SIHAYO GOLD PROJECT
Feasibility Study Completion
Additional information
22 August 2018

The Board of Sihayo Gold Limited ("Sihayo" or "the Company") is pleased to provide additional information regarding the recently announced results of the updated Feasibility Study for its 75% owned Sihayo Gold Project.

The company acknowledges the previous announcement did not contain sufficient detail to comply with the ASX listing rules.

The additional detail included in the report following supports the highlights in the previous announcement. There has been no change to the underlying data or the conclusions drawn therefrom.

The Reserve and Resource estimates have been prepared in accordance with JORC Code 2012 Edition and Guidelines. The Table 1 for both Resource and Reserve are attached as appendices to the report along with the signed consent statements from the relevant competent persons.

As stated in the announcement of 6th August the Company is now exploring options to finance the construction of the project.

The major shareholders have agreed to fund the Company via an unsecured loan of AUD2m while financing options for the project are considered.

Over the last year the Company has had preliminary discussions with several potential equity investors. These discussions have been very preliminary but indications have been positive.

Two of the Company's independent directors, Gavin Caudle and Mark Hepburn have a successful track record of raising debt and equity funding. Mr Caudle has been involved in transactions for multiple mining projects in Indonesia. These include ASX entities Finders resources (FND), Sumatra Copper Gold (SUM) and IDX listed Merdeka Copper Gold (IDX:MDKA.) Merdeka Copper Gold was initially financed and constructed for approximately AUD 200m and is now undergoing a AUD60m expansion.

Through these directors, particularly Mr Caudle, the Sihayo project has been discussed with major international banks. These include several of the same banks which have funded the mining projects mentioned above.

Whilst again preliminary, the feedback is that there is a reasonable basis to expect that project financing is possible through a combination of debt and equity.

The Company will make further announcements re project financing as the details are settled.

Yours faithfully,

SIHAYO GOLD LIMITED

Daniel Nolan
Director / CFO / Company Secretary
22 August 2018

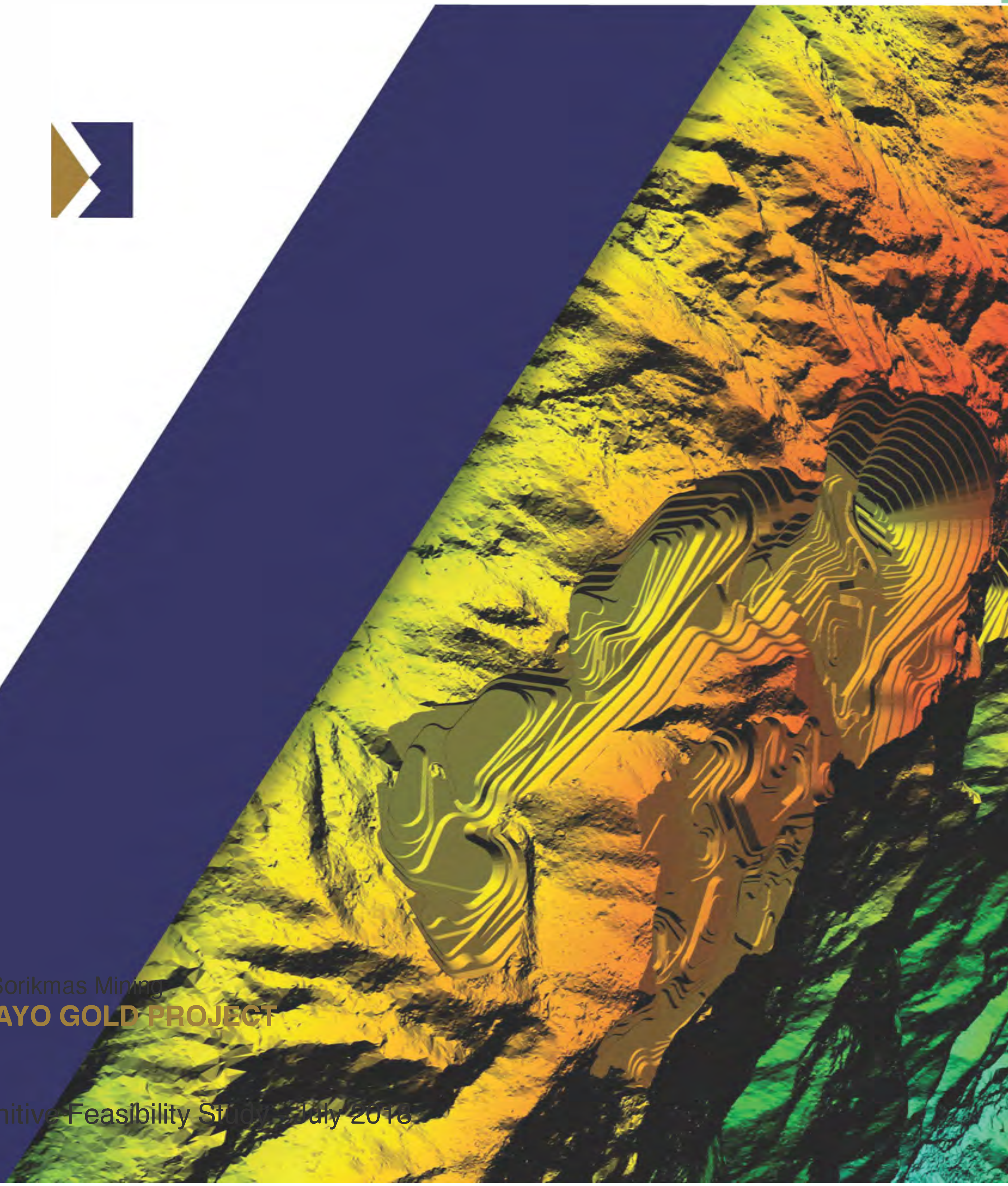
Competent Persons Statements

All statements in this report, other than statements of historical facts that address future timings, activities, events and developments that the Company expects, are forward looking statements. Although Sihayo Gold Limited, its subsidiaries, officers and consultants believe the expectations expressed in such forward looking statements are based on reasonable expectations, investors are cautioned that such statements are not guarantees of future performance and actual results or developments may differ materially from those in the forward looking statements. Factors that could cause actual results to differ materially from forward looking statements include, amongst other things commodity prices, continued availability of capital and financing, timing and receipt of environmental and other regulatory approvals, and general economic, market or business conditions.

Sihayo Resource *Information that relates to Mineral Resource Estimates at the Sihayo project is based on information compiled by or under the supervision of Mr Tony Mcdougall, who is the Principal Geologist at PT Sorikmas Mining. Mr Mcdougall has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as an Independent Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (CP JORC). Mr Mcdougall is a Member of MAusIMM and a full time employee of PT Sorikmas Mining. Mr Mcdougall consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

Sihayo Reserve

Information that relates to Ore Reserves at Sihayo is based on information compiled by or under the supervision of Mr Shane McLeay, who is a Principal Mining Engineer at Entech Pty Ltd and provided to PT Sorikmas Mining. Mr McLeay has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as an Independent Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr McLeay is a Fellow of the Australasian Institute of Mining and Metallurgy and a full time employee of Entech Pty Ltd. Mr McLeay consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



PT. Sorikmas Mining

SIHAYO GOLD PROJECT

Definitive Feasibility Study – July 2018

Project Summary

Important Notice

This project summary is an integral component of the Sihayo Gold Project ("Sihayo") 2018 Definitive Feasibility Study ("Sihayo 2018 DFS") Technical Report. The Sihayo 2018 DFS has been prepared to JORC (2012) standard.

