

13.8 Other Infrastructure

Several on site infrastructures have been in place such as an office, messing area and facilities, worker dormitories, workshops, laboratory and storage rooms. **Figure 13-1** to **Figure 13-3** depict some of these on site infrastructures.

Figure 13-1 Worker dormitories & Messing Area

Figure 13-2 On Site Sample Preparation Facilities



Samples sorted and checked

Wet weighing

Drying 12hrs 105°C – Dry weighing

Jaw crusher for material +6 inch

Roll crusher to get material -3 mm

Pulverizing to get material -200 mesh

Figure 13-3 On site Laboratory & Office

13.9 Services

The mine site is provided with electric power supplied by the government. Water supply and diesel fuel are kept in storage tanks and sourced from the market place. The mine site also has communication devices such as walkie-talkies and radios for its personnel.

13.10 Use of Contractors

PT TAS has been using local contractors in the past to perform mining. From 2019 PT TAS will be using PowerChina as its primary mining contractor to:

- reduce the operating risk
- reduce the number of PT TAS employees
- minimise direct capital expenditure
- maintain a known and controlled cost structure
- perform certain difficult, non-routine tasks

14. ECONOMIC MODEL

14.1 Description of the Model

PT TAS has provided capital and operating cost estimates for the budget prepared for 2019. This 2019 budget was used to estimate the capital and operating costs associated with the production schedule supported by the resources and reserves. The mine currently operates through a combination of owner mining and contractor mining.

Scheduling:

The pit areas and associated waste dumps were scheduled to achieve the targeted ROM production tonnages for each year of the mine plan. The resulting schedule of nickel tonnage and nickel qualities were tabulated and entered into the economic model.

Capital Costs:

The capital costs were added to the appropriate year of planned execution in the economic model from the 2019 budget. Typically, the largest costs will occur at or near the start of the schedule when the project is in the development stages. The capital was depreciated using a straight-line depreciation method for various time periods dependent on the type of investment.

Revenues:

The revenue was based on the nickel content of the product sold. The product grade from the schedule was compared to 1.65% Ni benchmark price of approximately US$40/t (Source: Shanghai Metals Market - price.metal.com) to arrive at FOB Mother Vessel US$/t nickel product price. This resulting nickel price was then multiplied by the nickel product tonnes to determine the annual revenue.

Operating Costs:

For the operating costs the summation of each of the cost components was totaled for every year of the schedule. These total costs are expressed in dollars per product tonne. From these the gross cost per product tonne is calculated for each year.

14.2 Capital Costs

The Project is currently an operating open-pit mine and only requires sustaining capital to maintain the equipment and supporting infrastructure necessary to continue operations until the end of the projected production schedule. The estimate of capital is divided into the following main areas:

1. Infrastructure development and pit closure costs
2. Exploration and maintenance
3. Assay laboratory
4. Office expansion
5. Mining equipment and vehicles

The capital cost estimates developed for this study includes the costs associated with the overall maintenance and development of the mine site. PT TAS has projected a total of US$ 3.3 million in capital costs over the projected 15 years in the Economic model.

Table 14-1 summarises the capital costs estimate for 2019.

Table 14-1 Capital costs budget FY2019

Capital Costs Budget - FY2019	
PT TAS Mine Site	US$
1. Infrastructure Development ▪ Jetty Improvements ▪ Pit Closure Cost	150,000 -
2. Exploration and Maintenance ▪ Drilling and Maintenance	100,000
3. Assay Laboratory ▪ Laboratory Equipment ▪ Laboratory Office	250,000
4. Office Expansion	100,000
5. Mining Equipment and Vehicles	100,000
Total	**700,000**

Source: PT TAS Life of Mine Report

PT TAS has provided a capital estimate of the Project on a yearly basis until the end of the project's life. This estimate is summarised in **Table 14-2.**

Table 14-2 Capital costs budget FY2019 – FY2033

Capital Costs Estimate (US$)						
Description	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**	**FY2024-FY2033**
1. Infrastructure Development	150,000	-	-	-	-	500,000
2. Pit Closure Cost	-	-	-	-	-	500,000
3. Exploration and Maintenance	100,000	100,000	100,000	100,000	100,000	1,000,000
4. Assay Laboratory	250,000	-	-	-	-	-
5. Office Expansion	100,000	-	-	-	-	-
6. Mining Equipment and Vehicles	100,000	-	-	-	-	200,000
Total	**700,000**	**100,000**	**100,000**	**100,000**	**100,000**	**2,200,000**

Source: PT TAS Life of Mine Report

14.3 Operating Costs

The operating cost estimate for the Project includes all expenses incurred to operate the mine from the start of FY2019 (Year 1) through FY2033 (Year 15) at a daily average production rate of about 10,800 WMT. The expected accuracy for the operating cost estimate is that of a pre-feasibility study level (+-/ 20-25%).

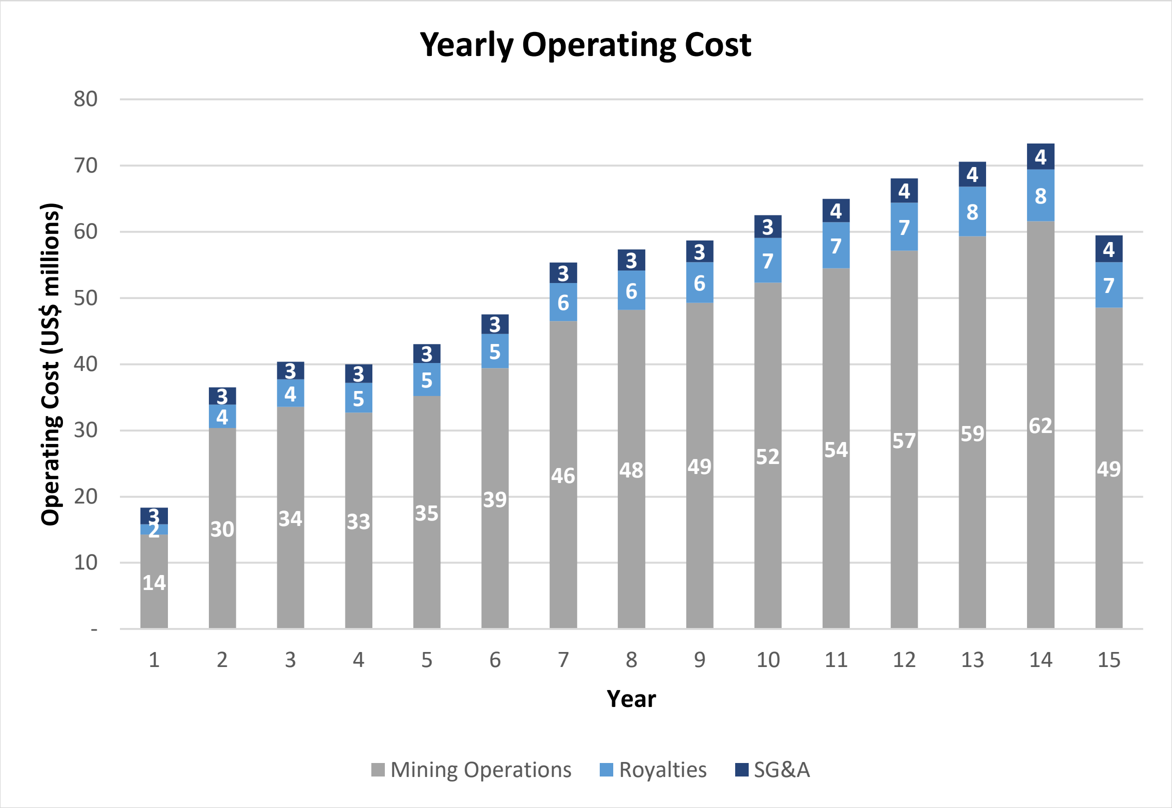
The three major operating cost areas are mining and shipping, site general and administration ("SG&A") and royalties. **Table 14-3, Figure 14-1,** and **Figure 14-2** provides the breakdown of the projected operating costs for the Project.

Table 14-3 Operating Cost Breakdown

Cost Item / Area	Total (US$million)	Average ($/t mined)	OPEX (%)
Mine Operations	662.80	11.22	83.26%
SG&A	48.24	0.82	6.06%
Royalties	85.02	1.44	10.68%
Total	**796.07**	**13.47**	**100%**

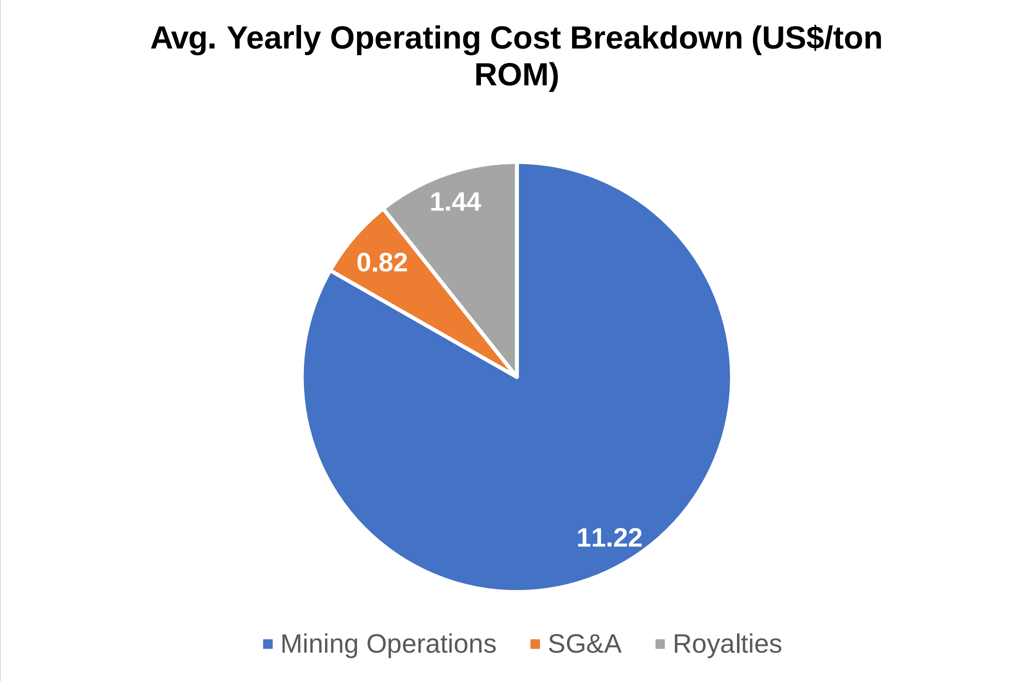
Source: PT TAS Life of Mine Report

Figure 14-1 Yearly Operating Cost



Source: PT TAS Life of Mine Report

Figure 14-2 Average Yearly Operating Cost Breakdown



Source: PT TAS Life of Mine Report

14.4 Revenue

The nickel price used in the modelling was based on an average annual nickel production target provided by PT TAS. The LOM revenue components are summarised in **Table 14-4.**

Table 14-4 Average Schedule Nickel Price

Description	Units	Value
Product Tonnes		
- Local Sales - Ni > 1.40%	Mt	6.1
- Smelter Sales - 1.0% ≤ Ni < 1.4%	Mt	21.1
- Other Sales - Co ≥ 0.06%	Mt	31.8
Grade Average		
- Local Sales - Ni > 1.40%	%Ni	1.65
- Smelter Sales - 1.0% ≤ Ni < 1.4%	%Ni	1.16
- Other Sales - Co ≥ 0.06%	%Co	0.07
Nickel Ore Price		
- Local Sales - Ni > 1.40%	US$/WMT	23
- Smelter Sales - 1.0% ≤ Ni < 1.4%	US$/WMT	23
- Other Sales - Co ≥ 0.06%	US$/WMT	21

Source: PT TAS Life of Mine Report

14.5 Economic Analysis

14.5.1 Forward-looking Information

The results of the economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented within this report. Forward- looking statements in this report include, but are not limited to, statements with respect to future ore prices, the estimation of the Ore Reserves and Mineral Resources, the realisation of Ore Reserve estimates, unexpected variations in quantity of mineralised material, grade or recovery rates, geotechnical and hydrogeological factors, unexpected variations in geotechnical and hydrogeological assumptions used in mine designs including seismic events and water management during the construction, operations, closure, and post-closure periods, the timing and amount of estimated future production, costs of future production, capital expenditures, future operating costs, costs and timing of the development of new ore zones, success of exploration activities, permitting time lines and potential delays in the issuance of permits, currency exchange rate fluctuations, requirements for additional capital, failure of plant, equipment or processes to operate as anticipated, government regulation of mining operations, environmental, permitting and social risks, unrecognised environmental, permitting and social risks, closure costs and closure requirements, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

14.5.2 Methodology Used

The Project has been evaluated using a discounted cash flow ("DCF") analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of capital expenditures, operating costs, taxes and royalties. These are subtracted from the inflows to arrive at the annual cash flow projections.

To reflect the time value of money, annual free cash flow ("FCF") projections are discounted back to the Project valuation date using a selected discount rate. The discount rate appropriate to a specific project depends on many factors, including the type of commodity and the level of project risks (e.g. market risk, technical risk and political risk). The discounted present values of the cash flows are summed to arrive at the Project's net present value (NPV). The major inputs and assumptions used for the development of the financial model are listed in **Table 14-5.**

Table 14-5 Execution Plan

Execution Plan	
Mine Life	15 years
LOM Ore Tonnes (MWMT)	59.1
Total Average LOM Nickel Grade (%)	1.03
Average Annual Production (MWMT)	3.94
Nickel Orel Pricing	
Local Sales - Ni > 1.40%	US$ 23/t
Smelter Sales - 1.0% ≤ Ni < 1.4%	US$ 23/t
Other Sales – Co ≥ 0.06%	US$ 21/t

Cost and Tax Criteria	
Estimate Basis	Q3 2019
Inflation	3.5 %
Income Tax	Indonesia, Corporate
Royalties	
Royalty on Local Sales	5 %
Payable Terms	
Nickel ore	100 %

14.5.3 Key Assumptions and basis

The economic analysis was performed using the following assumptions and basis:

- The conceptual mine plan developed in **Section 13** provided the following inputs to the financial model: mine life, annual ore and waste tonnes mined;
- The financial model applies ore pricing set out in **Table 14-5,** which was estimated on the basis of discussions with PT TAS. It is understood that nickel ore prices can be volatile and that there is the potential for deviation from the LOM forecasts;
- All cost and sales estimates are in constant Q3 2019 US$ with a 3.5% yearly inflation taken into account;
- All project related payments and disbursements incurred prior to the effective date of this report are considered as sunk costs.
- The model applies 5.0% royalties on all ore sales revenue across the life of the mine.
- Project revenue is derived from the sale of nickel ore into the local Indonesian marketplace. Although PT TAS has a Letter of Interest, there is no contractual arrangement for "Other sales" at this time. Provisions for nickel ore transportation and payable charges have been included in the financial model.

Key Assumptions – Nickel Ore Price

PT TAS currently has a supply agreement for the sale of its products to PT Ekasa Yad Resources, a company within the Tsingshan Group. Prices of nickel ore have been based on current market rates and estimations done by PT TAS. All pricing estimates are based on FOB rates. **Table 14-6** presents the prices used in the cash flow model.

Table 14-6 Nickel Ore Pricing

Nickel Ore		Price
Local Sales – Ni > 1.40%	US$/t	23
Smelter Sales – 1.0% ≤ Ni < 1.4%	US$/t	23
Other Sales – Co ≥ 0.06	US$/t	21

Key Assumptions – Cost of Goods Sold

These assumptions are detailed below. Prices for consumables, labor, fuel, rent, transportation, etc. were derived from historical PT TAS costs to forecast capital and operating costs. Mining contractor costs were based on PowerChina contracts. These costs are summarized in **Tables 14-7-14-9**.