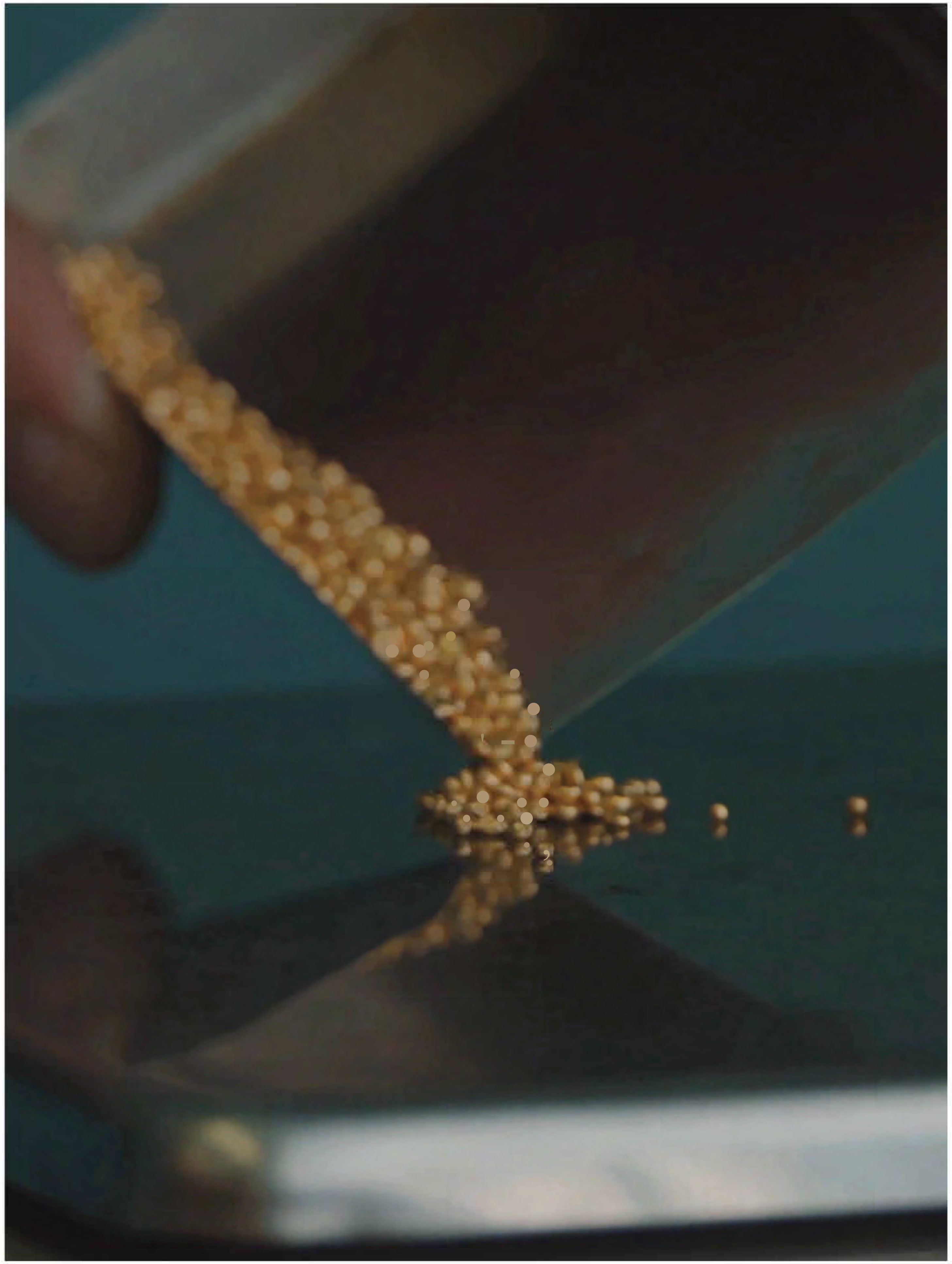
The summary is intended for use by PT Sorikmas Mining subject to the terms and conditions of its contract with the Report Contributors. Except for the purposes legislated under law, any other use of the report, by any third party, is at that party's sole risk.

The results of the Sihayo 2018 DFS represent forward-looking information. The forward-looking information includes metal price assumptions, cash flow forecasts, projected capital and operating costs, metal recoveries, mine life and production rates, and other assumptions used in the Sihayo 2018 DFS. Readers are cautioned that actual results may vary from those presented. The factors and assumptions used to develop the forward-looking information, and the risks that could cause the actual results to differ materially are presented in the body of this report under each relevant section.

The conclusions and estimates stated in the Sihayo 2018 DFS are to the accuracy stated in the Sihayo 2018 DFS only and rely on assumptions stated in the Sihayo 2018 DFS. The results of further work may indicate that the conclusions, estimates, and assumptions in the Sihayo 2018 DFS need to be revised, or reviewed.

The Report Contributors have used their experience and industry expertise to produce the estimates and approximations in the Sihayo 2018 DFS. Where the Report Contributors have made those estimates and approximations, they are subject to qualifications and assumptions and it should also be noted that all estimates and approximations contained in the Sihayo 2018 DFS will be prone to fluctuations with time and changing industry circumstances.

The Sihayo 2018 DFS should be construed in light of the methods, procedures, and techniques used to prepare the Sihayo 2018 DFS. Sections, or parts of the Sihayo 2018 DFS should not beread in isolation of or removed from their original context.



SUMMARY

The Definitive Feasibility Study (DFS) on the Sihayo Gold project was launched on the 30th June 2017, and reported approximately a year later in early July 2018.

The DFS is a comprehensive forward analysis of the Sihayo Gold project economics to be used by financial institutions to assess credit-worthiness for project financing. The DFS includes drilling and design of the mine, process plant, tailings storage facility and associated infrastructure.

PT Sorikmas, the manager of the Sihayo project, formed an experienced team to manage the study. This team is under the direction of the Project Director, Malcolm Paterson. The DFS team was responsible for all phases of the study which has been compiled in-house using inputs from specialist external consultants.

Throughout the process the company has ensured there is continual consultation and communication with the local community and landowners, as well as liaison with the Indonesian National and Provincial Governments and other interested or affected parties.

The Study confirmed the viability of the Sihayo Gold project, forecasting production of 683 koz of gold over a mine life of 7.5 years, with a forecast operating cost $551/oz gold. The capital cost forecast is to be US$157.8 million – giving payback within 3.5 years at US$1,300/oz gold.

The Feasibility Study was project managed by the Company, with all material components undertaken by independent external consultants including Entech (Resource and Mining, Detailed Pit Design, Mine Schedule), Geoservices (Metallurgical and Testwork), PT Green Gold Engineering (Process Engineering), PT Green Gold Engineering (Constructability and Capital Cost Review), Knight Piésold (Tailings Storage Facility), PLN (Power Supply) and AECOM (Environment and Permitting).

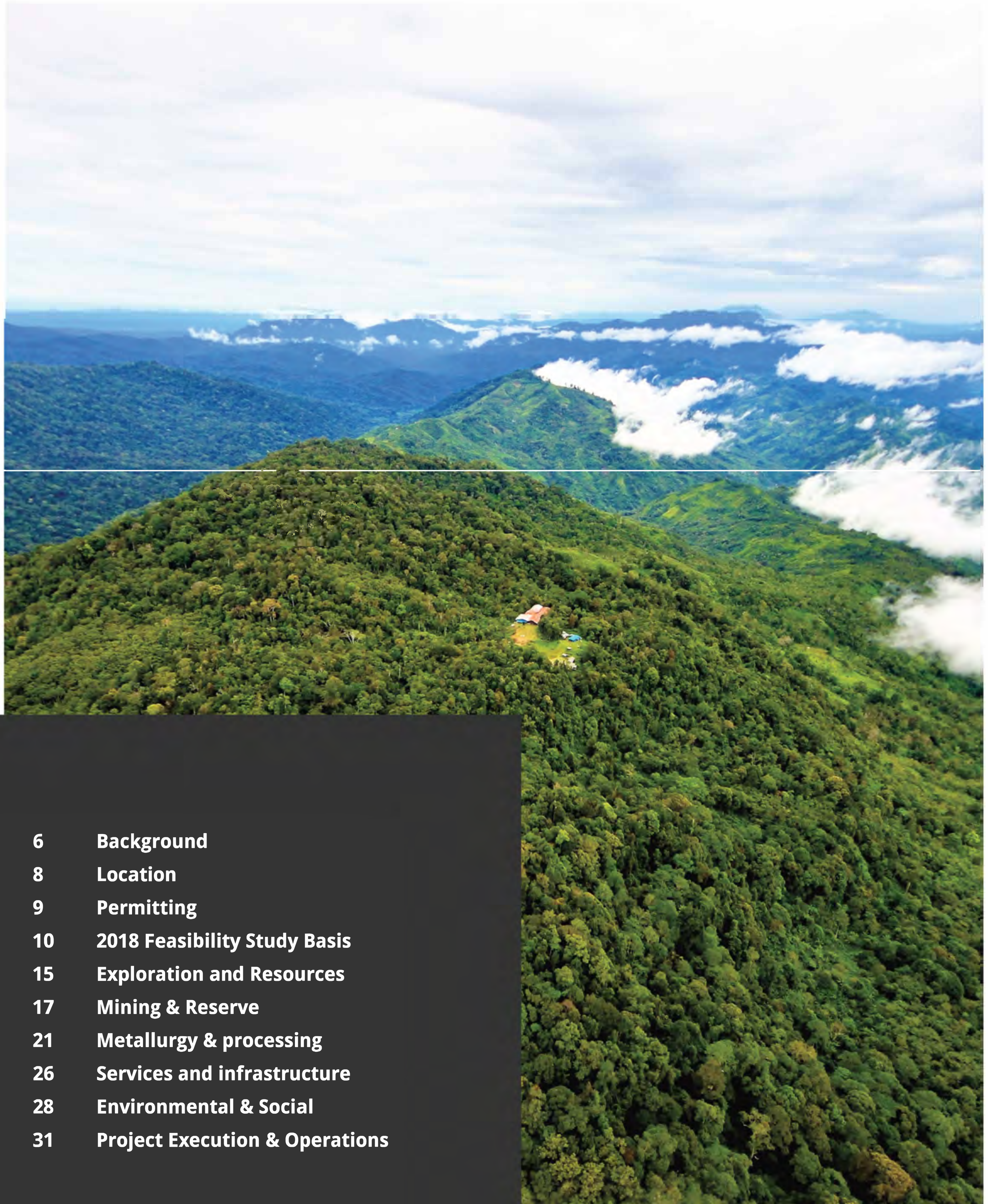
The study has been based on a mineable reserve prepared by Entech with an open pit mining operation and using conventional carbon in leach treatment to recover gold to doré bullion and the proven RECYN® process.