Table 14-7 Variable Costs Estimates

Variable Costs		Price
Local Sales – Ni > 1.40%	US$/t	11.80
Smelter Sales – 1.0% ≤ Ni < 1.4%	US$/t	9.30
Other Sales – Co ≥ 0.06	US$/t	6.50

Table 14-8 Fixed Costs Estimates

Fixed Costs Estimate - FY2019		Price
Site Salary (62 staffs)	US$	350,000
Consumption (meals)	US$	70,000
Rental (house for consultant/ surveyor)	US$	30,000
Parking , Fuel and Toll	US$	12,000
Laboratory and Analysis	US$	200,000
Clearance (Documentation & Stevedoring)	US$	100,000
CSR	US$	250,000
Repair and Maintenance	US$	150,000
Rehabilitation	US$	100,000
Depreciation	US$	700,000
Amortisation	US$	100,000
Fixed Cost	US$	2,062,000

Table 14-9 Other Variable Costs Estimates

Other Variable Costs		Price
Fuel (Generator)	US$/t	0.10
Incentives for staff (production)	US$/t	0.20
Other Variable Costs/mt	US$/t	0.30

Key Assumptions – Taxes, Royalties and Other Interests

The analysis of the Project includes an effective corporate income tax rate total of 25% from FY2019 to FY2033.

The Project includes the payment of a 5% governmental royalty on all nickel ore sales. Inflation is kept constant at 3.50% throughout the entire DCF model.

14.6 Financial Analysis

The DCF analysis of the Project indicates that the Project has a Free Cash Flow to Firm ("FCFF") Net Present Value ("NPV") of approximately US$ 284 million. The NPV has been derived using a weighted average cost of capital ("WACC") of 13.5% based on PT TAS management estimate.

The operation is projected to have no negative cash flow periods. The annual free cash flow profile of the Project is presented in **Table 14-11.**

Summary of financial evaluation for PT TAS can be seen in **Table 14-10** below.

Table 14-10 Financial Evaluation summary

Economic Parameter	Units	DCF Result	Remark
Net Present Value (NPV) @ 13.5% WACC	US$ million	284	Accepted
Internal Rate of Return (IRR)	%	NA	No negative cash flow
Pay Back Period (PBP)	Year	NA	No negative cash flow

Based on this analysis, the Project is economically feasible as NPV > 0.

The qualified person (Ore Reserves) has reviewed the financial model and considers that it is realistic, achievable and fit-for-purpose.

Table 14-11 Annual free cash flow profile

Year count		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Month Count		12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
FY		FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033
SALE QUANTITY ASSUMPTIONS (in WMT '000)																
Sales Volume																
Local Sales		131	318	351	14	3	194	611	773	867	361	594	509	602	723	75
Smelter JV Sales		842	2,133	1,563	1,041	881	1,470	1,741	1,461	1,089	1,860	1,476	1,836	1,688	1,381	689
Other Sales		427	559	1,617	2,716	3,152	2,340	1,896	2,008	2,298	2,289	2,442	2,169	2,227	2,466	3,216
Total Quantity Sold		**1,400**	**3,009**	**3,531**	**3,771**	**4,037**	**4,004**	**4,248**	**4,242**	**4,254**	**4,510**	**4,512**	**4,514**	**4,517**	**4,570**	**3,980**
PROFIT & LOSS STATEMENT (in USD '000)																
Revenue																
Nickel Ore Sales																
Local Sales		3,005	7,566	8,655	354	90	5,292	17,267	22,611	26,264	11,321	19,267	17,077	20,920	26,012	2,800
Smelter Sales		19,367	50,775	38,498	26,535	23,245	40,159	49,223	42,758	32,982	58,298	47,890	61,657	58,667	49,666	25,645
Other Sales		8,973	12,140	36,387	63,241	75,967	58,373	48,956	53,650	63,539	65,522	72,344	66,503	70,669	80,985	109,335
Total Revenue		**31,345**	**70,481**	**83,540**	**90,130**	**99,302**	**103,824**	**115,446**	**119,019**	**122,786**	**135,142**	**139,502**	**145,237**	**150,257**	**156,663**	**137,781**
COGS - Cost of Goods Sold																
Mining Operations		(14,251)	(30,375)	(33,534)	(32,689)	(35,208)	(39,389)	(46,492)	(48,196)	(49,282)	(52,329)	(54,473)	(57,142)	(59,309)	(61,607)	(48,527)
Royalty	*5%*	(1,567)	(3,524)	(4,177)	(4,506)	(4,965)	(5,191)	(5,772)	(5,951)	(6,139)	(6,757)	(6,975)	(7,262)	(7,513)	(7,833)	(6,889)
Gross profit		**15,527**	**36,582**	**45,828**	**52,934**	**59,128**	**59,244**	**63,182**	**64,872**	**67,364**	**76,055**	**78,054**	**80,833**	**83,435**	**87,222**	**82,364**
SG&A Expense		(2,500)	(2,588)	(2,678)	(2,772)	(2,869)	(2,969)	(3,073)	(3,181)	(3,292)	(3,407)	(3,526)	(3,650)	(3,778)	(3,910)	(4,047)
EBITDA		**13,027**	**33,995**	**43,150**	**50,162**	**56,260**	**56,275**	**60,109**	**61,691**	**64,072**	**72,648**	**74,527**	**77,183**	**79,657**	**83,313**	**78,318**
Depreciation		(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)
EBIT		**12,977**	**33,945**	**43,100**	**50,112**	**56,210**	**56,225**	**60,059**	**61,641**	**64,022**	**72,598**	**74,477**	**77,133**	**79,607**	**83,263**	**78,268**
Interest Expense		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EBT		12,977	33,945	43,100	50,112	56,210	56,225	60,059	61,641	64,022	72,598	74,477	77,133	79,607	83,263	78,268
Tax cost	*25%*	3,244	(8,486)	(10,775)	(12,528)	(14,052)	(14,056)	(15,015)	(15,410)	(16,006)	(18,150)	(18,619)	(19,283)	(19,902)	(20,816)	(19,567)
Net Income		**16,221**	**25,459**	**32,325**	**37,584**	**42,157**	**42,168**	**45,044**	**46,231**	**48,017**	**54,449**	**55,858**	**57,850**	**59,706**	**62,447**	**58,701**
FREE CASHFLOW (in USD '000)																
FCFF																
EBIT		12,977	33,945	43,100	50,112	56,210	56,225	60,059	61,641	64,022	72,598	74,477	77,133	79,607	83,263	78,268
Tax		(3,244)	(8,486)	(10,775)	(12,528)	(14,052)	(14,056)	(15,015)	(15,410)	(16,006)	(18,150)	(18,619)	(19,283)	(19,902)	(20,816)	(19,567)
Depreciation		50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Drilling Capex		(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)	(75)
Maintenance Capex		(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
Infrastructure, Office & Lab Capex		(500)	-	-	-	-	(250)	-	-	-	-	(250)	-	-	-	-
Pit Closure Cost		-	-	-	-	-	(250)	-	-	-	-	-	-	-	-	(250)
Vehicles Capex		(100)	-	-	-	-	(100)	-	-	-	-	(100)	-	-	-	-
Decrease / (increase) in working capital		(237)	(574)	(562)	(690)	(345)	320	215	(14)	(133)	(522)	(6)	(33)	(57)	(151)	(606)
FCFF		8,846	24,834	31,714	36,844	41,763	41,838	45,210	46,167	47,834	53,877	55,452	57,767	59,598	62,246	57,794
Discount Factor @ 13.5% WACC		1.00	0.94	0.83	0.73	0.64	0.57	0.50	0.44	0.39	0.34	0.30	0.26	0.23	0.21	0.18
PV of Discounted Cashflows		8,846	23,311	26,227	26,846	26,810	23,664	22,530	20,270	18,504	18,363	16,652	15,283	13,893	12,784	10,458

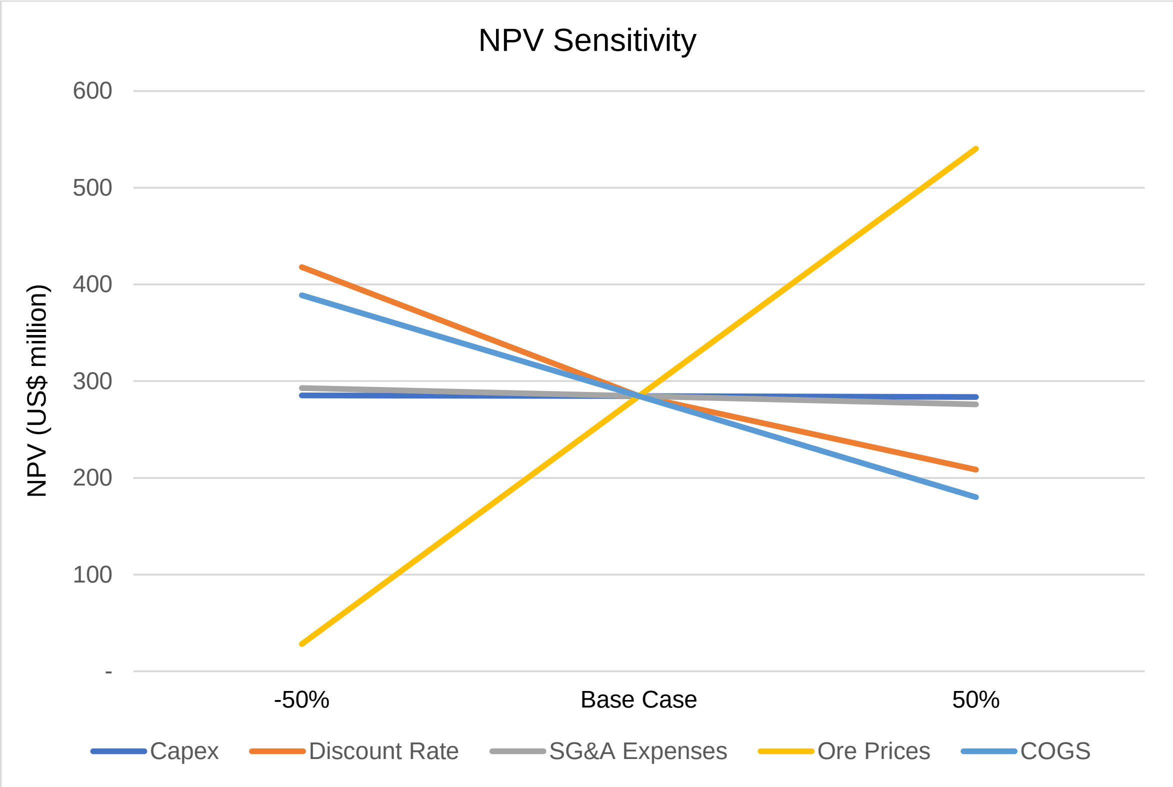
WACC	%	13.5%
NPV (Middle-Period) @ 13.5%	***US$***	**284,440,099**
IRR	%	N/A
Payback Period	*Year*	N/A

14.7 Sensitivity Study

Sensitivity analysis is conducted to investigate how sensitive the cash flow model is to the key input parameters. During the sensitivity analysis, the parameters are considered independent from each other as only one parameter is changed at a time, with all other values kept constant.

The NPV sensitivity compares against capital expenditures, discount rate, SG&A expenses, ore prices, and cost of goods sold ("COGS"). Results show that the nickel ore price is the most sensitive factor, followed by COGS and discount rate (**Figure 14-3**).

Figure 14-3 Sensitivity Graph



15. HUMAN RESOURCES, HEALTH, SAFETY & SECURITY

15.1 Organisational Chart and Human Resource

The PT TAS workforce is segmented into various divisions namely Operations, Marketing, Accounting & Finance and Business Development, reporting to the Chief Operations Officer (“COO”), Chief Marketing Officer (“CMO”), Chief Financial Officer (“CFO”) and Business Development Manager respectively. All these division heads report directly to the Chief Executive Officer (“CEO”). **Figure 15-1** details the organisational chart for the Jakarta head office.

The mine site operational workforce is also divided by function namely Technical & Equipment, Finance, Operators, Production (Mining), Quality Control, Logistics, Drivers, Security, Cooks & Cleaning, Safety, and Environment. **Figure 15-2** details the organisational chart for the mine site.

The total PT TAS workforce including management is approximately 90 people.

Figure 15-1 PT TAS Organisation Chart (Head Office)

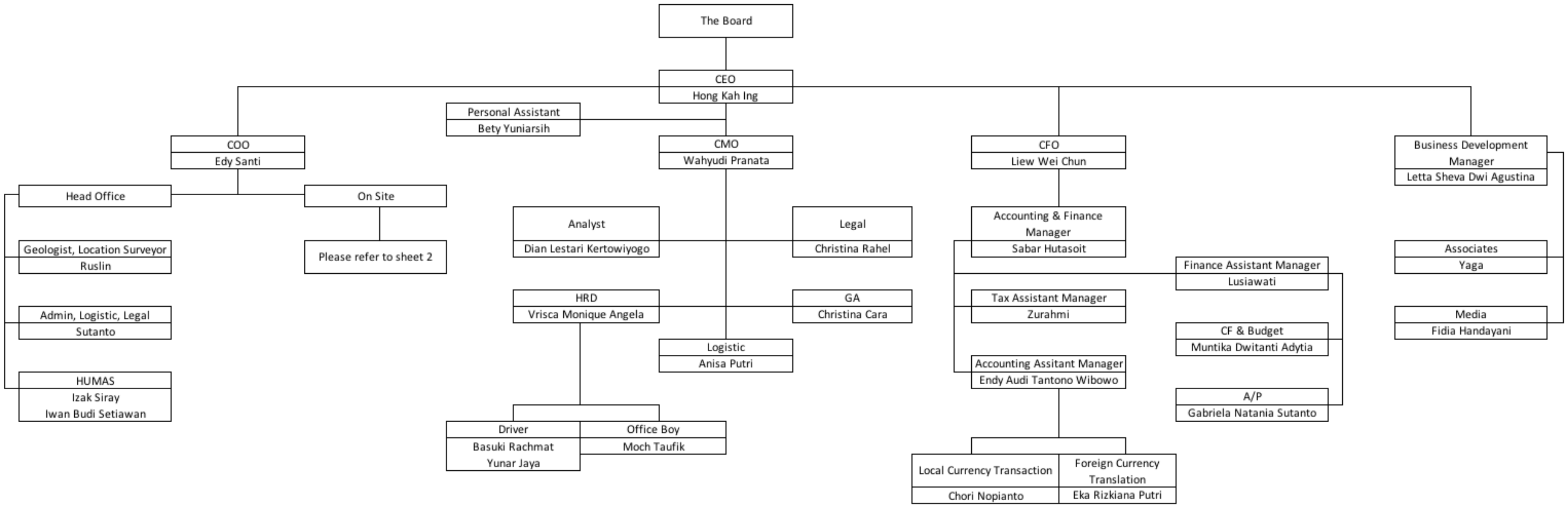
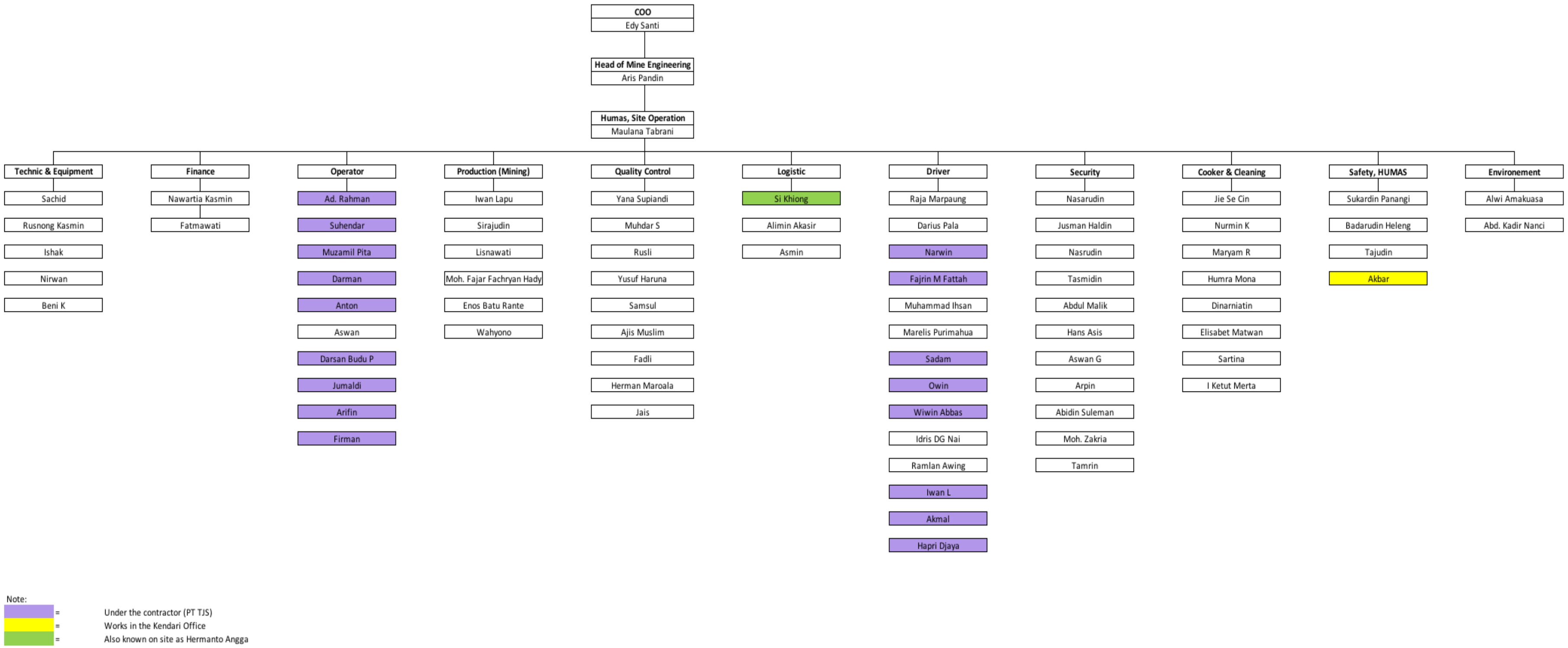