Resource	
Total Tonnes Mt	23.4
Au Grade g/t	2.11
Ounces koz	1,585
Reserve	
Total Tonnes Mt	11.39
Au Grade g/t	2.1
Ounces koz	761
Production	
Tonnes Mtpa	1.8
Ounces p.a.	91,000
Total Ounces LoM, koz	683

Total Capital Expenditures	USD157.8m
NPV of Net Cash Flow (i=8.00%)	USD111m
IRR (Project)	26.5%
Ore Mined (tonnes)	13.4m
Average Grade (g/t)	2.1
Strip Ratio	4.4
Processing Rate (tonnes pa)	1.5m - 2.0m
Average Recovery %	74%

There is a low level of geological confidence associated with inferred resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised.

View looking north over the exploration camp and main Sihayo ridge where the main pit will be located



BACKGROUND

The Sihayo Gold Project is located in North Sumatra, 150km south of the highly successful Martabe Gold Project. It was discovered in 1995 and various studies culminated in the first Feasibility Study being completed in January 2014.

The project economics of this first Feasibility Study did not meet economic hurdles for funding and the project did not proceed.

Following a three-year period where the gold price improved, and COW compliance necessitated the project be further developed, a revised Feasibility Study (DFS) was initiated in mid-2017. This revised study is based on several fundamentally different concepts that influence capital and operating costs to such an extent that the Sihayo project is now demonstrably feasible.

An internal review of the draft DFS in January 2018 resulted in several trade-off studies being advanced prior to final issue of the document.

"The Sihayo project is now demonstrably feasible "

These studies included review of TSF options, mine sequencing / schedule and access road location / design.

The 2018 DFS is based on a significantly larger gold production rate of 91,000oz per year versus 40,000oz/yr in the 2014 FS, and an Owner Management concept to reduce operating costs.

"Based on a significantly larger gold production rate of 91,000oz

It also includes a complete revision of the Geological / Resource models, mine optimisation / design /scheduling, and Process Plant design.

Mining will be by conventional open pit truck / shovel methods utilising 40-60t Articulated Dump Trucks (ADTs) and 50t excavators. Based on the current schedule, the primary earthmoving fleet comprises 23 trucks and 5 excavators.

Ore processing will be by a conventional CIL circuit but will include a ReCYN plant for recovery of reagents.

Metallurgical recoveries in some parts of the ore body are less than 30%, although the average inside the current pit shell is 74% based on a standard CIL process.

Ongoing testwork is examining a plant tailings treatment method that could enhance the gold recovery.

The project financial model has been developed from first principles including derivation of key input parameters such as mining unit rates and processing plant operating cost.

The Civil Works for the project, including the access road and TSF, constitute almost 50% of the total capital cost.

Challenges for the project include dealing with difficult logistics due to rugged terrain / remoteness, potential for extreme seismic events, very high rainfall, and a metallurgically and structurally complex ore body.

"Improvement in gold recovery "

Project up-side includes possible improvement in gold recovery, possible delineation of ore body extensions along strike and down dip, conversion of Inferred Resource to Indicated or Measured and increase in inventory gold. Incremental cost improvements.

Malcolm R Paterson
CEO
PT. Sorikmas Mining

LOCATION

The project is located near the west coast of North Sumatra, in the Mandailing Natal Regency of North Sumatra (Madina), see Fig.1 Project Location. It is located at 00°50′09″N and 99°27′53″E or approximately 9km off the Trans Sumatra, Padang Sidempuan-Bukittingi highway.

Madina, was officially established in 1999, and is comprised of 23 sub districts. The District covers an area of approximately 660,000 Ha with the population in 2011 reported to be ~410,000.

Mandailing, Toba Batak and Nias are the three main ethnic groups that exist in the project area. The majority (80%) of the population is Muslim, however there are enclaves of the Batak and Christian communities.

The nearest city to the mining area is Panyabungan, with a population of ~50,000 people, however a number of smaller villages occur between there and the Batang Gadis River that is approximately half way between the project and Panyabungan. The CoW is adjacent to the Batang Gadis National Park that was established in 2004 and covers an area of 108,000 ha. The Sihayo deposits are located on the upper portion to the top of a north west striking mountain range controlled by the Trans Sumatran Fault Zone (TSFZ). Elevations of surface expressions of the resource are from 985m to 1230m above sea level. Villages are located on the eastern side of the mountain range at an elevation of about 250m with the closest village being Humbang. The villages are situated on the Batang Gadis river flood plain which is almost totally covered in rice paddies and gardens.

The topography around the site is steep and rugged, with very few occurrences of flat ground of any significant area. There is, currently, no vehicular access to the deposit; all equipment for exploration drilling was either hand-carried or transported to location by helicopter. Walking tracks pervade the area, as there is a small population of inhabitants in the immediately surrounding area.

Batang Gadis Flood Plain and outskirts of Punyabungan

PERMITTING

A timing consequence of making the project more economical is that many of the major permits will need revising with addenda. This process, although not as involved as the original permitting, is still time consuming and may well be the rate determining step for the project schedule.

The three major permits that require revision are the FS, Environmental (Amdal) and Forestry permits. Amdal addendum is the critical path to the other permitting as all other permitting states Amdal as pre-requisite.

Forestry and FS permit applications are currently in progress. Wet TSF permitting process will commence upon approval of DFS.

2018 FEASIBILITY STUDY BASIS

In the fourth quarter of 2016 the project owners were made aware of an Indonesian gold project, the Mirah Gold Project in Central Kalimantan, that had adopted a very different conceptual approach to project development and operation and if applied to the Sihayo project could potentially change its viability.

Main Sihayo ridge looking North East

In May 2017 a new Sorikmas team was established in Jakarta tasked with producing a revised FS, based on a template of the Mirah Project and believed to be able to make enough difference to the project economics to justify development.

The present study includes these major conceptual changes that have resulted in a potentially more robust economic outcome and has been optimised to the extent of being termed a Definitive Feasibility Study. The economics are based on a gold price of $1300/oz for both the Reserve estimate and Project Economics.

A different approach has been taken in the preparation of the DFS, in particular by building an in-house team of experts and undertaking most of the work in Indonesia. The use of external, foreign consultants has been limited, and the emphasis placed on the use of national expertise more suited to an Indonesian mining project. This experienced in-house team will form the basis of the ongoing Project Development and Operations Phases.

"Major conceptual changes"

This approach reflects the maturity of local expertise that was not available previously and will be applied to the operational phase.

The DFS is compiled in seven volumes, designed to present a simple and logical representation of the project feasibility and its future implementation.

"Larger Reserve"

"91,000oz p.a gold production"

"Owner operator"

"ReCYN cyanide recovery process"

"PLN grid power"

"Wet TSF"

KEY ASPECTS OF THE 2018 DFS

The first aspect is the production capacity. This was determined by nominating an average production rate of 91,000oz per year, compared to the average of 40,000oz in the 2014 FS. This higher number is believed to be the minimum rate to sustain overheads expenses and contribute to an acceptable pay-back time. The major part of the Sihayo capital is related to earthworks, which is a fixed cost, mostly independent of plant size. By being more efficient in design concepts the larger plant size could be more easily accommodated, but more importantly by understanding the relevance of capital attributed to fixed or variable costs.

The second aspect is reducing the operating cost by adopting owner management and operation of mining, drilling and laboratory departments. This approach is well proven in other Indonesian operations, which are completely run and managed very efficiently with in-house machine ownership and operation, proving more cost effective and efficient than contractor performance.

Another significant reduction in operating cost comes from confirming the use of grid power. The use of PLN power is now incorporated into the base case following the signing of an MoU with the power supplier.

Proven new technology is used for cyanide recovery and detoxification, reducing operating cost and environmentally friendly .

An added consequence of the lower operating cost is a significant increase in Reserve tonnage, even though the Sambung Resource area has been excluded from the present project due to local miner activity. The larger Reserve also contributes to justifying the increased treatment rate.

The third major factor affecting both capital and operating cost is the different approach to process plant design capacity related to ore type.