Figure 15-2 PT TAS Organisation Chart (Mine Site)



15.2 Mine Safety

15.2.1 Policies and Programs

PT TAS is committed to operating a safe work place and eliminating accidents. To support this commitment, the company:

- Conducts a safety induction for every new employee to be aware of the importance of mining work safety.
- Provides suitable personal protection equipment ("PPE") to employees such as safety helmets and protective clothing to prevent injury and reduce employee exposure to hazards.
- Supervises employees and contractors.
- Undertakes safety talks regularly so that employees are more aware of safe work habits and methods.
- Develops and implements Standard Operational Procedures.
- Adopts incident investigations in the event of an incident or accident, prepares a report and makes recommendations for improvements if necessary.
- Initiated an occupational health and safety program ("K3 program") to educate and train employees.
- Meets to identify hazards in a proactive way or find a source of danger before the danger causes adverse effects or impacts.
- Focuses on preventative actions and continuous improvement.
- Installs safety-related posters and banners.
- Installs traffic signs, especially in hazard zones.
- Develops safety and health initiatives aimed at developing occupational safety and health programs such as better protection against waste treatment, medically transmitted and non-infectious diseases.

Figure 15-3 PT TAS routine Safety Talk and Safety signs

Source: PT TAS Life of Mine Report

15.2.2 Accident Statistics

Table 15-1 presents accident statistics for 2018 for the Project.

Table 15-1 Accident statistics for 2018

No	Months	Classification			Cumulative
		Near miss	Accident	Fatality	
1	January	1	-	-	1
2	February	-	-	-	-
3	March	1	-	-	1
4	April	-	-	-	-
5	May	1	-	-	1
6	June	-	-	-	-
7	July	-	-	-	-
8	August	-	-	-	-
9	September	1	-	-	1
10	October	2	-	-	2
11	November	1	-	-	1
12	December	1	-	-	1
Total					**8**

Calculation for Frequency Rate as follows: number of employees 106 people

FR = Number of accidents *1,000,000/ Total working hours for all employees

FR = 8 * 1,000,000 /305,280

FR = 26.21

Based on these calculations it can be explained that there were 26.21 accidents in every 1,000,000 working hours.

Calculation for Severity Rate (SR), as follows:

SR = Missing days *1,000,000/ Total working hours for all employees

SR = 5 * 1,000,000/ 305,280

SR = 16.37

Based on these calculations it can be explained that there were 16.37 lost days for every recordable incident per 1,000,000 working hours.

The directors of PT TAS have advised GAS that the company is fully compliant with all relevant legislation.

15.3 Community Engagement

Mining activities have changed the traditional use of land in the communities surrounding the Buleleng and Torete villages, from agricultural, plantation and other business activities to nickel mining. PT TAS has developed social economic, and community-based jobs and new business opportunities related to mining activities both directly and indirectly.

PT TAS engages the community around the mine to work at the mine site. The number of workers is based on the requirements of production and PT TAS hopes that in the long term the local community contribution to mining will increase. Some of the community development programs are summarised in **Table 15-2**.

Table 15-2 Summary of PT TAS Community Development

No	Activities	Plan 2019 (US$)
1	**Public Relations**	
	Religious	1,773
	Social & Culture	1,241
	Sports and Youth	674
2	**Community**	
	Education	1,277
	Health	1,241
	Economic	1,117
	Agriculture	621
	Animal & Fisheries	869
3	**Infrastructure Development**	
	Education	1,117
	Religious	1,117
	Health	869
	Animal & Fisheries	745
	Economic	745
	Public Facilities	1,064
4	**Natural Disasters and Operational Costs**	993
Total (US$)		**15,461**
Total (IDR)		**218,000,000**

16. ENVIRONMENTAL

The focus of the assessment was to identify potential environmental, health, safety and security issues which have material impacts. The list of documents that were made available during the assessment included the following:

- PT TAS Work Plan report, January, 2019. “Rencana Kerja dan Anggaran Biaya (“RKAB”) PT Teknik Alum Services”;
- RKTTL report PT TAS, January, 2016. “Rencana Kerja Tahunan Teknik dan Lingkungan PT Teknik Alum Services”;
- Mine closure planning report PT TAS, Mei, 2015. “Laporan Rencana Pascatambang PT Teknik Alum Services”;
- Reclamation planning report PT TAS, Jan, 2015. “Rencana Reklamasi Tahun 2015 PT Teknik Alum Services”;
- AMDAL report PT TAS, October, 2008. “Analisis Mengenai Dampak Lingkungan PT Teknik Alum Services”;
- Feasibility study report PT TAS, September, 2008. “Laporan Studi Kelayakan Proyek Pembangunan Tambang Bijih Nikel di Desa Buleleng dan Desa Torete Kecamatan Bungku Selatan Kabupaten Morowali Provinsi Sulawesi Tengah”;
- Legal permitting (Exploration Permit, Exploitation Permit, CNC Certificate, Special Terminal of Mining).

16.1 Environmental

Mining activities consist of several stages such as investigation (prospecting), exploration, feasibility study, AMDAL Environmental Impact Analysis), mining (including processing of excavated materials) and marketing. Stages in environmental studies are usually grouped in pre-construction, construction stages, operation and post-operation.

The steps or methods of approach taken in identifying important impacts are as follows:

- Study reports especially those relating to ore mining and processing activities.
- Reviewing the planned ore mining and processing activities to be carried out.
- Reviewing the environmental characteristics in the activity area when the feasibility study is conducted.
- Experience and knowledge in preparing AMDAL and Environmental Management Efforts and Environment Monitoring Efforts (UKL / UPL) documents.
- The use of environmental quality standards as a determinant of the presence or absence of impacts based on changes in the parameters studied.
- Analogy, namely comparing environmental problems that arise as a result of similar activities in other regions.

Based on these guidelines, there are several important impact determinants, namely as follows:

- Number of people affected.
- Area of distribution of impact.
- The duration of the impact.
- Impact intensity.

- Cumulative nature of impacts.
- Reversibility of the impact.

16.1.1 Hydrological Information

The Project area has a typical wet and humid tropical climate with abundant rainfall. The temperature generally ranges from 26°C to 30ºC, with cooler temperatures at higher elevations. The wet season is typically from December to February and the dry season from June to November. Annual precipitation amounts to about 2,000 mm.

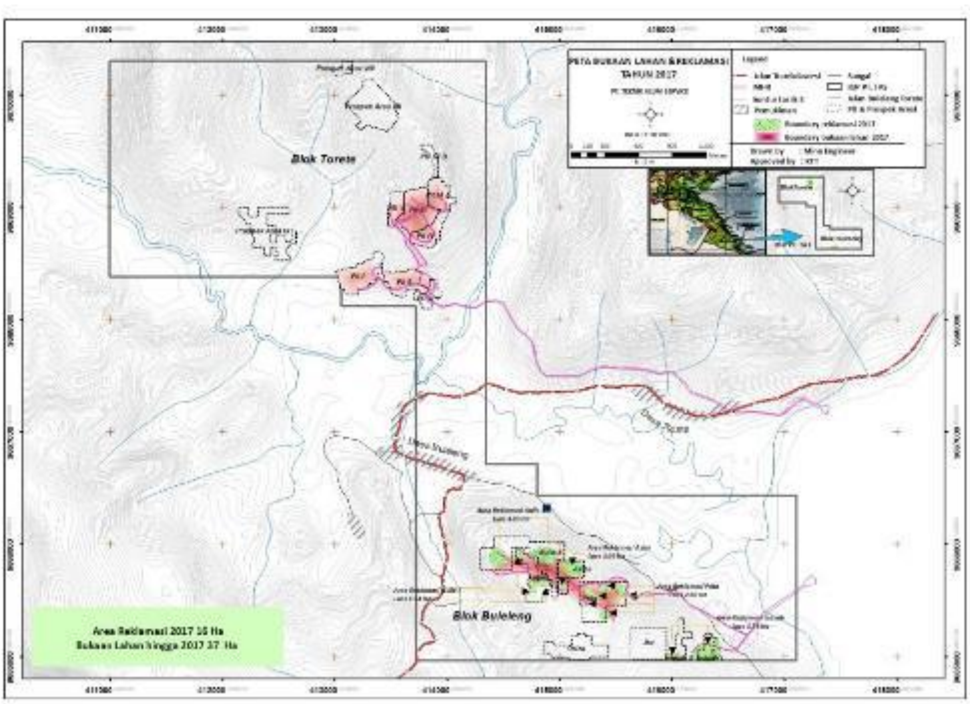
16.2 Management of the environment

PT TAS conducts an overall evaluation of the disturbed environment due to company activities such as mining, road construction, stockpile making, jetty making. Indicator items that are routinely monitored are dust and noise, changes in landscape, water and spring quality, aquatic biota, flora and fauna, and community perceptions around the mine.

16.2.1 Land Opening, Reclamation & Rehabilitation of Former Mining Sites.

Nickel mining activities, especially land clearing in the Production Operation IUP area, can cause changes to the land used for mining operations, both in active mining areas and on land for mining facilities. The changes in the area around the mine in general are changes in the shape of surface morphology, loss of topsoil due to stripping of overburden, loss of vegetation or planting on top of it due to the process of land clearing, changes in drainage system patterns and possible changes in groundwater quality.

Figure 16-1 PT TAS Land Clearing and Reclamation



Source: PT TAS Life of Mine Report

Reclamation and revegetation activities are an important part in the post-mining operation phase, because it will become the basis for subsequent space utilization. In 2015, PT TAS prepared a budget for mine closure and reclamation of 45 ha in two sites at Buleleng and Torete. Two main cost centres were estimated i.e. direct costs of the reclamation program (land structuring, re-vegetation, prevention, and civil works according to the needs of the reclamation site), and indirect costs (such as mobilisation and demobilisation). These are summarised in **Table 16-1**.

Table 16-1 Mine Closure and Reclamation Budget

No	Description	Cost (US$)
1	**Direct Cost**	
	a. Land Structuring	
	1. Grading	26,950
	2. Topsoil rehandling	24,823
	3. Erosion and water management	19,504
	b. Revegetation	
	1. Analysis soil quality	7,092
	2. Soil fertilisation	24,823
	3. Seedling	17,730
	4. Planting	19,504
	5. Plant maintenance	24,823
	c. Acid mine water management	8,511
	d. Civil works reclamation	10,638
	Subtotal	184,397
2	**Indirect Cost**	
	a. Mobilisation and Demobilisation (2.5% from direct cost)	5,319
	b. Reclamation Plan (2% from direct cost)	3,546
	c. Admin and Contractor profit (10% from direct cost)	18,440
	d. Supervision (2% from direct cost)	3,546
	Subtotal	**30,851**
TOTAL (US$)		**215,248**
TOTAL (IDR)		**3,035,000,000**

Source: Mine closure planning report PT TAS, May, 2015

The area of land that has been reclaimed or recontoured/revegetated to 2018 has covered an area of 16 ha (**Figure 16-2**). This reclaimed area is located at Buleleng block, while revegetation at Torete has not been carried out because mining is still in progress. There will be an additional 15 ha of continuing reclamation activities between 2019 and 2022.

The areas that have been recontoured to the end of 2018 are Azizah (3.09 ha), Aulia I (1.54 ha), Aulia II (4.38 ha), Inayah (3.74 ha) and Prita (2.80 ha). For reclamation activities, many plant seeds are needed. PT TAS operates a nursery in the village of Buleleng (**Figure 16-3**). At present several types of seeds have been prepared for revegetation, including sengon, trembesi, mangoes, and several other potential species.

Topsoil contains a lot of organic material. Before mining commences, topsoil is carefully removed and stored. When reclamation occurs, the stored topsoil is placed on the recontoured land surface to facilitate revegetation.

Reclamation activities are carried out in conjunction with the progress of mining. Plans for land reclamation will be managed and carried out by considering land use planned in the

Regional Spatial Plan ("RTRW") of the local area, with the ultimate goal of remodeling mining areas into new landforms that will benefit the local population.

Figure 16-2 PT TAS Land Re-contouring and Reclamation

Source: PT TAS Life of Mine Report

Figure 16-3 PT TAS Nursery

Source: PT TAS Life of Mine Report

Slope Stability

The slopes are being stabilised in the following ways:

- Drainage of slope by installing horizontal pipes on the slope of the embankment, so that the slope does not become saturated with water. Grass or shrubs planted on the surface of the slope minimise erosion by surface water, which can result in localised slope instabilities.
- Installation of retaining walls where required to create an abutment so that the embankment slope safety increases.

16.2.2 Water Management

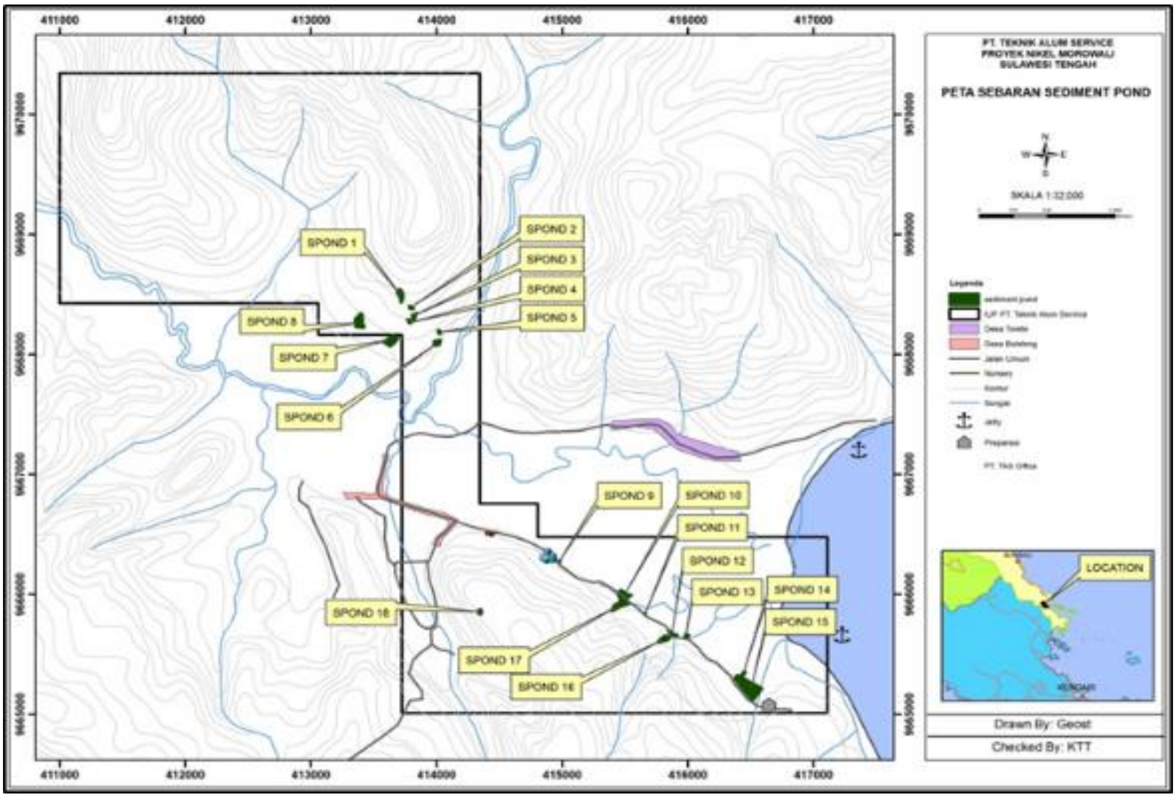
Rainfall and groundwater need to be managed in order to minimise any adverse effects on the mine or the surrounding environment. As the pits and both out-of-pit and in-pit dumps progressively enlarge, the attention to water management issues will increase over time.