To achieve the target production rate the plant design is based on a 1.5Mt/a treatment rate for hard rock, which allows a rate of 2Mt/a for the softer oxide/clay material. The Process Plant accommodates this variation with a simplified design that ensures more reliability and flexibility to treat the different ore types at the required capacity.

"The 2018 DFS has undertaken a comparative study of the two tailings options and concluded a wet system is preferred based on economic and operational considerations."

Both the mining schedule and plant throughput have considered the different physical properties of the ore, assuming oxide is mainly clay based and has the higher throughput, whilst fresh rock is set at the lower throughput of 1.5Mtpa. The 2018 DFS accepts the relatively low gold metallurgical recoveries, based on the many extensive metallurgical test work campaigns, and attempts to assign a mean recovery to each of 24 ore domains identified in the new Resource model. It is also accepted that the extreme small scale variability of the ore body does not allow a recovery model to be established based on any one characteristic of the ore, including parameters such as oxidation level, sulphide and arsenic content, carbon levels or lithology, which could then be related to a mining schedule.

The Plant and Infrastructure design is being carried out using a state of the art 3D modelling package called SmartPlant from Intergraph. All disciplines work on the same model reducing design errors and improving design efficiency. The design model will be used as the basis for the next phase of detail design, reducing design time and cost.

The fourth major change in concept is to do with the treatment of the plant tailings and waste disposal. The general acceptance of a "wet" TSF for the much larger Martabe project has prompted a re-assessment of the previously favoured "Dry" disposal method.

The 2018 DFS has undertaken a comparative study of the two options and concluded a "wet" system is preferred based on economical and operational considerations. Capital and operating costs favour the "Wet" disposal method, but operational considerations are a strong influence on the selection. In previous studies the major consideration was seismic influences and the consequence of potential dam failure. This issue has been thoroughly addressed over the last five years with improved retaining wall design as implemented at Martabe. Although Sihayo has a steeper valley profile it is further removed from any population areas. Additionally, the tailings are considered non-toxic due to the efficient detoxification process and the potential for removal of problem minerals at the plant site.

The above ideas represent the major changes in development concept that contribute to improving the project economics. Many other changes such as moving the access road to the north have been incorporated to augment the robustness of the project, both economically and operationally. Challenges still exist, particularly the logistical effort to build an operation on top of a high narrow ridge, but these are seen mainly as cost challenges, which are built into the project economics.

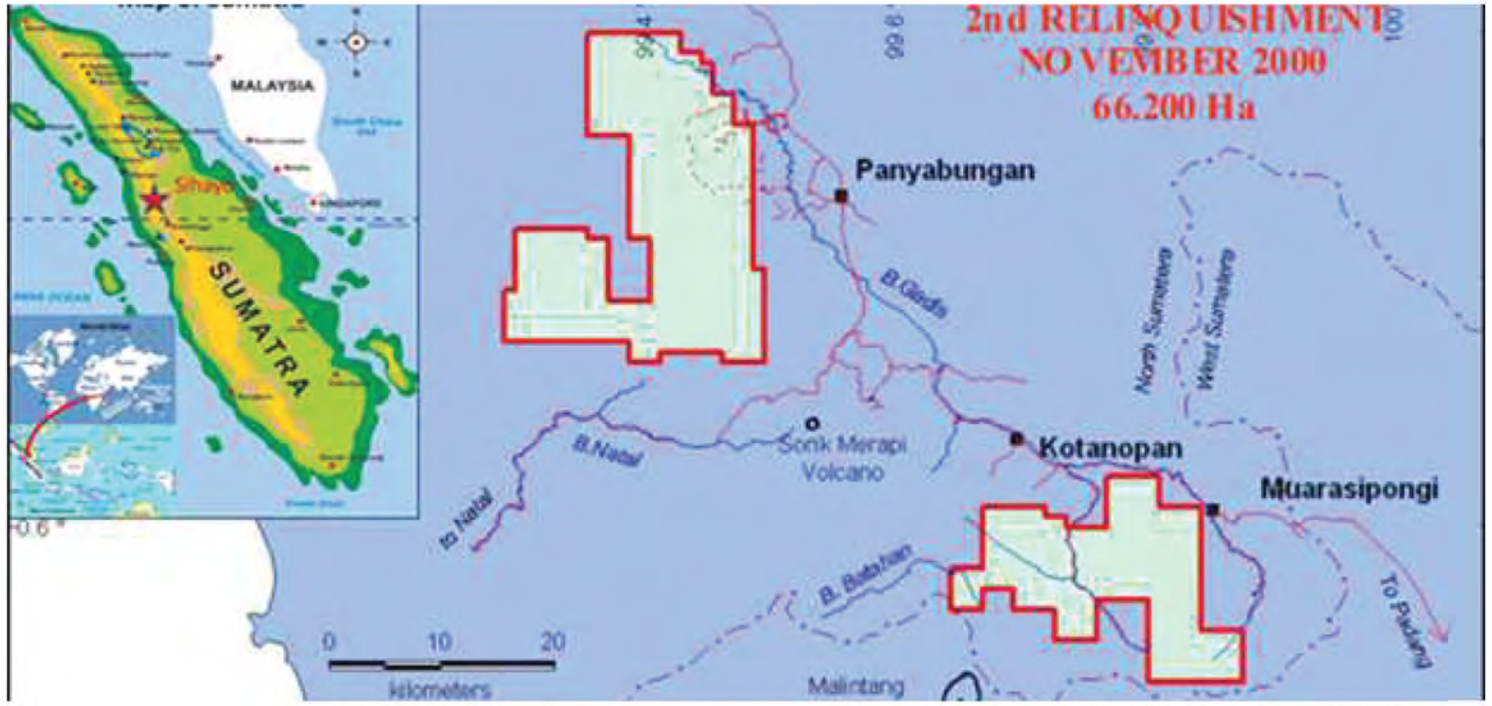
The following tables summarise the major difference in results between the 2014 FS and 2018 DFS considering physical and financial parameters.

Parameter	2014	2018
Resource		
Total Tonnes Mt	15.3	23.4
Au Grade g/t	2.7	2.11
Ounces koz	1,322	1,585
Reserve		
Total Tonnes Mt	7.14	11.39
Au Grade g/t	2.4	2.1
Ounces koz	554	761
Production		
Tonnes Mtpa	0.75	1.8
Ounces p.a.	40,000	91,000
Total Ounces LoM, koz	427	683

PARAMETER	2014	2018
GOLD PRICE $/oz	1400	1300
MINING COST $/t material	3.29	2.41
PROCESSING COST $/t ore	21.10	11.85
TOTAL CAPITAL EXPENDITURE $M	68	157.8
PAYBACK YEARS (excluding construction)	7	3.5
NPV $M	57	111

The above outcomes reflect the sum of all of the conceptual changes that have influenced the project economics. Although not an apples for apples comparison as the 2014 study used a higher gold price and a lower Royalty rate, the differences in treatment rate and operating costs has made the project viable.

PLN power is a major contributor to the reduction in process costs. The significantly higher Working Capital and Civil costs reflect a more realistic view of the required investment, although there are potential savings in these areas with a different approach that utilizes more input from local contractors.



EXPLORATION AND RESOURCES

The Sihayo gold deposit, located 16 km northwest of the regional city of Panyabungan in Central Sumatra, was first discovered by Aberfoyle geologists in 1995 following up regional stream sediment and BLEG surveys. Discoveries of anomalous silicified float led to the identification of outcropping jasperoid bodies hosted in limestone units predominantly obscured or covered by late Tertiary sediments at the top of the Barisan Mountain range above Panyabungan.

A 7th generation Contract of Works agreement was granted by the Indonesian Government in February 1998. The initial CoW covered an area of 201,600 hectares. Two partial relinquishments in 1999 and 2000 resulted in a reduction to the current area of 66,200 hectares as follows.

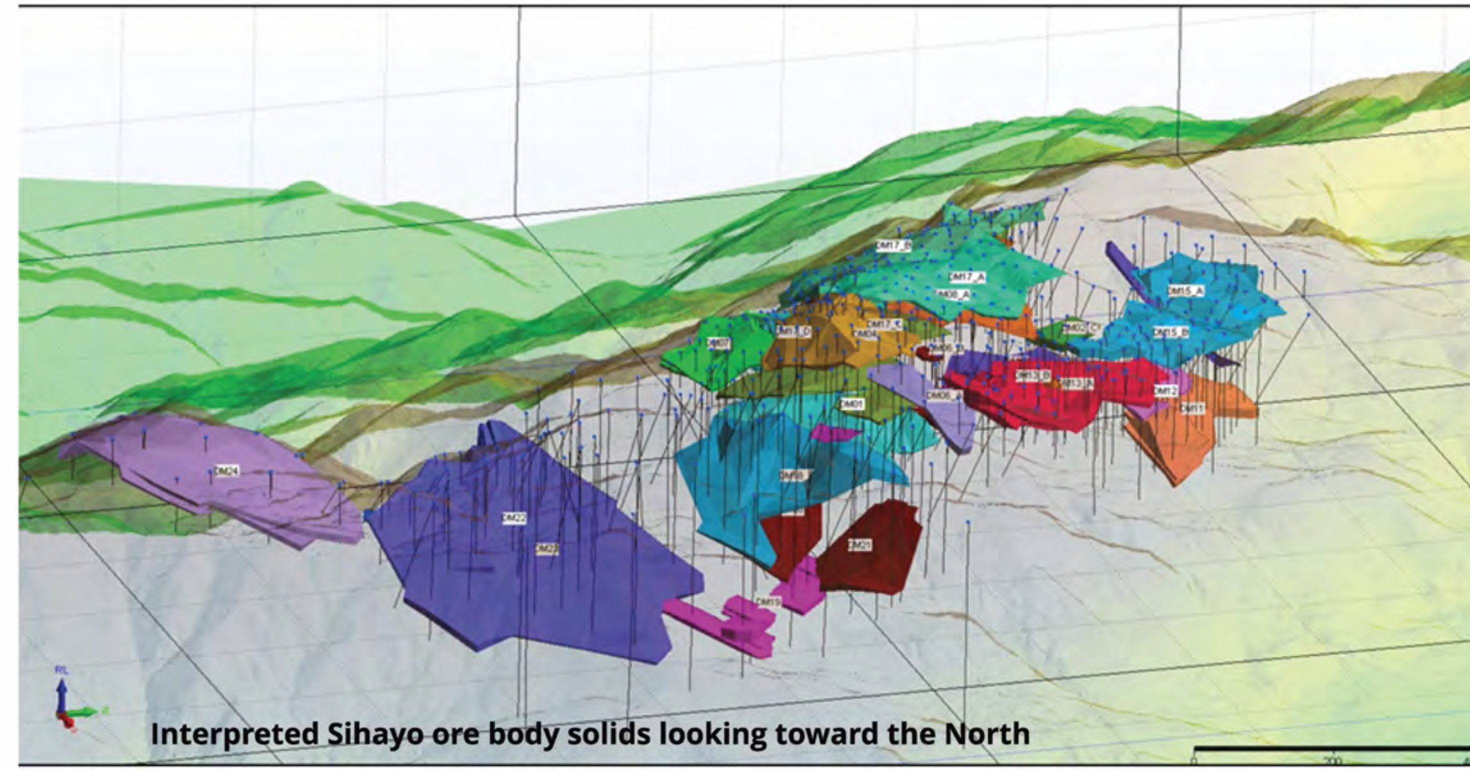
The project area has been the subject of intense investigation for more than 22-years, including several major phases of exploration, resource definition, mining assessments, geotechnical investigations and metallurgical testing. Numerous technical reviews and revisions have been conducted by various consultants over the life of the project. All of this activity culminated in the production of a Definitive Feasibility Study document in January 2014.

For this 2018 study, the study team has gone back to first principles with regard to the data compilation, data validation / QAQC, geological interpretation and resources estimation approach. Where possible, original data sets have been reacquired and verified. The result of this work is that the project databases are now all in one dedicated secure repository, are well ordered and are in the cleanest state possible. This has set a solid foundation for the current study as well as all future work.

A key element of this study is the adoption of a more sophisticated structural model than that previously used. This has involved detailed analysis of the LiDAR data, core photos and limited oriented core data, as well as consideration of where Sihayo lies in the context of the regional tectonic setting.

The adoption of this revised structural model has had some influence on reinterpretation of the deposit geology and in particular, the ore body continuity and geometry. Given the role that faulting has almost certainly had on ore body genesis, it is important to continue developing the structural model.

The modelling approach has been to define domains based largely on lithology and then gold grade, and then treating each domain as a discrete geostatistical entity. There are currently 24 individual domains in the geological / resource models with different physical and geostatistical characteristics that inform the interpolation.


Interpreted Sihayo ore body solids looking toward the North

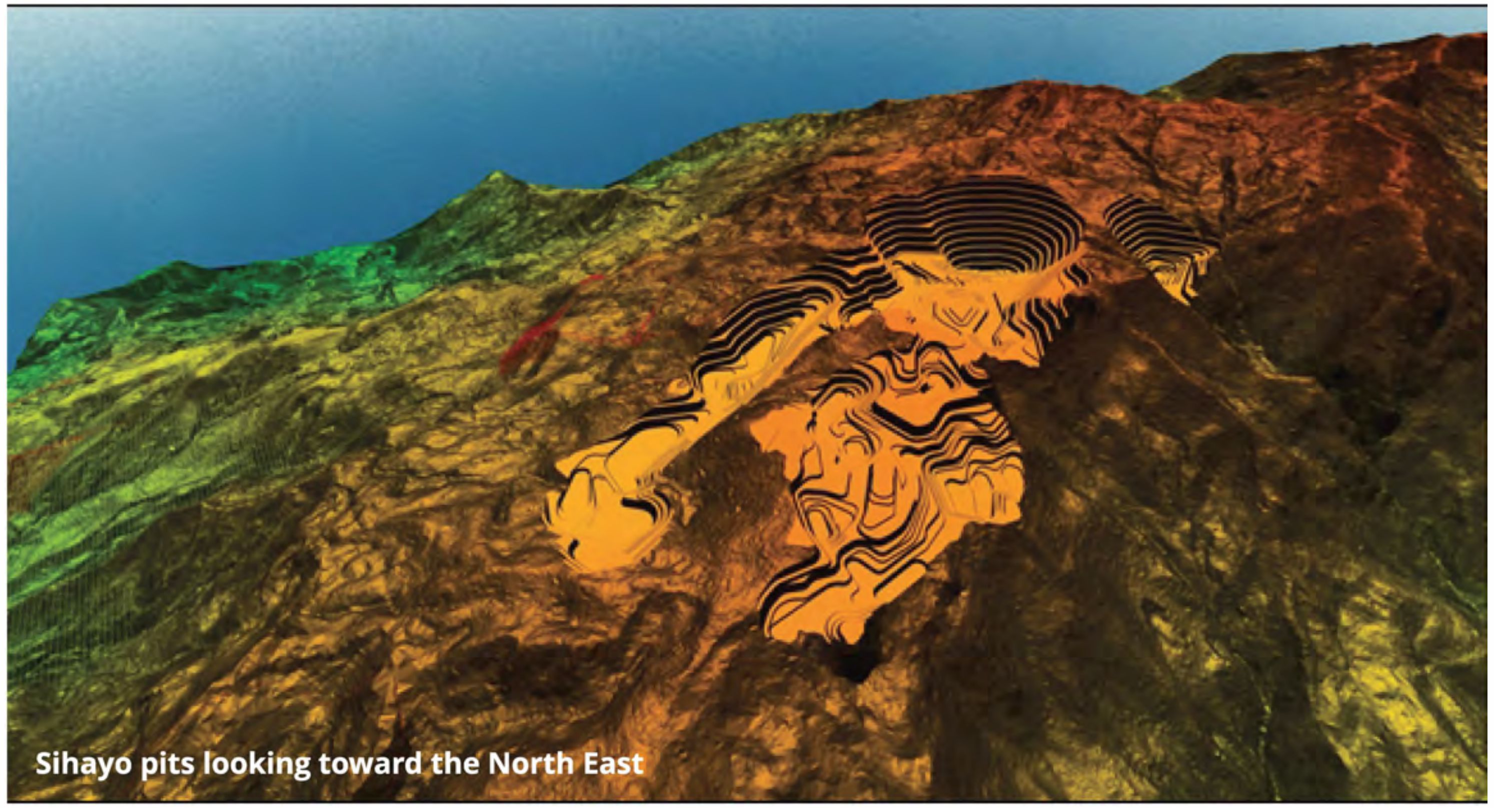
Ordinary Kriging was the preferred interpolation method as the coefficient of variance across all domains is around 1.0. In the revised block model, the study team has endeavoured to reduce the occurrence of over-smoothing. While some smoothing is inevitable, if not sufficiently restricted, it can lead to the assignment of inappropriately high grades in parts of the model and possible over-estimation. The study team believes that the revised model strikes a good balance between minimising detrimental effects from over-smoothing, and honoring the assay variance.

The gold Resources at Sihayo have been estimated and classified in accordance with international best practice methods and the JORC Code (2012 version) in particular. The gold resource at 0.6g/t cut-off grade is as follows: (JORC Table 1 is included as an appendix at the end of this report.)