Water is classified either as clean or dirty, depending on the degree of exposure to disturbed areas and contaminants. Clean water can normally be discharged directly to existing watercourses and may be available for various Project water uses. Dirty water may be classified according to the nature of the contaminants and degree of treatment required, and almost always requires either retention on site or some level of treatment before discharge off site. Clean and dirty water may also be available for some on site project water uses such as dust control on waste dumps and haul roads. The clean runoff water from the original ground surface is directed to constructed open channel drainage and flows to the natural water courses.

All dirty water is directed from pit pumping activity and run off drains through the mine dirty water drainage system. Drop structures for erosion control are generally located at the toe of the waste dumps. Sediment control devices and water treatment with materials such as alum and lime are used to maintain the outlet water to within acceptable ranges defined by Baku Mutu Lingkungan, ("BML") for Total Suspended Solids, ("TSS") and Total Sulphur ("TS"), respectively.

Run-off material is one of the main concerns and PT TAS has addressed this by constructing sediment ponds, sumps, and check dams (**Figure 16-4 and Figure 16-5**).

Figure 16-4 Sediment pond distribution



Source: PT TAS Life of Mine Report

Figure 16-5 Sediment pond used in PT TAS

Source: PT TAS Life of Mine Report

PT TAS carries out analyses of water quality for both river water quality analysis and sea water quality analysis (**Figure 16-6**), which are tested at Kendari Health Laboratory Center, Southeast Sulawesi Provincial Government Health Office. The results of laboratory analysis can be seen in **Figure 16-7.**

Figure 16-6   Sampling of river and sea water in the area of PT TAS

Source: PT TAS Life of Mine Report

Figure 16-7   Results of water quality of PT TAS

PEMERINTAH PROPINSI SULAWESI TENGGARA
DINAS KESEHATAN
BALAI LABORATORIUM KESEHATAN KENDARI

LAPORAN HASIL UJI KIMIA LINGKUNGAN

No	PARAMATER PEMERIKSAAN		SATUAN	HASIL PEMERIKSAAN	BAKU MUTU	SPESIFIKASI METODE
1	pH (Derajat Keasaman)		-	7,44	6-9	[illegible]
2	Total Suspended Solid (TSS)		mg/l	28,9	100	[illegible]
3	Besi	(Fe)	mg/l	[illegible]	5	[illegible]
4	Nikel	(Ni)	mg/l	[illegible]	0,5	[illegible]
5	Kadmium	(Cd)	mg/l	[illegible]	0,05	[illegible]
6	Krom val. 6	(Cr^{6+})	mg/l	[illegible]	0,1	[illegible]
7	Tembaga	(Cu)	mg/l	[illegible]	[illegible]	[illegible]
8	Timbal	(Pb)	mg/l	[illegible]	0,1	[illegible]
9	Seng	(Zn)	mg/l	[illegible]	5	[illegible]
10	Kromium	(Cr)	mg/l	[illegible]	0,5	[illegible]
11	Cobalt	(Co)	mg/l	[illegible]	0,4	[illegible]

PEMERINTAH PROPINSI SULAWESI TENGGARA
DINAS KESEHATAN
BALAI LABORATORIUM KESEHATAN KENDARI

LAPORAN HASIL UJI KIMIA LINGKUNGAN

No	PARAMATER PEMERIKSAAN		SATUAN	HASIL PEMERIKSAAN	BAKU MUTU Pertambangan	SPESIFIKASI METODE
1	pH (Derajat Keasaman)		-	[illegible]	6-9	[illegible]
2	Total Suspended Solid (TSS)		mg/l	[illegible]	[illegible]	[illegible]
3	Besi	(Fe)	mg/l	[illegible]	5	[illegible]
4	Nikel	(Ni)	mg/l	[illegible]	0,5	[illegible]
5	Cadmium	(Cd)	mg/l	[illegible]	0,05	[illegible]
6	Krom val. 6	(Cr^{6+})	mg/l	[illegible]	0,1	[illegible]
7	Tembaga	(Cu)	mg/l	[illegible]	[illegible]	[illegible]
8	Timbal	(Pb)	mg/l	[illegible]	0,1	[illegible]
9	Seng	(Zn)	mg/l	[illegible]	5	[illegible]
10	Kromium	(Cr)	mg/l	[illegible]	0,5	[illegible]
11	Cobalt	(Co)	mg/l	[illegible]	0,4	[illegible]

Source: PT TAS Life of Mine Report

16.2.3 Solid Waste Control

Solid waste generated from office waste, basecamp and workshop is collected and disposed of at the final disposal site. Wastes that are difficult to decompose properly will be burned.

Hazardous and toxic waste ("B3 waste") produced includes used lubricating oil from the use of heavy equipment such as bulldozers, excavators, dump trucks, generators and other vehicles. This waste will be accumulated in drums placed in designated places and then sold to collecting companies who have an official government-issued disposal permit.

16.2.4 Dust Control.

The impact of air pollution from dust will be minimised by doing regular watering every day and regulating the speed of the mine vehicles. The dust suppression function installed at the screening station reduces the presence of nickel ore dust, thereby improving the air quality.

16.2.5 Control of Flora, Fauna, Wildlife and Aquatic Biota

Land reclamation activities together with revegetation at mined-out areas will have a positive influence on flora, fauna/wildlife and aquatic biota and are expected to increase the number of plants. Plants act as regulators of water to improve the quality and quantity of wildlife habitat, and reclamation and revegetation activities can improve water quality in river waters around the mining area.

16.2.6 Compliance with Environmental Requirements

The directors of PT TAS have advised GAS that the company is fully compliant with all relevant legislation.

17. RISK AND OPPORTUNITY ASSESSMENT

A list of key risks and opportunities for this Project has been compiled, based on discussions with PT TAS personnel, observations made during the site visits, documentation provided, knowledge of the operations and the various issues associated with similar operations in Indonesia. These can be classified into the following categories.

17.1 Government Regulatory Changes

The Indonesian Government has changed the regulatory environment for export of nickel laterite. This change in the ability to direct ship ore will have an impact on the Project. The mitigation strategy of PT TAS is to build a smelter to upgrade the ore to the proposed required grade. Changes to the regulatory environment results in confusion and a lack of clarity for strategic planning.

17.2 Water Management

A detailed Water Management Plan should be developed to address all water issues known to be encountered, including rainfall events and groundwater issues. Detailed engineering design and assessment will also be needed for any diversion or drainage system, sediment ponds etc.

The Water Management Plan must also consider the management of sediment and treatment of water from dumps located around the current concession.

17.3 Production Ramp-up

The planned mining production profile shows an increase in the planned waste removal and ore extraction requirements. GAS considers that this will require close monitoring and management of production performance to ensure targets are met.

17.4 Technical Skills and Personnel

As with most mining operations in Indonesia, one of PT TAS's key risks will be the recruiting and retaining of key technical and site management/supervisory personnel. There is a general shortage of experienced technical people in Indonesia to ensure that the operations are controlled and planned correctly. This issue would also extend to any contractor PT TAS engages.

17.5 Environment

The key environmental risk that the Project faces is a failure to comply with regulations due to inadequate planning, procedures and control measures. The primary concern is that the water management system will be incapable of adequately containing and removing any water inflows or run-offs, which may also have a detrimental effect on the geotechnical stability of the pits.

17.6 Potential Impact of Natural Disasters (Earthquakes and Tsunamis)

Central Sulawesi is in an area at risk from the effects of natural disasters such as earthquakes and tsunamis. There can be no assurance that natural disasters will not occur and result in major damage to the Project or the supporting infrastructure facilities in the vicinity, which could adversely affect the business. Prolonged disruption of nickel production operations as a result of a natural disaster may also result in customers terminating their contracts. PT TAS should explore the possibility of insuring equipment to salvage some value in the event of a natural disaster, and prepare and install evacuation plans and processes to keep employees safe.

17.7 Operating Costs

Generally, there are several risks and opportunities with regards to the operating costs expected for the Project. However, with the fixed cost mining contract in place with PowerChina, PT TAS has mitigated the potential risk of a substantial increase in cost.

Other items that could affect future operating costs include:

- Fuel prices
- Waste and ore haul distances
- Labour costs (will be driven by market forces)
- Equipment productivities

17.8 Sustaining Capital Costs

Sustaining capital costs that are planned for the Project area are limited to rebuilding bridges and road development into new working areas. The capital costs assumed in this report are not based on detailed designs and are only approximate. It is expected that PT TAS will conduct its own detailed investigation into the engineering design and full costing of any planned capital investment.

17.9 Nickel Price

The nickel price has been quite volatile in the last three years and is expected to continue to stay volatile in the near and medium-term future. This volatility presents both a risk – if there is a sustained decline in prices, and an opportunity if prices rise significantly.

18. CONCLUSIONS

Total Mineral Resources reported for the Project at an effective date of 8th October 2017 totaled 66.5 MWMT, covering 494 ha of the total concession area of 1,301 ha. Most resources were classified as Inferred and there were no Ore Reserves reported at the time. The 2017 estimate is also referred to as the RTO area of the concession.

In 2018, a new drilling program has added new Mineral Resources and upgraded a significant tonnage of previously defined Inferred Resources to Indicated Mineral Resources. In 2019, a Mining Study to pre-feasibility standard (PT TAS LOM plan) has converted some of the resources to Ore Reserves. At an effective date of 27th May 2019, the total Mineral Resources for the Project are 146.6 MWMT, with Ore Reserves of 44.5 MWMT.

Of the 146.6 MWMT of Mineral Resources reported as at 27th May 2019 for the Project, there are 87.0 Mt within the 494 ha RTO area, an increase of 20.5 MWMT. There are 59.5 MWMT outside of the RTO in the remaining 807 ha of the concession, referred to as the Earnout area. All the Earnout area Mineral Resources were defined in the 2018 drilling program.

GAS considers that the work completed in 2018 and 2019 has successfully added new Mineral Resources to the Project, including the definition of enriched cobalt zones that add value to the Project. The Mining Study completed in 2019 has also led to the creation of Ore Reserves at the Project for the first time, providing more certainty to support the production schedule for the next 15 years.

19. CONSENT STATEMENTS

19.1 Qualified Person – Mineral Resources

I, Wahyu Asmantowi, confirm that I am a Principal Consultant of GAS and that I directly supervised the production of the Report titled “Independent Qualified Persons Report Buleleng and Torete Nickel Project, Central Sulawesi Province, Indonesia” with an effective date of 27th May 2019, in accordance with Rule 442 of the SGX Catalist Rules.

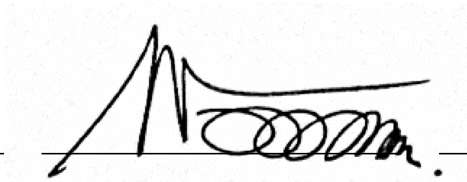
I confirm that my firm’s directors, substantial shareholders, employees and I are independent of PT TAS and FEM, their subsidiaries, and each of their directors and substantial shareholders, and their associates. In addition, my firm’s directors, substantial shareholders, employees, and I have no interest, direct or indirect, in PT TAS and FEM, their subsidiaries, or associated companies, and will not receive benefits other than remuneration paid to GAS in connection with this Independent Qualified Persons Report. Remuneration paid to GAS is not dependent on the findings of this Independent Qualified Persons Report.

I am a Member of The Australasian Institute of Mining and Metallurgy (“AusIMM”) and Indonesian Association of Engineers (“PERHAPI”). I have not been found in breach of any relevant rule or law of those Institutes, and I am not the subject of any disciplinary proceeding. I am not the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

I have read and understood the requirements of the 2012 Edition of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

I am a Competent Person as defined by the JORC Code, 2012 Edition, having sufficient experience that is relevant to the style of mineralisation and type of deposit described in this Independent Qualified Persons Report, and to the activity for which I am accepting responsibility.

I verify that this Independent Qualified Persons Report is based on and fairly and accurately reflects, in the form and context in which it appears, the information in the supporting documentation relating to Mineral Resources. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

Wahyu Asmantowi		30 September 2019
Name	**Signature**	**Date**

19.2 Qualified Person – Ore Reserves

I, Widadi Akso Prabu, confirm that I am Associate Senior Mining Engineer of GAS and that I directly supervised the production of the Report titled "Independent Qualified Persons Report Buleleng and Torete Nickel Project, Central Sulawesi Province, Indonesia" with an effective date of 27th May 2019, in accordance with Rule 442 of the SGX Catalist Rules.

I confirm that my firm's directors, substantial shareholders, employees and I are independent of PT TAS and FEM, their subsidiaries, and each of their directors and substantial shareholders, and their associates. In addition, my firm's directors, substantial shareholders, employees, and I have no interest, direct or indirect, in PT TAS and FEM, their subsidiaries, or associated companies, and will not receive benefits other than remuneration paid to GAS in connection with this Independent Qualified Persons Report. Remuneration paid to GAS is not dependent on the findings of this Independent Qualified Persons Report.

I am a Member of The Australasian Institute of Mining and Metallurgy ("AusIMM") and Indonesian Association of Engineers ("PERHAPI"). I have not been found in breach of any relevant rule or law of those Institutes, and I am not the subject of any disciplinary proceeding. I am not the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

I have read and understood the requirements of the 2012 Edition of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

I am a Competent Person as defined by the JORC Code, 2012 Edition, having sufficient experience that is relevant to the style of mineralisation and type of deposit described in this Independent Qualified Persons Report, and to the activity for which I am accepting responsibility.