Sihayo Resource @ 0.6gt cut-off			
Class	**Resource (kt)**	**Au (g/t)**	**Combined Gold (koz)**
Measured	1,875	1.99	120
Indicated	13,753	2.2	972
Inferred	7,771	1.97	492
TOTAL	**23,399**	**2.11**	**1,585**

In terms of upside potential, the resource is open both along strike to the south and down dip to the north east. It has been noted by several workers that there are striking similarities between Sihayo and the vast Carlin Trend deposits in Nevada, and the Sepon and Ban Houayxai deposits in Laos. However, an unusual aspect of Sihayo relative to the others is its apparently small size. The reasons for this are not currently understood but it may simply be a reflection of the relatively confined exploration effort to date. Other less well understood deposits are known nearby such as Sambung and Hutabargot Julu which appear to be part of a low sulphidation epithermal system containing gold in quartz veins.

What Sihayo does demonstrate is that the geology in the PTSM CoW is amenable to the possible discovery of other sediment hosted gold deposits of the Carlin type, and this should be the focus of future exploration effort.



Sihayo pits looking toward the North East

MINING & RESERVE

As part of this Sihayo project DFS, a revised mining assessment has been completed. The assessment has included pit optimisation, detailed pit design, estimation / classification of Reserves as per JORC 2012, stage planning, sequencing and mine scheduling. (JORC Table 1 for the reserve is attached as an appendix to this report)

This mining assessment is based on the revised and updated geological / resource model developed by the PT Sorikmas geology team. This model comprises 24 discrete geological and metallurgical domains.

Technical input parameters to the mining assessment including those covering geotechnical, geohydrology, mine design and fleet selection have been adopted from the 2014 study. While these remain the baseline, future iterations of the mine design, stage plans, LOM plan and schedule could result in alterations.

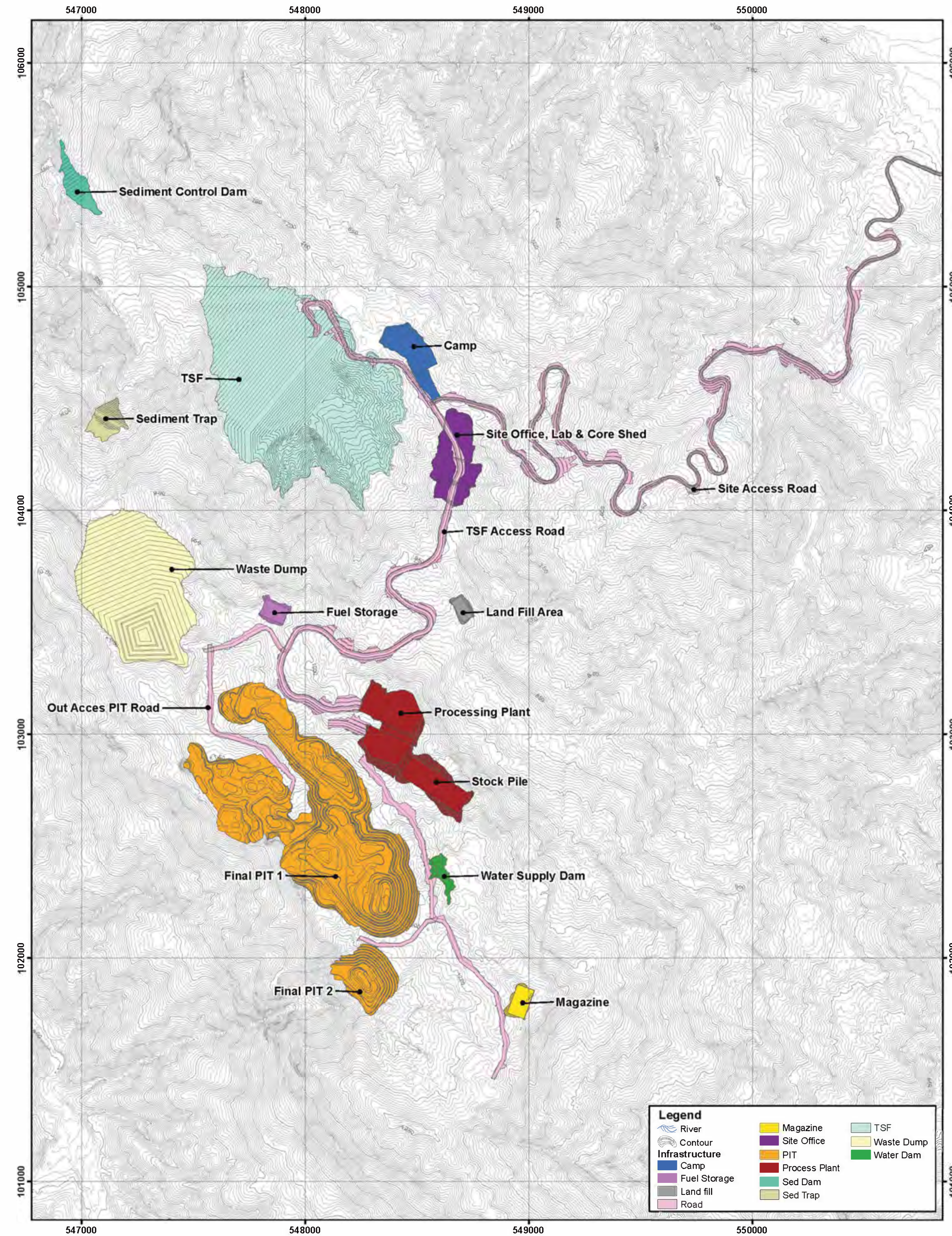
Mining will be by conventional truck and shovel open pit methods using 40-60t Articulated Dump Trucks (ADTs) and 30-50t excavators. Ore material will be transported to the ROM pad before being processed by a conventional CIL circuit. Sihayo will be a fully owner operated project.

Tailings will report to a conventional LOM wet tailings storage facility designed to accommodate 12Mt of tailings material.

Under the current TSF design, the embankment will accommodate most of the mine waste materials. Surplus will be sent to a dedicated waste dump located at the upper end of the valley. This is currently designed to accommodate 15Mt but there is ample space available to expand the waste dump if necessary.

Cost input parameters to the pit optimisation have been derived from first principles and then cross-checked against actual production data primarily from the Mirah and Wetar projects.

The pit design comprises 6 main push backs or stages, the locations of which are based on the incremental economics. Mining commences in the north central area which predominantly contains the highly oxidised / high recovery ore. Mining then advances to the north, continuing in the low stripping ratio ground also dominated by the oxidised ore, before heading south into the southern deep zone where the ore is mainly fresh with lower recoveries. The operation then finishes at the northwestern end of the currently known deposit.

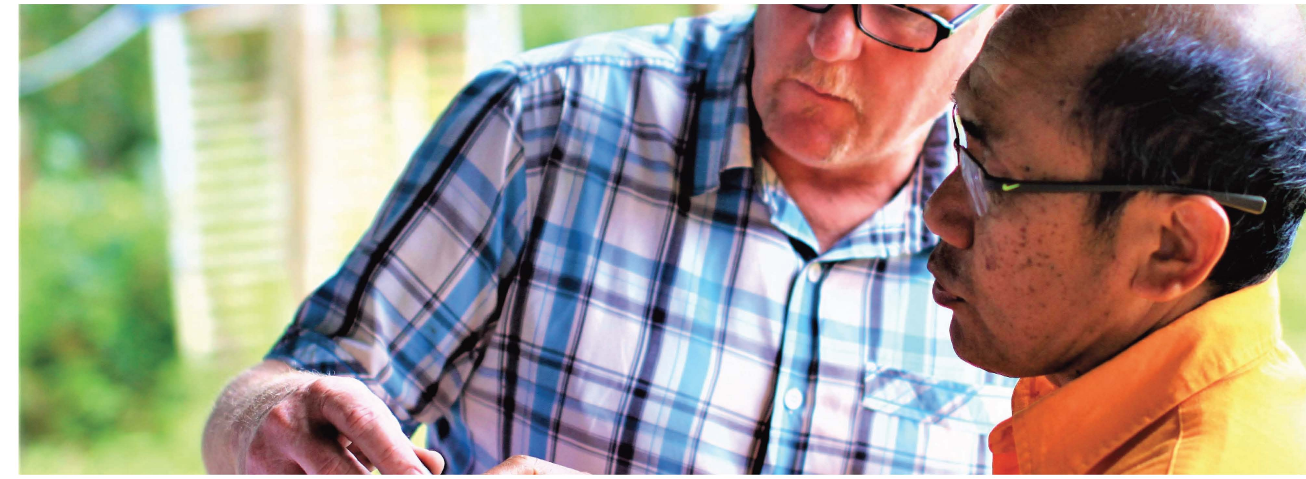


General site layout

Summary of LOM Pit Reported by Resource Class (Production Target)

Material Type	Ore Tonnes	MINED		MILLED	
		Grade	Ounces	Grade	Ounces
Measured	*1,735,000*	*1.8*	*98,000*	*1.4*	*77,000*
Indicated	*5,183,000*	*1.7*	*290,000*	*1.4*	*227,000*
Inferred	*695,000*	*2.0*	*44,000*	*1.5*	*33,000*
Oxide	**7,613,000**	**1.8**	**432,000**	**1.4**	**337,000**
Measured	*321,000*	*1.8*	*19,000*	*1.4*	*14,000*
Indicated	*3,299,000*	*2.6*	*279,000*	*1.9*	*200,000*
Inferred	*953,000*	*2.8*	*87,000*	*2.0*	*61,000*
Transitional	**4,573,000**	**2.6**	**385,000**	**1.9**	**275,000**
Measured	*35,000*	*1.8*	*2,000*	*1.8*	*2,000*
Indicated	*818,000*	*2.8*	*74,000*	*2.0*	*52,000*
Inferred	*321,000*	*2.7*	*28,000*	*1.9*	*20,000*
Fresh	**1,174,000**	**2.8**	**104,000**	**2.0**	**74,000**
Total	**13,360,000**	**2.1**	**921,000**	**1.6**	**686,000**

Calculations have been rounded to the nearest 1,000 t, 0.1g/t metal grade and 1,000 oz. metal



The ore reserve stated is inclusive of Indicated and measured resources as detaied below. As of July 2018 the open pit reserves are as per the table below.

Ore Reserve Category	Tonnes (000)t	Grade Au (g/t)	Contained gold (000)oz
Proved	2,091	1.8	119
Probable	9,300	2.1	643
TOTAL	**11,391**	**2.1**	**761**

The mining schedule has been developed around a processing plan throughput requirement of 1.5 - 2.0 mt/pa. The throughput variability is due to material type and metallurgical recovery. It is expected that throughput will be high for the oxidised / high recovery materials that comprise approximately 60% of the total inventory, and lower for the fresh / poor recovery materials, particularly at the southern end of the deposit.

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METALLURGY & PROCESSING

The Sihayo deposit has historically been metallurgically challenging. All of the test work completed to date has revealed a complex picture of high variability with low correlation to depth, lithology or weathering state.

There were two main metallurgical testing programs completed by separate consultants in 2011 and 2013.

The first program was carried out by Ozmet under the direction of Mr Alan Bax using Ammtec in Perth. This was the most comprehensive of the two programs and covered the standard range of metallurgical tests. Some attempt was made to consider the practicalities of mining the deposit by assessing composited samples on a depth basis from 5 domains. This was considered to also broadly coincide with the weathering profile of the deposit and therefore oxidation state.

The Ozmet test results appeared to show some correlation with depth but demonstrated an unusual insensitivity to such things as grind size and reagent concentration.

The second body of work was carried out under the supervision of Mr Peter Lewis at ALS in Sydney. This work was more focused on understanding gold recovery issues and validating the extensive leach testwork that had been carried out on individual core samples.

Samples were selected mainly on lithology and mineralisation as well as domain. This was aimed at getting a better understanding of what was controlling the low recoveries and trying to give a better prediction of expected recoveries.

The sample composites were split into two groups to represent the two phases of operation where it was expected the early stage of operation would mainly be the more oxidised ore from the upper levels.

For this 2018 study, the study team considered it very important to revisit the recovery conundrum.

PTSM metallurgists and geologists set about to develop a methodology that would provide a more robust solution for determination of expected recoveries.

Leachwell assays from individual samples were applied to the 24 geological domains defined in the geological model.

The leaching results for each interval include both bottle roll (CN9) and agitated leach testing (CN12). QAQC checks were run on each individual test result to ensure the data set was clean and appropriate for use in the calculation of the domain recoveries. The usable data set comprises 3,681, equal to 49% of the total 7,480 fire assay samples.

Based on this methodology, the average metallurgical recovery is 74% within the current pit shell.

Refractory gold appears to be primarily locked up in arsenopyrite and carbonate-based minerals. Test work is currently underway to examine methods for liberating this gold. Preg-robbing also appears to be an issue with some ore types.

At present, the process flowsheet has assumed a non-refractory route with provision for a tailings treatment process as an add-on for recovery enhancement.

Besides the recovery issues, the ore also has very variable physical properties. Although there is a general gradation of oxidation with depth, there is enough overlap to cause processing problems if not acknowledged. The simplistic view of a clear gradation between soft weathered ore and fresh does not apply to Sihayo due to the occurrence of highly oxidised ore materials at depth in some places.

For this reason a large jaw crusher has been selected as the primary process unit as this has proven to be robust in handling both clay and hard ore.

DESIGN CRITERIA

Process design criteria is based on many inputs, including testwork, engineering experience, vendor and consultant data and client input.

The Ozmet work is used primarily for the physical and comminution properties, whereas the Leachwell testing has been used to determine recoveries.

PROCESS PLANT DESIGN

Sihayo is topographically constrained with limited flat areas for construction of the Process Plant and Infrastructure. The selected plant site is very close to the pit wall, which has the advantage of a short haul distance to the RoM pad but puts it within the blast zone. This latter point is not considered critical as the adjacent pit is mostly free-dig material.

The Sihayo plant design has the advantage of a simple flowsheet, but still considers operability and maintenance as a critical design basis to ensure a smooth operation working at maximum efficiency.

The mining sequence is prioritised for early ore production, however it allows for the build-up of a substantial ore stockpile. The ROM pad is sized for up to 800Kt of ore, stored according to process needs.

The front end of the comminution circuit has been designed for versatility such that the full range of material types can be treated with relative ease.

A large ROM bin discharging to a wide apron feeder is the selected feed system to the jaw crusher.

The crushing facility is designed around a concrete bin and support structure. This forms the retaining structure for the embankment wall.

A single conveyor takes the crushed ore to the SAG mill. The conveyor includes a load cell for tonnage measurement.

A SAG mill has been selected to cope with the range of material types. Also included is a pebble crusher. This ensures the hard ore does not impose a throughput constraint and may allow for above design throughput rates at certain times.

The comminution circuit is designed to treat both oxide and fresh rock ore at throughput range of 185 tph to 245 tph (1.5 Mtpa for fresh rock - 2.0 Mtpa for weathered ore).

Cyclone classification is designed to give a milled product with a P80 of 106 microns. Gold minerals are generally heavier than the accompanying silicas and will be reporting as a finer product. This phenomenon generally results in a higher metallurgical recovery than predicted from testwork.

The leach/CIL circuit contains design enhancements that may also result in improved recoveries as well as contributing to reduced capital cost.

There are nine tanks for leach/CIL, all identical in tank design and in top of tank steelwork. Each tank base is stepped to provide gravity flow.

The inter-tank connections, launder arrangements and top-of-tank equipment allow for process optimisation ensuring minimal bypassing and maximising the carbon/slurry interaction to optimise carbon loading. The tankage forms the core of the wet plant layout and services are arranged around this core to minimise pumping and carbon/resin transfer distances.

The carbon elution column is located adjacent to the CIL tankage with the loaded carbon screen directly above the column.

The Gold Room is a secure building with access for bullion transportation. The electrowinning circuit contains the latest high efficiency cells and is based on a single pass process.

The CIL tails are screened to recover carbon leakage and discharged to the ReCYN Plant.