I verify that this Independent Qualified Persons Report is based on and fairly and accurately reflects, in the form and context in which it appears, the information in the supporting documentation relating to Ore Reserves. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

Widadi Akso Prabu	Widadi akso prabo	30 September 2019
Name	**Signature**	**Date**

Appendix A – Glossary

List of Abbreviations

Abbreviation	Meaning
%	Percent, Percentage
ºC	Degrees Celsius
3D	Three Dimensions
asl	Above Sea Level
AusIMM	Australasian Institute of Mining and Metallurgy
BML	Baku Mutu Lingkungan
B3 Waste	Hazardous and Toxic Waste
BRK	Bedrock
BPS	*Badan Pusat Statistik/* Central Bureau of Statistics
CoG	Cut-Off Grade
COGS	Cost of Goods Sold
Competent Person (JORC)	is a minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation' (RPO), as included in a list available on the JORC and ASX websites. These organisations have enforceable disciplinary processes including the powers to suspend or expel a member. A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.
CNC	Clear and Clean
CP	Competent Persons
CPI	Indonesia Competent Person
CRMs	Certified Reference Materials
DCF	Discounted Cash Flow
DMT	Dry Metric Ton
DSO	Direct Shipping Ore
DTM	Digital Terrain Model
ESDM	*Energi Sumber Daya Mineral* (Energy of Mineral Resource)
ESO	East Sulawesi Ophiolite
FCF	Free Cash Flow
FCFF	Free Cash Flow to Firm
FEM	Far East Mining Pte Ltd
Fe	Iron
Fe_2O_3	Iron Oxide (Iron)
GAS	PT Geo Artha Selaras
GIS	Geographic Information System
GPS	Global Positioning System
Ha	Hectare

Abbreviation	Meaning
IPPH	Ijin Pinjam Pakai Kawasan Hutan
IQPR 1	Independent Qualified Persons Report 1
IQPR 2	Independent Qualified Persons Report 2
IUP	*Izin Usaha Pertambangan* (Mining Business Permit)
JORC	Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia
K3 Program	Keselamatan dan Kesehatan Kerja (Occupational Safety and Health Program)
km	kilometre(s)
LOI	Loss on Ignition (Water of Crystallisation)
LOM	Life of Mine
m	metre(s)
mt	Metric Tonne(s)
m^2	Square Metre
MgO	Magnesium Oxide
Mt	Millions of Tonnes (referring to resources and reserves)
N	North
Ni	Nickel
NPV	Net Present Value
OB	Overburden
OK	Ordinary Krigging
PFS	Pre-Feasibility Study
pH	Potential Hydrogen
PT	*Perseroan Terbatas* (Limited Liability Company)
QAQC	Quality Assurance and Quality Control
RTO Area	Reverse Take Over Area
S	South
SG&A	Selling, General & Administrative
SiO_2	Silicon Dioxide (Silica)
SMI	PT Sulawesi Mining Investment
t	Tonne(s)
TAS	Teknik Alum Services
TS	Total Sulphur
TSS	Total Suspended Solids
UTM	Universal Transverse Mercator
WACC	Weighted Average Cost of Capital
WGS	World Geodetic System
WMT	Wet Metric Ton

Abbreviation	Meaning
XRF	X-Ray Fluorescence technique used for analysis

Appendix B – JORC Code, 2012 Edition – Table 1 Sections 1, 2, 3 and 4

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Sampling was conducted by core drilling and all holes were drilled vertically through the limonite and saprolite zones into underlying bedrock. • The drill core was extracted from the tube after being drilled and laid inside wooden core trays to preserve the core and marked up with depth information, lithology break and core loss if any. • Geological supervision by trained persons (geologist) was a key feature of the sampling and core lithology descriptions. • The sample was properly logged by a geologist at drilling site using a standard Core Logging Procedures. Sample breaks are determined by the logging geologist and can vary from 0.3 m to 1.0m. • Every samples fraction is mixed in the wet state by hand. After coning, quartering and mixing of opposite quadrants of the materials, a representative sample of about 2 kg is taken.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• PT TAS used 2 drill type i.e. MD single-tube with core-barrel HQ-size by tungsten carbide bit and Jacro wirelines triple tube, HQ drill bit size (diamond and or tungsten). • All holes were drilled vertically through the limonite and saprolite zones into underlying bedrock.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• The core recovery was recorded by standard measurement of the core length divided by the run length. Where there was more than one material in the 1m, the approximate proportions of materials that show core loss and those that show core gain (swelling) were estimated. This was applied to determine a more accurate estimate of core recovery. • Core recovery minimum applied was 85% (0.85). If 3 metres consecutive the recovery below 80% it should be re-drills with maximum moved from previous drill collar is 1 metre. • Maximum interval sampling is 1 metre, if drill 1 metre and the core also 1 metre it's means the recovery 1, Swelling if drill 1 metre and the core

Criteria	JORC Code explanation	Commentary
		more than 1 metre it will record as 1 recovery, but Loss if drill 1 metre the core less than 1 metre, only 50cm it will record as 0.5 recovery. • No relationship exists between sample recovery and grade
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• All drill hole samples were geologically logged including weathering, mineralisation, lithology, structure and grain size and sample recovery. This level of detail was sufficient to support appropriate Mineral Resource estimation. • Logging is qualitative in nature, but weathering zone information can be checked with sample assays. • Drill core sample was properly logged by a geologist at the drilling site using Standard Core Logging Procedures • Core samples were photographed in core trays in every box in digital format for documentation • All sample intervals returned from drilling activities were logged.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• On early stage of exploration, All Core sample composite, homogenises and reducing by quarter method at Sample House in the Site. Half part is original sample and half part is backup sample. Samples product from wet preparation are -1" size. All original samples are sent to external laboratory • Next stage of exploration all core samples were taken for preparation and analysed in Internal Lab of PT TAS. • Sample preparation comprised a 1m core sample (± 5kg) being dried for 8hrs at 105^{o}C, crushed to -10mm size, manually mixed and quartered (to get ± 3kg), crushed again until -3mm size, mixed manually, then reduced using a matrix 4x5 (to get 500g). Sample was then dried again for 15-30 minutes, crushed into -1mm and pulverised to -200mesh. Sample was then split into 2 samples using sieve shaker. One sample (± 50gram) was sent to Internal Laboratory for analysis and one sample (350g) retained for backup. • Sample sizes are appropriate for the grain size of the material being sampled.
Quality of assay	• *The nature, quality and appropriateness*	• Core samples were analyses by

Criteria	JORC Code explanation	Commentary
data and laboratory tests	*of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	Internal Lab of PT TAS. • The assaying method was energy dispersive x-ray fluorescence (ED-XRF) analysis using a pressed pellet.
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.*	• PT TAS was done documentation of logging the drillholes in each block drilling area and mark with GPS. • PT TAS also doing external lab check for the representative samples drilling.
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.*	• Drill hole collar co-ordinates are initially located using handheld GPS and electronic total station. When drilling has been completed, the collar location is re-surveyed using a Total Station. • The projection used is UTM WGS-84 grid 52N
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The drilling exploration work are in phase reconnaissance (200m x 200m and 100m x 100m grid interval) to detailed infill 50m x 50m interval for the target geological unit and within the areas defined as containing nickel laterite resource. • The deposit is a surficial deposit formed on flat-lying to gently undulating topography giving reasonable confidence to interpolate geology and grade across these distances. • The data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and classifications applied. • Samples have been composited to 1m
Orientation of data in relation to geological	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is*	• The nickel laterite is a weathered geomorphic surface drape over underlying ultramafic source units.

Criteria	JORC Code explanation	Commentary
structure	*known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• All drill holes were vertical and will be 100% true intersection. • Regular grid drill spacing is used within field or topographic practicalities. • Regional and local structures are described as horizontal to sub-horizontal and related to thrusting. There is no evidence of cross cutting structures or units that would bias the assay results.
Sample security	• *The measures taken to ensure sample security.*	• All samples were taken, processed and assayed by PT TAS. • Sample backup and duplicate are store.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Not Available

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• PT TAS nickel concessions located in Morowali Regency, Indonesia (**Figure 1-1**). The Project consists of two known Ni laterite occurrences; the Buleleng and Torete deposits. Both deposits are contained within a concession covering an area of approximately 1,301 Ha • Mining License : 540.3 / SK.002 / DESDM / VI / 2012 • Clear and Clean : 517 / Min / 12 / 2013 • Special Terminal; B.X- 507 / PP 008
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Previous exploration data completed by other parties.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• PT TAS nickel laterite mineralisation is developed from the weathering and near surface enrichment of ultramafic units (wet tropical laterite). The mineralisation is usually within 31 metres of surface and can be further sub divided on mineralogical and geochemical characteristics into upper iron-rich material and lower magnesium-rich material based on the ratios of iron to magnesium.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Using standard form for logging all information was described and at drilling site including core photography.
		• Collars were accessible and mark with GPS.
		• The projection used is WGS84 UTM zone 52N.
		• Holes were drilled vertically through the limonite and saprolite zones into underlying basement with dip -90 and 0 azimuth.
		• All collars were surveyed by GPS and total station after drilling.
		• Down hole sample length was 1m and related with sample composite length.
		• Most exploration work spaced at 200m by 200m, 100m by 100m, and 50m by 50m which is appropriate for this type of mineralisation to correlate between sections.

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material*	• Drill hole samples were composited to an equal length of 1m prior to grade estimation • The grade distributions for the

Criteria	JORC Code explanation	Commentary
	and should be stated. • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	economic elements are not considered to be highly skewed and demonstrate a low variance within each Mineral Resource domain. Hence no grade cutting is considered necessary. • No metal equivalents were reported.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The laterite is thin but laterally extensive. The intercepts are almost perpendicular to the mineralisation. • Drilling so far has been confined to the major ridgelines due to access and deposit geometry. • All vertical drill holes intersect the mineralisation at approximately 90 degrees to its orientation. All down hole widths approximate true widths for vertical holes.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Intercepts are not being reported. An appropriate plan view of the drill holes has been included in this report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Exploration results are not being reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• To increase the resource classification, all factors such as bulk density measurement, ground survey, topographic data, mineralogy analyses, size distribution study and rigorous QAQC program have to consider implementing in the next exploration program.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• General work plans are not being reported.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary

Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*
	• *Data validation procedures used.*
		• Databases were checked to determine if there were any invalid entries for all fields in the database. This was conducted for all numeric fields by determining the minimum, maximum and average values.
		• Data validation procedures used as follows:
		  • Comparison of digital drill hole data against original drill hole geological logs.
		  • Visual verification of the collar azimuth of drill holes;
		  • Review of geological and assay data in provided databases;
		  • Review of original density and moisture data

Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A site visit was carried out by Mr Wahyu Asmantowi on November 2018. The site visit confirmed the drilling, sampling, sample preparation and assaying procedures and original geology and assay logs sighted and collected.
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.*	• There is high confidence in the geological interpretation of the mineral deposit due to the close spacing of the drill holes, the consistency of grade and lithology/weathering profile in this style of deposit and the checking of the logging information using the sample assays. • Nickel mineralisation is mainly controlled by lithology, fracture and tropical climate. Fractures that result from faults or geological structures in the area allow the rock to be easily weathered by exposure to surface and ground water or increasing the voids within the rock to allow exposure with the air or water. • There are no likely alternative interpretations. Any effect of an alternative interpretation would not be material. • The volume and tonnage is controlled to a large degree by the surface topography. The lithological / weathering zones determined from logging have been used to constrain

Criteria	JORC Code explanation	Commentary
		and control the Mineral Resource estimation. • The continuity of both grade and geology is affected by the topographic profile, the depth of weathering, and the permeability of the rocks during laterisation involving fracturing of the host ultramafic rocks.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The geometry, depth and extensions of the nickel laterite ore are well constrained by close spaced drilling and topography. • Drilling at the deposit extends to the top of the bedrock zone at a maximum vertical depth of approximately 25 m below surface.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• The Ordinary Kriging ("OK") was used for the grade interpolation and the lithology surfaces were used as hard boundaries for the grade estimation of each element in each domain. Element grades were estimated for the LIM and SAP domains only. No grades were estimated for blocks in the BRK domain as the material is not extracted due to low grades. • After analysis of the histograms and probability plots, no significant outliers were observed so no high-grade cuts were applied to the datasets. • No previous estimate and mine production data was compared to the current Mineral Resource estimate. • All elements were estimated, including non-grade elements such as MgO and SiO2 • The block dimensions used for the models were 12.5 m by 12.5 m by 1 m vertical for applied for all block deposit. • Grade cutting is not applied as the elements do not significant outliers were observed so no high-grade cuts were applied to the datasets. • Model estimates were validated against drilling by (i) a qualitative and visual assessment was completed by slicing sections through the block model in positions coincident with drilling to assess the local validation. (ii) a quantitative

Criteria	JORC Code explanation	Commentary
		assessment of the estimate was completed by comparing the global average grades of the sample composites input against the global block model average grades output for all domains. (iii) Validation was also carried out by comparing the average composite grades along northings, eastings and by elevation versus the average block grades along northings, eastings and by elevation.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis and wet dry. • Material was weighed to obtain the wet weight and reduced by quartering. The material was then weighed and dried in an oven for 8 to 10 hours at 105°C. After drying it was weighed to obtain the dry weight from which the moisture content was then determined by calculation.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The Mineral Resource is reported at variable grade ranges of Ni that define potentially economic mineralisation in each lithological zone. Cut-off grade parameters were selected based on limited information from PT TAS grade specification requirements for the smelters receiving the DSO and other similar projects in the region.
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.*	• There is no mining factor used for this resource estimation
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*	• There is no metallurgical assumptions used for this resource estimation

Criteria	JORC Code explanation	Commentary
	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.	
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• There is no environmental assumptions used for this resource estimation
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.*	• Density data provided for the Project consisted of core drill sample data. The Core was choosing within the limonite domain and saprolite domain. Using the Caliper and Water Displacement (Archimedes) method the Core density were determined. • Caliper method ; individual pieces of intact core (preferably greater than 10 cm long) are selected, wrapped with plastic and weighed; the ends are cut perpendicular to the axis of the core; the diameter (d) of the core is determined with a pair of calipers – it should be measured at several points and averaged; the length (l) of the core is determined with a tape measure – it should be measured at several points and averaged; • Water Displacement (Archimedes) method involve either measuring the volume of water displaced as the sample is lowered into it, or weighing the sample in air and immersed in water, the difference in weight equating to the volume of water displaced (Archimedes' Principle); The change in water volume was then recorded and the wet density was calculated by dividing the weight of the core by the volume of the displaced water in the measuring tube. The moisture content was determined later in the on-site laboratory before the sample was prepared

Criteria	JORC Code explanation	Commentary
		for analysis.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Mineral Resources were classified as Indicated and Inferred Mineral Resources based on data quality, sample spacing, and grade continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 100 m by 100 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 100 m by 100 m, often on the periphery of the Indicated Resources. There are large areas of the project defined by drilling on 25 m by 25 m spacing or even closer. These areas could have been classified in the Measured category but were classified as Indicated category due to limited data quality as was determined after analysis of the assay QA/QC data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited of bulk density and moisture determinations evenly spread over the areas. • The result appropriately reflects the Competent Persons view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Internal reviews
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be*	• A quantitative assessment of the estimate was completed by comparing the global average grades of the sample composites input against the global block model average grades output for all domains. Very little difference can be observed between the average sample grades and the block model grades, confirming the high quality of the estimation process. Validation was also carried out by comparing the average composite grades along northings, eastings and by elevation versus the average block grades along northings, eastings and by elevation. Swath plots were compiled to conduct the comparison for Ni and Fe. The swath plots show a very close correlation between the average composite grades and the average block grades confirming the high quality of the estimation. In addition, the trends shown in the

Criteria	JORC Code explanation	Commentary
	compared with production data, where available.	drill hole data are honored in the block model. • The statement relates to global estimates.

Section 4 Estimation and Reporting of Mineral Reserves

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Ore Reserve is derived from Mineral Resources estimate reported in May 2019. This estimate and the model associated with it formed the basis of the subsequent Ore Reserve estimate. • Indicated resources were considered during the optimisation, scheduling, estimation of Ore Reserves and Economic Modelling of the project. • The Mineral Resources within this estimate are Inclusive of the Ore Reserves and not additional.
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.*	• Site visits on plan in August 2018 by Mine Engineer to confirm the underlying technical inputs. • While there no site visits have been undertaken but reviewed existing infrastructure and discussed future mine plans have been done.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• Mining operations for the Project have been undertaken from 2015 to present. The total production was 1.2 million wet metric tonnes ("WMT") of Direct Shipping Ore ("DSO"). The average grade of the DSO was 1.80 % nickel ("Ni"). The DSO is sent to a domestic smelter in Central Sulawesi, Indonesia. • Pre-Feasibility Study or LOM planning of PT TAS internally have been done. This study has shown the Ore Reserves for each deposit with three cut-off grade options as Probable classification.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• PT TAS project consists of two deposits; Torete and Buleleng deposits located within the same concession boundary. • Ore Reserves for each deposit have been prepared using three cut-off grade options as Probable classification. A cut off grade of Ni < 1.0 and Co ≥ 0.001 at Torete and Ni < 1.0 and Co ≥ 0.03 at Buleleng has been applied to achieve the blended target grade for Co ≥ 0.06 within the pit. And a cut-off grade of Ni ≥ 1.0 and Ni < 1.40 for second target product. And a cut-off grade Ni ≥ 1.40 for third target product. • An economic model was prepared based on LOM schedule result and determined that the project provided a positive undiscounted cashflow and NPV.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-*	• Due to the non-selective nature of the mining method proposed and

	Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	relative flexibility of the mining fleet no detailed designs were undertaken beyond what was required to define the final mining limits and account for the removal of the overburden prior to mining of the ore bearing layers. A pit optimisation study was conducted to assist in confirming the economic boundary of the Mineral Resource. • The use of truck and loader surface mining is a well-established mining method that is both well suited to the deposit and commonly used at many similar operations. • An overall wall slope angle of 45 degrees was used in this study. As the deposit is shallow the wall slope parameters have a very low impact of the project • Mining Recovery factors of 97% and 1% of dilution have been applied to the Ore Reserve. • Small area of Inferred resources were considered during the optimisation, scheduling and economic modelling of the project, as further work needed appropriately to increase the inferred mineral resources into Indicated and or measured resources. • As the deposit has been previously mined much of the required infrastructure is currently established.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• Ore will be sold as raw product, apart from blending and drying, no metallurgical processing is undertaken on product ore. • No deleterious material has been observed in the shipments to date. • As the deposited has previously been mined the nature of the mineralisation is well understood. • A number of elements have been carried through in this study; nickel and Cobalt have been considered economic, with material blended to meet each of target product.

Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• The operation is occurring within the frame work of an AMDAL, October 2008. This document includes the monitoring and environmental reporting standards. The planned and active waste dumps are in accordance with the AMDAL.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• Most of primary infrastructure has already settled eg : mess, office, clinic, port, workshop, power generator, site laboratory, etc • Haul road were on good condition, on some section need repairing on road bridge.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Cost assumptions were based on current mining operation costs as well as contractor mining cost quoted by PowerChina. • Royalties and company taxation rates in the formulation of its financial scenarios. TAS is understood that nickel ore prices can be volatile and that there is the potential for deviation from the LOM forecasts; • All costs and revenues are based on a US$ pricing basis so there is no exchange variation of the project financials.
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.*	• TAS currently has a supply agreement for the sale of its products to PT Ekasa Yad Resources, a company within the Tsingshan Group. Prices of Nickel ore have been based on current market rates and estimations done by PT TAS. All pricing estimates are based on FOB rates. - Local Sales - Ni > 1.40% ; 23 US$/mt - Smelter Sales - 1.0% ≤ Ni < 1.4% ; 23 US$/mt - Other Sales – Co ≥ 0.06 ; 21 US$/mt
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.*	• Nickel consumption is closely linked to steel demand, particularly in China, which accounts for 50% of world consumption. • Current tightening of environmental regulations in Philippines has the potential to close a number of mines there and thus disrupt supplies of nickel laterite ore. • 2019 Consensus forecasts suggest Nickel prices edging higher across

	• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	much of the forecast horizon. • The project will sell the product to domestic clients.
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.*	• Economic analysis was based on ore schedules using Open Pit Mining System scheduling. • Mining schedules included blending to achieve a product target grade. • A discount rate of 13.5% was employed in the financial analysis based on industry standards practices employed in Indonesia for such studies. • An annual inflation rate of 3.50% was used throughout the DCF model. • The NPV sensitivity compares against ore prices, cost of goods sold, discount rate, capital expenditures and SG&A expenses. It can be concluded that nickel prices is the most sensitive factor against NPV as well as the production volume. The second most sensitive factor is cost of goods sold cost followed by discount rate and SG&A expenses.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• PT TAS has an updated AMDAL October, 2008 and no social issue on the project area.
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.*	• Naturally occurring material risks such as earthquakes and tsunamis have been identified. • Further applications for Smelter will be required. Application of these licences and granting of these licences are expected to be a formality as long as PT TAS remains in good standing with the local government authorities.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's*	• Indicated resources were considered during the optimisation, scheduling, estimation of Ore Reserves and Economic Modelling of the project.

	view of the deposit. • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• Small area of Inferred resources were considered during the optimisation, scheduling and economic modelling of the project, which is still needs more work in exploration detail to increase appropriately the inferred mineral resources into Indicated and or measured resources. • The Competent Person believes the classification of the Mineral Resource and the subsequent conversion to Ore Reserve is appropriate. As above bullet point where completely done in the future.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• TAS, in line with its procedures, has completed audits of both the schedules and economic model prepared as part of the preparation of this estimate.
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.*	• The Ore Reserve has been completed to a PFS standard for the Mining component of the project, further details and approvals are required for the planned smelter, however this is considered immaterial to the project; hence confidence in the resulting figures is high. Mining operations have demonstrated the assumptions are reasonable. • Reconciliation of mining undertaken to date indicates that the contained metal estimated in the area being mined is reasonable. • All modifying factors have been applied to the designed mining shapes on a global scale as current local data reflects the global assumptions.

Appendix C – Production Schedule by Product

Production Schedule – Result Mineable Co ≥ 0.06 % Product

Deposit	Description	Unit/Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Torete	**Ore**	**Wet Mt**	**0.43**	**0.56**	**1.62**	**2.72**	**3.15**	**1.79**	**1.41**	**1.69**	**0.87**	**-**	**-**	**-**	**-**	**-**	**-**	**14.23**
	Ni Ore	%	0.96	0.94	0.93	0.90	0.90	0.84	0.85	0.84	0.87	-	-	-	-	-	-	**0.88**
	Co Ore	**%**	**0.07**	**0.07**	**0.08**	**0.09**	**0.08**	**0.06**	**0.08**	**0.07**	**0.07**	**-**	**-**	**-**	**-**	**-**	**-**	**0.08**
	Fe Ore	%	31.82	29.26	35.71	36.70	31.73	28.40	34.07	34.49	37.06	-	-	-	-	-	-	**33.50**
	Moisture Ore	%	28.45	27.36	28.79	28.87	27.48	27.02	28.04	28.72	29.59	-	-	-	-	-	-	**28.19**
Buleleng	**Ore**	**Wet Mt**	**-**	**-**	**-**	**-**	**-**	**0.55**	**0.49**	**0.32**	**1.43**	**2.29**	**2.44**	**2.17**	**2.23**	**2.47**	**3.22**	**17.60**
	Ni Ore	%	-	-	-	-	-	0.70	0.71	0.68	0.77	0.77	0.74	0.78	0.79	0.81	0.87	**0.79**
	Co Ore	**%**	**-**	**-**	**-**	**-**	**-**	**0.09**	**0.09**	**0.08**	**0.07**	**0.07**	**0.06**	**0.05**	**0.06**	**0.07**	**0.08**	**0.07**
	Fe Ore	%	-	-	-	-	-	44.17	43.41	39.99	33.62	31.95	28.50	24.90	30.28	32.79	36.50	**32.32**
	Moisture Ore	%	-	-	-	-	-	40.33	40.29	39.93	38.75	38.47	37.93	36.73	38.52	39.69	40.14	**38.82**
Total	**Ore**	**Wet Mt**	**0.43**	**0.56**	**1.62**	**2.72**	**3.15**	**2.34**	**1.90**	**2.01**	**2.30**	**2.29**	**2.44**	**2.17**	**2.23**	**2.47**	**3.22**	**31.82**
	Ni Ore	%	0.96	0.94	0.93	0.90	0.90	0.81	0.81	0.81	0.81	0.77	0.74	0.78	0.79	0.81	0.87	**0.83**
	Co Ore	**%**	**0.07**	**0.07**	**0.08**	**0.09**	**0.08**	**0.07**	**0.08**	**0.07**	**0.07**	**0.07**	**0.06**	**0.05**	**0.06**	**0.07**	**0.08**	**0.07**
	Fe Ore	%	31.82	29.26	35.71	36.70	31.73	32.09	36.47	35.37	34.92	31.95	28.50	24.90	30.28	32.79	36.50	**32.85**
	Moisture Ore	%	28.45	27.36	28.79	28.87	27.48	30.13	31.19	30.50	35.30	38.47	37.93	36.73	38.52	39.69	40.14	**34.07**

Notes: 1.Totals has been rounded to reflect the accuracy of the estimates.

2. Tonnes are based on wet basis.

3. Production Schedule uses predominantly indicated resources, and the balance from inferred resources

4. Co grade in year 2030 is 0.05%. Blending ore from stockpile is needed to ensure that the target on spec of Co 0.06%.

Production Schedule – Result 1.0 % ≥ Ni < 1.40 % Product

Deposit	Description	Unit/Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Torete	**Ore**	**Wet Mt**	**0.84**	**2.13**	**1.56**	**1.04**	**0.88**	**1.47**	**1.65**	**1.26**	**0.52**	**-**	**-**	**-**	**-**	**-**	**-**	**11.36**
	Ni Ore	**%**	**1.12**	**1.14**	**1.16**	**1.16**	**1.07**	**1.15**	**1.13**	**1.14**	**1.17**	**-**	**-**	**-**	**-**	**-**	**-**	**1.14**
	Co Ore	%	0.06	0.06	0.08	0.05	0.05	0.07	0.07	0.07	0.05	-	-	-	-	-	-	**0.07**
	Fe Ore	%	27.21	26.62	25.74	23.40	24.33	27.95	30.44	32.14	25.31	-	-	-	-	-	-	**27.35**
	Moisture Ore	%	27.67	26.88	26.24	25.44	25.77	26.80	27.34	27.51	25.67	-	-	-	-	-	-	**26.70**
Buleleng	**Ore**	**Wet Mt**	**-**	**-**	**-**	**-**	**-**	**0.00**	**0.09**	**0.20**	**0.57**	**1.86**	**1.48**	**1.84**	**1.69**	**1.38**	**0.69**	**9.79**
	Ni Ore	**%**	**-**	**-**	**-**	**-**	**-**	**1.35**	**1.28**	**1.19**	**1.16**	**1.18**	**1.14**	**1.18**	**1.21**	**1.22**	**1.13**	**1.18**
	Co Ore	%	-	-	-	-	-	0.03	0.03	0.03	0.05	0.06	0.04	0.04	0.05	0.04	0.04	**0.04**
	Fe Ore	%	-	-	-	-	-	16.62	16.25	14.29	24.96	28.20	20.53	19.35	19.61	16.59	17.49	**20.93**
	Moisture Ore	%	-	-	-	-	-	32.62	32.62	32.62	35.37	36.20	34.35	33.67	34.10	33.29	33.98	**34.36**
Total	**Ore**	**Wet Mt**	**0.84**	**2.13**	**1.56**	**1.04**	**0.88**	**1.47**	**1.74**	**1.46**	**1.09**	**1.86**	**1.48**	**1.84**	**1.69**	**1.38**	**0.69**	**21.15**
	Ni Ore	%	**1.12**	**1.14**	**1.16**	**1.16**	**1.07**	**1.15**	**1.14**	**1.14**	**1.17**	**1.18**	**1.14**	**1.18**	**1.21**	**1.22**	**1.13**	**1.16**
	Co Ore	**%**	0.06	0.06	0.08	0.05	0.05	0.07	0.07	0.06	0.05	0.06	0.04	0.04	0.05	0.04	0.04	**0.06**
	Fe Ore	%	27.21	26.62	25.74	23.40	24.33	27.93	29.69	29.74	25.13	28.20	20.53	19.35	19.61	16.59	17.49	**24.38**
	Moisture Ore	%	27.67	26.88	26.24	25.44	25.77	26.81	27.62	28.19	30.77	36.20	34.35	33.67	34.10	33.29	33.98	**30.25**

Note: 1.Totals has been rounded to reflect the accuracy of the estimates.

2. Tonnes are based on wet basis.

3. Production Schedule uses predominantly indicated resources, and the balance from inferred resources

Production Schedule – Result Ni ≥ 1.40 % Product

Deposit	Description	Unit/Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Torete	**Ore**	**Wet Mt**	**0.13**	**0.32**	**0.35**	**0.01**	**0.00**	**0.19**	**0.52**	**0.62**	**0.21**	**-**	**-**	**-**	**-**	**-**	**-**	**2.35**
	Ni Ore	**%**	**1.58**	**1.60**	**1.59**	**1.44**	**1.50**	**1.59**	**1.60**	**1.79**	**1.77**	**-**	**-**	**-**	**-**	**-**	**-**	**1.66**
	Co Ore	%	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.02	-	-	-	-	-	-	**0.04**
	Fe Ore	%	11.97	12.55	12.95	14.86	14.90	15.16	22.15	19.61	14.44	-	-	-	-	-	-	**16.95**
	Moisture Ore	%	23.35	23.35	23.36	23.35	23.35	23.43	25.03	24.73	23.35	-	-	-	-	-	-	**24.09**
Buleleng	**Ore**	**Wet Mt**	**-**	**-**	**-**	**-**	**-**	**0.01**	**0.09**	**0.16**	**0.66**	**0.36**	**0.59**	**0.51**	**0.60**	**0.72**	**0.08**	**3.77**
	Ni Ore	**%**	**-**	**-**	**-**	**-**	**-**	**1.47**	**1.48**	**1.64**	**1.82**	**1.63**	**1.62**	**1.63**	**1.58**	**1.60**	**1.50**	**1.64**
	Co Ore	%	-	-	-	-	-	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.03	**0.04**
	Fe Ore	%	-	-	-	-	-	17.25	17.32	16.42	19.68	19.92	19.57	18.64	16.67	17.16	12.86	**18.25**
	Moisture Ore	%	-	-	-	-	-	32.62	32.62	32.62	33.09	33.73	33.30	33.40	33.03	33.20	32.62	**33.20**
Total	**Ore**	**Wet Mt**	**0.13**	**0.32**	**0.35**	**0.01**	**0.00**	**0.19**	**0.61**	**0.77**	**0.87**	**0.36**	**0.59**	**0.51**	**0.60**	**0.72**	**0.08**	**6.13**
	Ni Ore	**%**	**1.58**	**1.60**	**1.59**	**1.44**	**1.50**	**1.59**	**1.58**	**1.76**	**1.81**	**1.63**	**1.62**	**1.63**	**1.58**	**1.60**	**1.50**	**1.65**
	Co Ore	%	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.04	0.03	0.04	0.04	0.05	0.04	0.04	0.03	**0.04**
	Fe Ore	%	11.97	12.55	12.95	14.86	14.90	15.23	21.45	18.96	18.42	19.92	19.57	18.64	16.67	17.16	12.86	**17.75**
	Moisture Ore	%	23.35	23.35	23.36	23.35	23.35	23.73	26.13	26.34	30.75	33.73	33.30	33.40	33.03	33.20	32.62	**29.70**

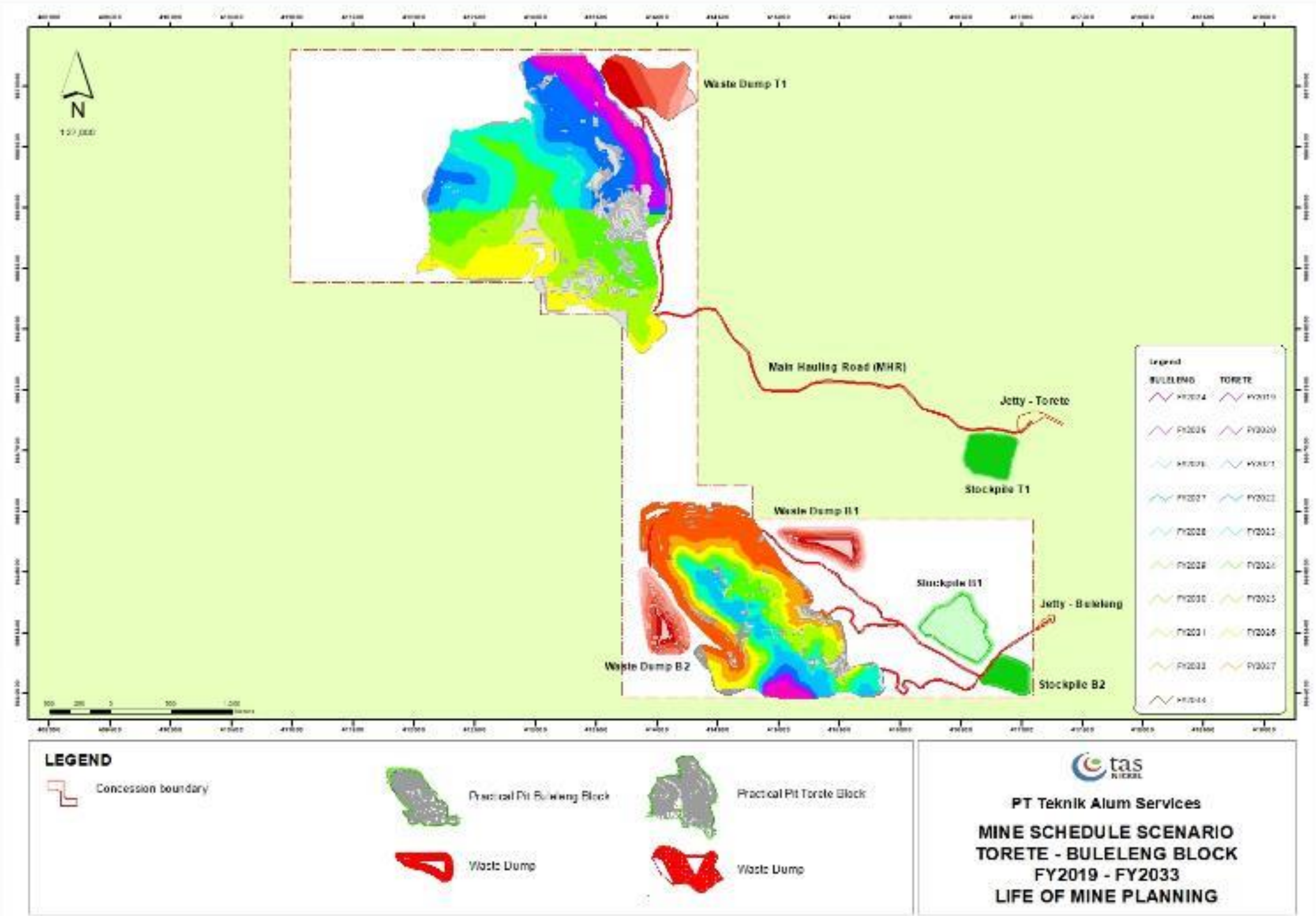
Note: 1.Totals has been rounded to reflect the accuracy of the estimates.

2. Tonnes are based on wet basis.

3. Production Schedule uses predominantly indicated resources, and the balance from inferred resources

4. Ni grade in year 2022 is 1.44%. If PT TAS target spec 1.5%, blending ore from stockpile is needed to ensure that the target grade is achieved

Appendix D – Mining Schedule LOM and years 2019-2023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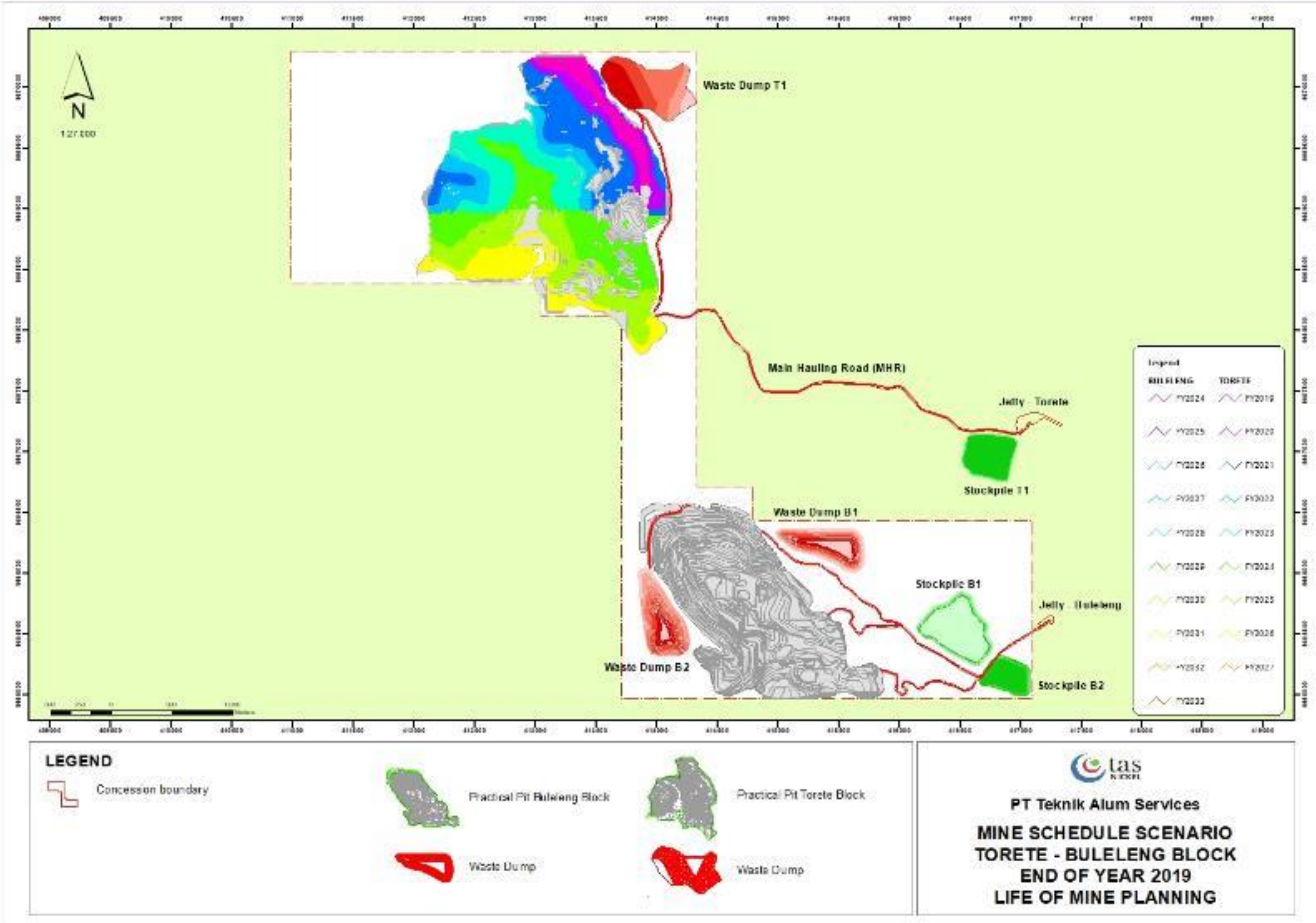
Main Hauling Road (MHR)
Jetty - Torete
Stockpile T1
Waste Dump B1
Stockpile B1
Jetty - Buleleng
Waste Dump B2
Stockpile B2
BULELENG
TORETE
LEGEND
Concession boundary
Practical Pit Buleleng Block
Practical Pit Torete Block
Waste Dump
Waste Dump
tas
PT Teknik Alum Services
MINE SCHEDULE SCENARIO
TORETE - BULELENG BLOCK
FY2019 - FY2033
LIFE OF MINE PLANNING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Jetty - Torete
Stockpile T1
Waste Dump B1
Stockpile B1
Jetty - Buleleng
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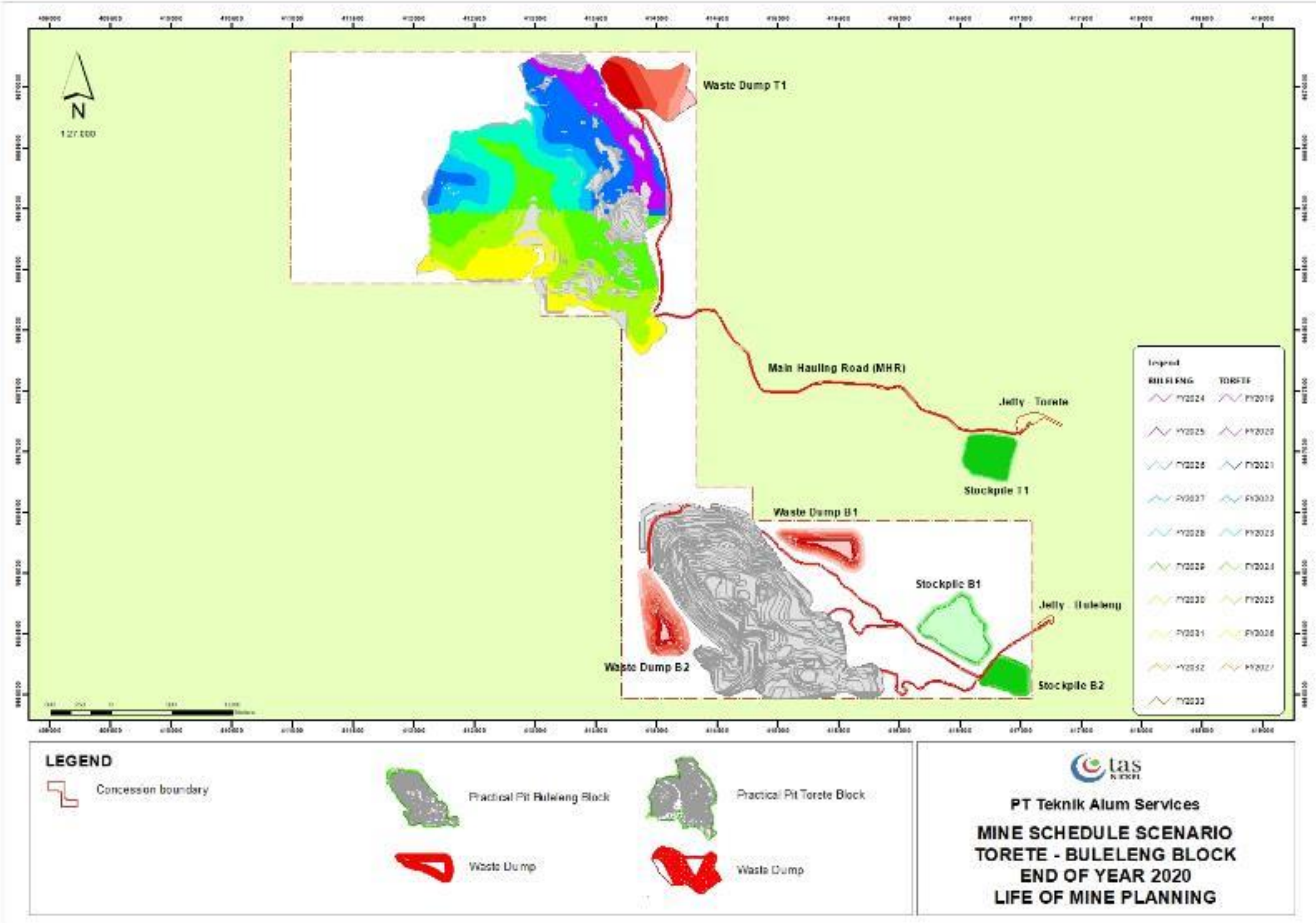
Stockpile B2
LEGEND
Concession boundary
Practical Pit Buleleng Block
Practical Pit Torete Block
Waste Dump
Waste Dump
PT Teknik Alum Services
MINE SCHEDULE SCENARIO
TORETE - BULELENG BLOCK
END OF YEAR 2019
LIFE OF MINE PLANNING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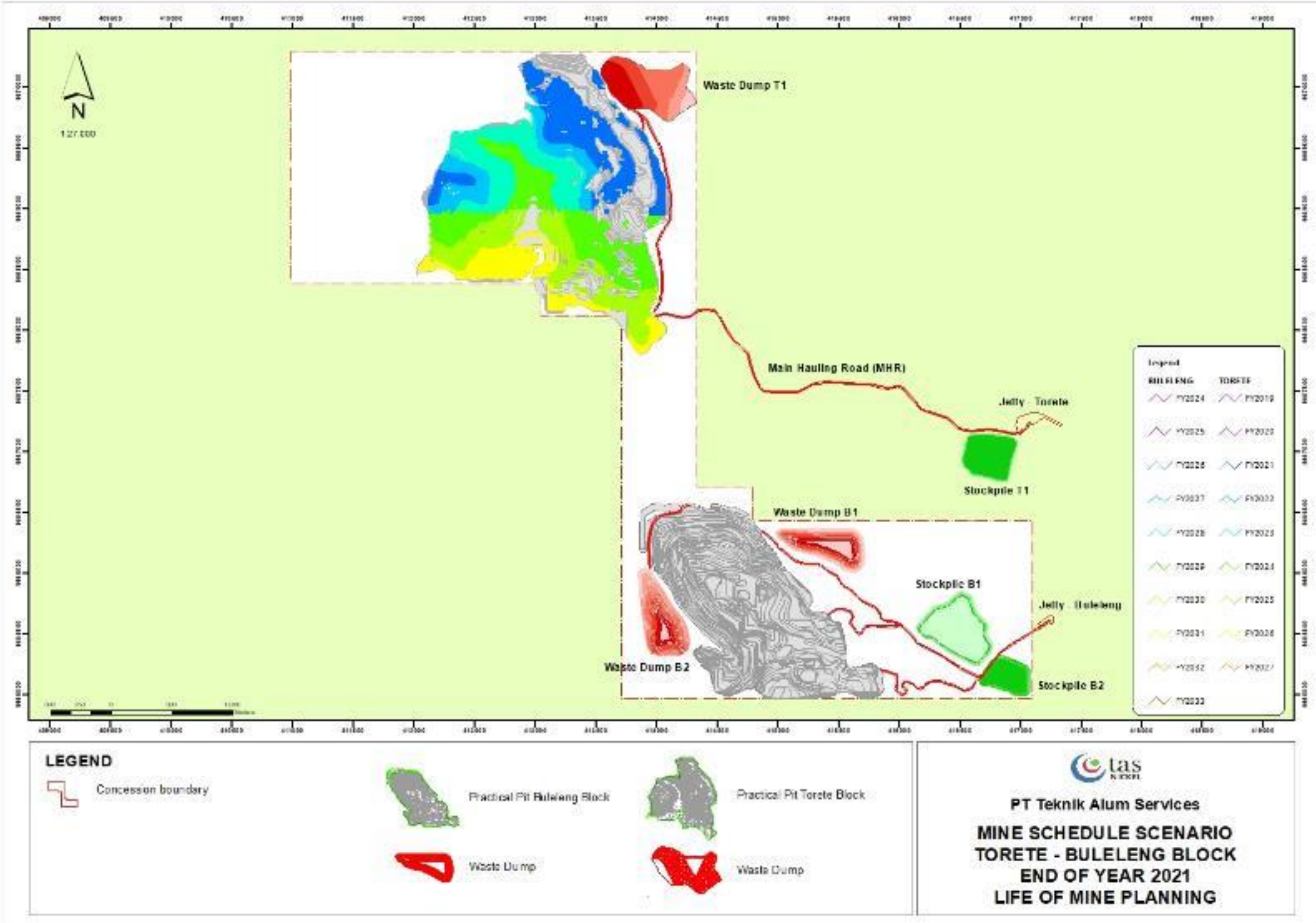
Jetty - Torete
Stockpile T1
Waste Dump B1
Stockpile B1
Jetty - Buleleng
Waste Dump B2
Stockpile B2
LEGEND
Concession boundary
Practical Pit Buleleng Block
Practical Pit Torete Block
Waste Dump
Waste Dump
PT Teknik Alum Services
MINE SCHEDULE SCENARIO
TORETE - BULELENG BLOCK
END OF YEAR 2020
LIFE OF MINE PLANNING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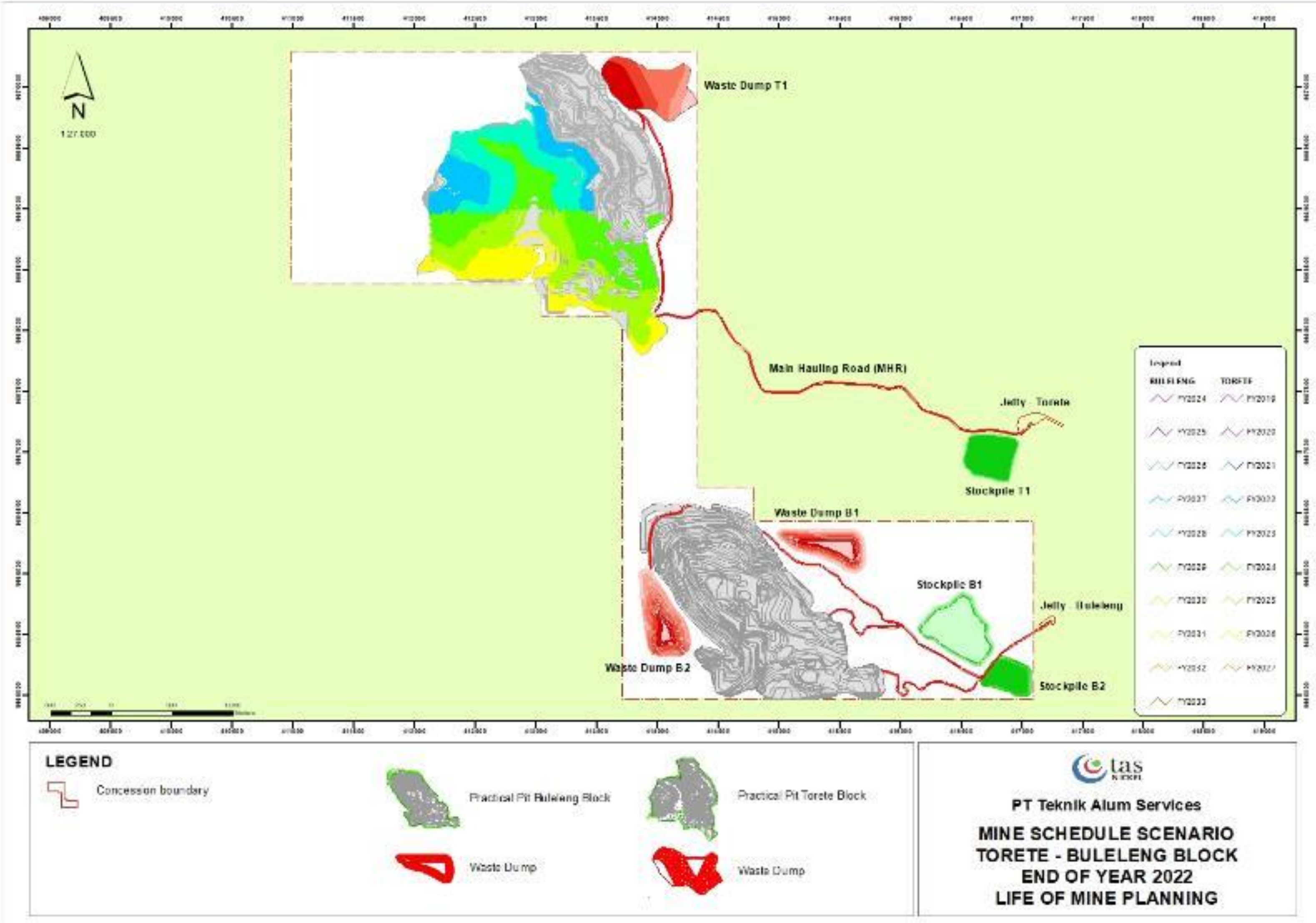
Main Hauling Road (MHR)
Jetty - Torete
Stockpile T1
Waste Dump B1
Stockpile B1
Jetty - Buleleng
Waste Dump B2
Stockpile B2
LEGEND
Concession boundary
Practical Pit Buleleng Block
Practical Pit Torete Block
Waste Dump
Waste Dump
PT Teknik Alum Services
MINE SCHEDULE SCENARIO
TORETE - BULELENG BLOCK
END OF YEAR 2021
LIFE OF MINE PLANNING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Main Hauling Road (MHR)
Jetty - Torete
Stockpile T1
Waste Dump B1
Stockpile B1
Jetty - Buleleng
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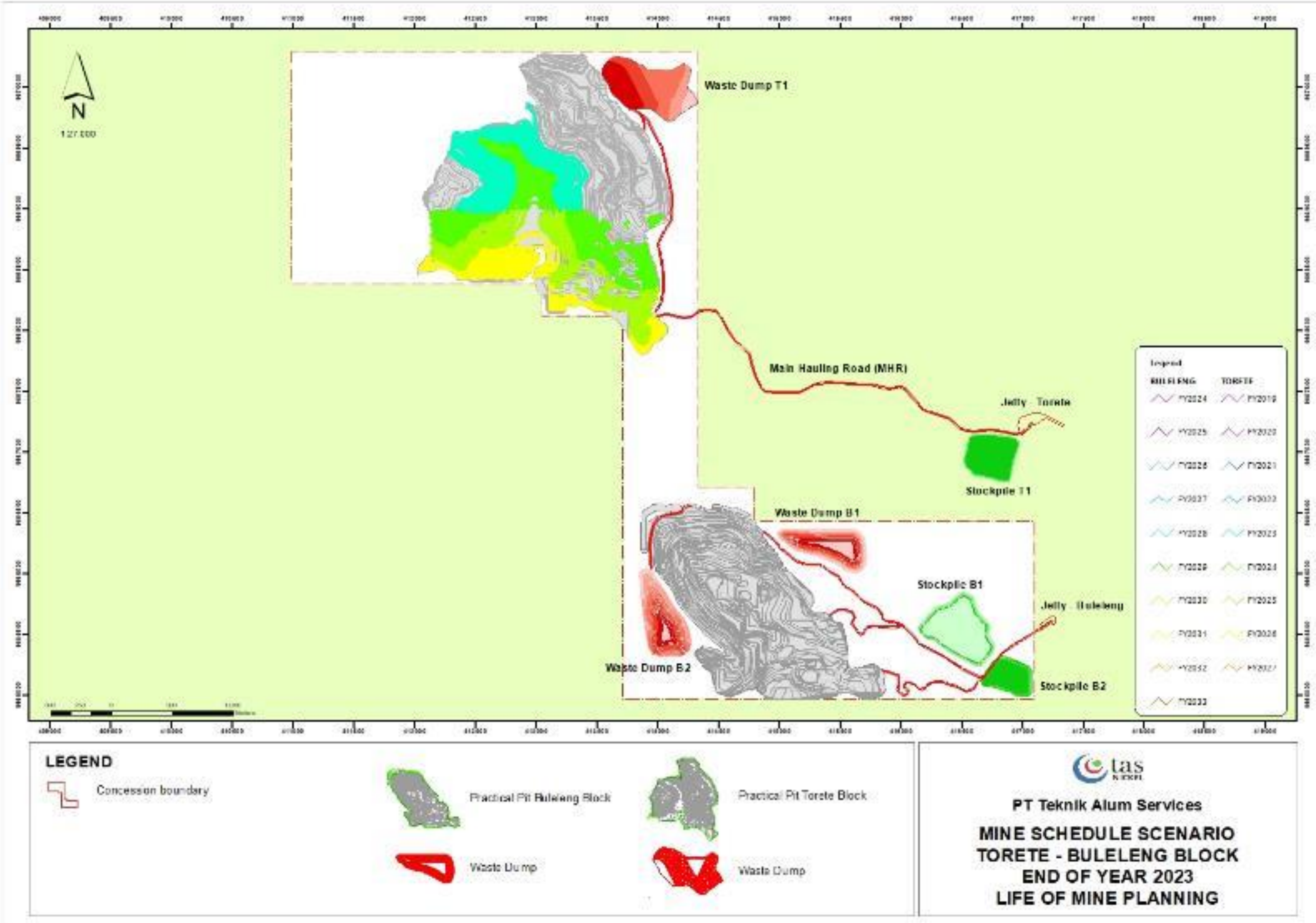
Stockpile B2
LEGEND
Concession boundary
Practical Pit Buleleng Block
Practical Pit Torete Block
Waste Dump
Waste Dump
PT Teknik Alum Services
MINE SCHEDULE SCENARIO
TORETE - BULELENG BLOCK
END OF YEAR 2022
LIFE OF MINE PLANNING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Waste Dump T1
Main Hauling Road (MHR)
Jetty - Torete
Stockpile T1
Waste Dump B1
Stockpile B1
Jetty - Buleleng
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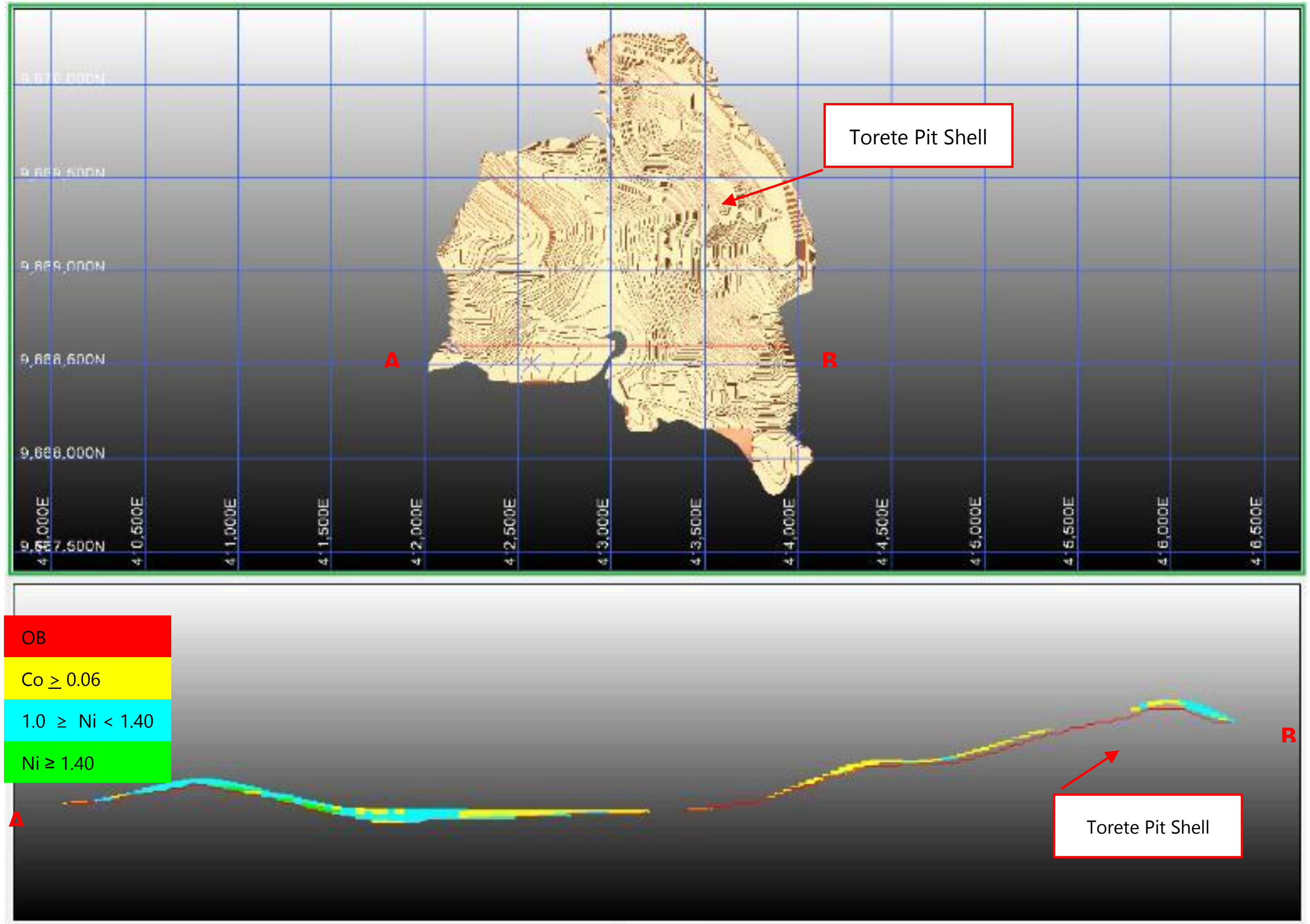
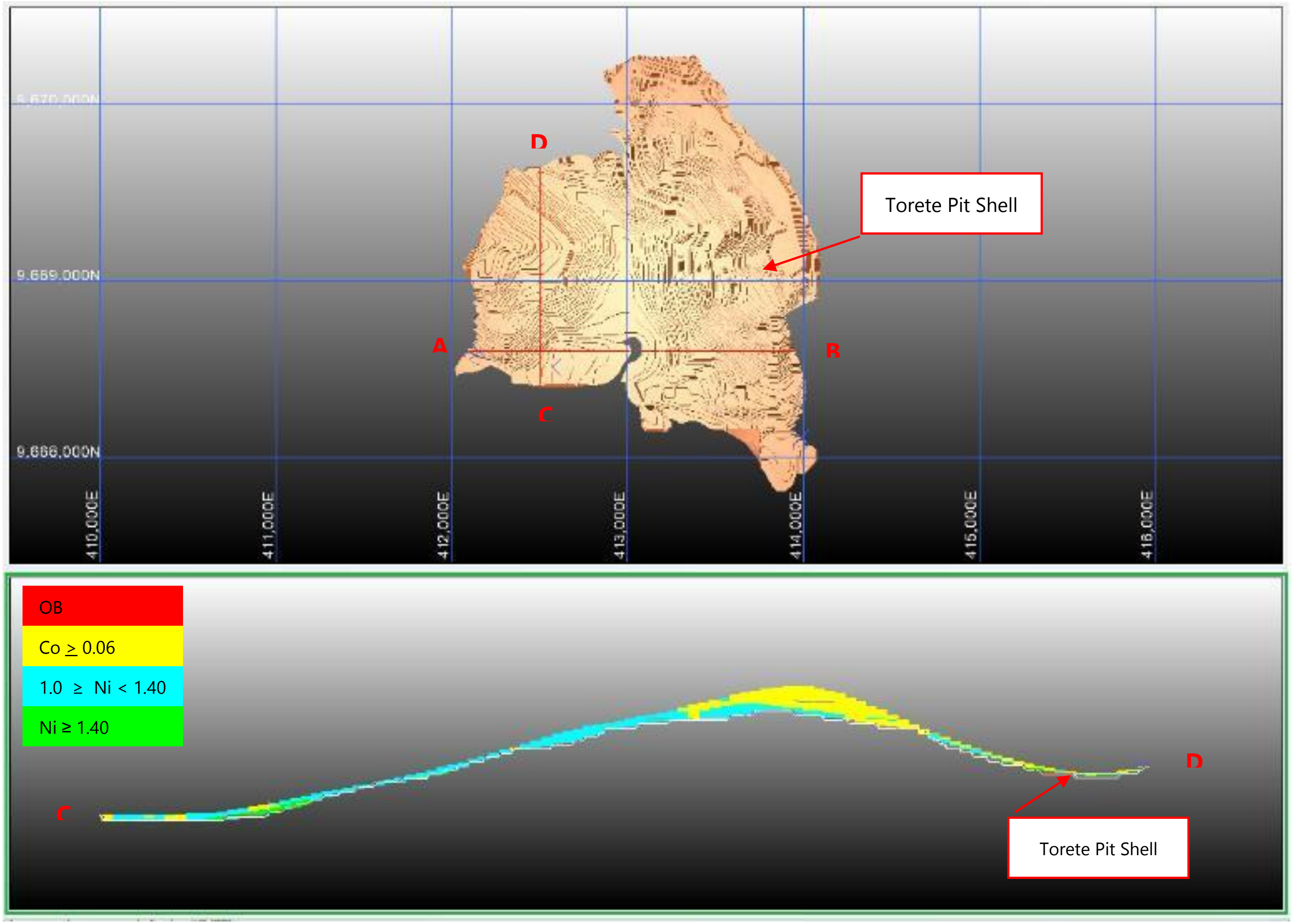
Stockpile B2
LEGEND
Concession boundary
Practical Pit Buleleng Block
Practical Pit Torete Block
Waste Dump
Waste Dump
PT Teknik Alum Services
MINE SCHEDULE SCENARIO
TORETE - BULELENG BLOCK
END OF YEAR 2023
LIFE OF MINE PLANNING

Cross-sections of Torete Block Model and Pit-Shell, Section 9,668,600 m Northing



Cross-sections of Torete Block Model and Pit-Shell, Section 412,500 m Easting



END OF REPORT