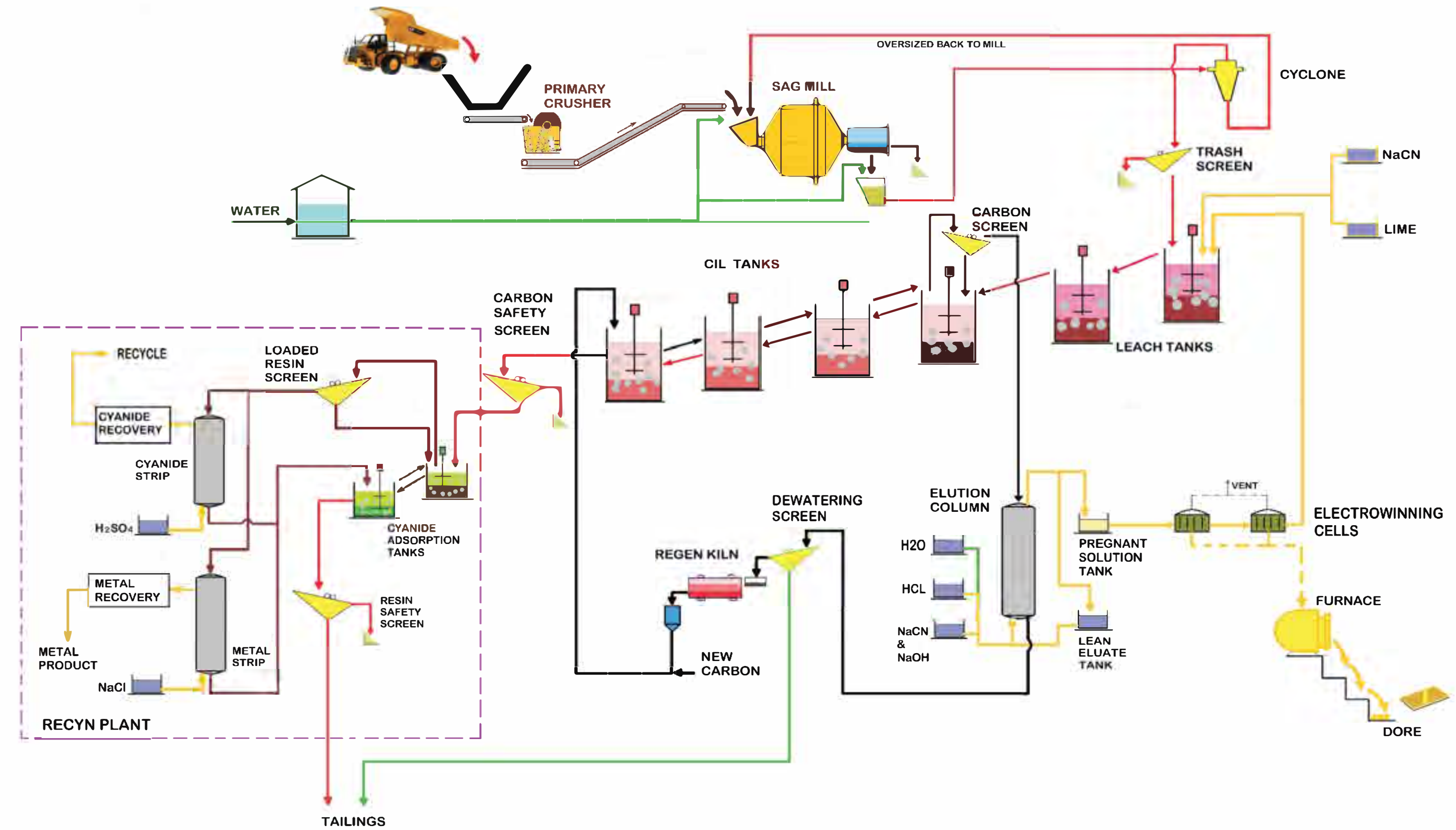
The ReCYN Process is analogous to CIL with the counter current movement of the resin in a four stage adsorption system. The resin adsorbs both free cyanide and complexed metal cyanides onto two different resin forms.

Cyanide is recovered and recycled to the leach circuit. The metal cyanides are treated in a parallel circuit and the metals recovered as a saleable product.

The resulting slurry discharge is a fully detoxified tailing pumped to the TSF. Recovered metals include copper, zinc, iron, arsenic and mercury.

An area has been allowed at the end of the ReCYN Plant to accommodate a future processing step such as flotation to increase recovery.

Reagent services, maintenance facilities, plant warehouse and control room are strategically located around the main plant. The plant process control system is CiTect SCADA, which is selected based on its reliability and ease of use. This system has been successfully applied at a number of mine sites in Indonesia over the last 15 years and has generated high in-country skilled-user base.



RECOVERY ENHANCEMENT

The relatively low recovery issues have been the focus of attention in more recent work as this is seen as critical aspect to the project. A new testwork programme is underway to specifically address the low recovery ore, although it is likely that any add-on process would be applied to all ore. The aim is to produce concentrate that will sustain a more costly process.

SERVICES AND INFRASTRUCTURE

The non-process infrastructure required to support the project is detailed as follows:

· Site access and roads

· Site establishment facilities

· Power

· Security

· Process plant office and control room

· Administration services area

· Camp accommodation

· IT and communications

· Tailings storage facility

· Explosives magazine

· Site wide water management facility

The Site Access Road will initially start from the public road, through to the main security gate and delivery area. It will then continue another 8 kilometers, up to the mine, past the Mine Infrastructure Area to the Process Plant, Administration and Camp Facilities area.

Additionally, a Tailings Storage Facility Access Road will be constructed from the Process Plant to the Tailings Dam. This is located in more challenging terrain and will require extensive earthworks.

Temporary site works will include, concrete batching plant, timber mill, warehouse and workshop, power, fuel farm and wash bay, ablutions/sewerage, fencing and quarry.

Three key phases of work were completed as part of the TSF assessment for the 2014 feasibility study. Design work for all phases assumed a LOM tailings capacity requirement of 7Mt as compared to the current study requirement of 12.5Mt.

Initially, the work was undertaken by GHD who considered a traditional wet tailings dam. Their work progressed in general accordance with guidelines prepared by the Australian National Committee on Large Dams (ANCOLD). During this study it was assumed that all waste from the open pit would be used to construct the TSF embankment.

During the study it became apparent through the modelling process that the factor of safety (FOS) of the dam wall for the Maximum Credible Earthquake was very low at 0.57 and hence a wet dam in the preferred location was considered problematic in terms of compliance with the ANCOLD criteria for the MCE.

A second study was completed in the second half of 2012 by Golder Associates who investigated alternate technologies or modifications to the traditional wet tailings dam approach. This study proffered a concept of tailings/ waste co-disposal although the concept proved to be untenable due to the low ratio of waste rock to tailings in the project.

Finally, a tradeoff study was undertaken by PT Ground Risk Management (GRM) which concluded that a system of stacked dewatered tailings provided the optimal solution for tailings disposal for the Sihayo project.

As part of this current 2018 study, Knight Piesold (KP) Perth was engaged to provide an updated design and volumetrics for the LOM 12.5Mt wet facility that included a Stage 1 4Mt starter facility. The first iteration of this work returned unfeasibly large volumes and cost.

For the second iteration, an optimised design was adopted that included higher slope angles, assumed local availability of good quality construction materials, and utilisation of borrow materials from within the TSF footprint. This would have the dual effect of increasing available storage capacity within a smaller footprint.

The second iteration design resulted in a substantially reduced material volume requirement and a much smaller footprint.

Following subsequent value engineering, it was decided that, in order to reduce the project capital cost, the Stage 1 facility should be designed to contain 1Mt of tailings which is the equivalent of approximately 6-months of processing. This had the desired effect and the revised designs were adopted.

Concurrent with the KP study an in-house trade off study was conducted comparing GRM dry disposal option versus the wet disposal option. The study was based on the new requirement to contain 12.5Mt of tailings.

The outcome of the study clearly favoured the wet option from an economical and operational viewpoint.

PLN power supply is cost effective and provided from a geothermal power source. Emergency power via low voltage diesel generators will be provided for the project. The project will connect into the main power grid from the edge of the contract of works and run MV overhead power lines along the site access road to the process plant.

Process plant services and infrastructure consists of:

· Security

· Process plant office and control room

· Warehousing

· Workshops

· Air and water systems

· Fire protection

· Sewerage and wastewater

Administrative services area consists of:

· Site administration office

· Geology and mining office

· Laboratory

· Main warehouse

· Workshops

· Medical clinic

· Kitchen and mess

· Religious buildings

· Core shed

· Water Services

· Fire Protection

· Sewerage and Waste Water

Camp Accommodation, this will consist of:

· Accommodation

· Recreational facilities

· Nursery

· Rubbish and Landfill

ENVIRONMENTAL & SOCIAL

A number of baseline studies have been conducted for the Project since 2009 and some baseline data gathering is still ongoing (as part of the AMDAL process or Indonesian Environmental and Social Impact Assessment). An assessment was more recently undertaken by the project team in consultation with Golder to determine if dated i.e. 2009 baseline data would have significantly changed to affect the impacts determined and the mitigations proposed. The assessment concluded that baseline data was still in currency for the proposed impacts.

The environmental baseline studies investigated relevant previous studies and literature on, geology and landforms, soils and potential acid sulfate soils, meteorology, air quality and noise, greenhouse gas emissions, hydrology and surface water quality, hydrogeology and surface water quality and biodiversity.

The social baseline studies investigated, demography, social-economic aspects, land ownership and access, transportation, ethnic groups and indigenous groups, cultural heritage, community health safety and security, illegal mining activities.

Impact and risk assessment was conducted using the Golder impact assessment methodology. This methodology has been used on international impact assessment methods and can be summarized as follows:

· An inventory of valued components are developed using the results of the baseline studies.

· The valued components were related to the project activities and other project characteristics (such as footprint) by linkage diagrams.

· The potential impacts from and risks associated with the project activities were assessed.

· The identified potential impacts and risks were assessed, based on criteria such as Direction, Magnitude, Geographic extent, Duration, frequency and Reversibility, using assessment criteria.

· The impacts and risks were then ranked with regards to significance. Negative impacts and risks which were assessed to be of High Significance and were further addressed in the impact assessment

Key areas of environmental concern are as identified in the following sections.

HABITAT

Habitat Area IV is outside the footprint of the Project - the primary forest area west of the project, on both sides of the Sihayo River is assessed as a critical habitat for endangered and critically endangered species. This area is considered Critical Habitat, Tier 2, and the Project should as much as possible avoid any measurable negative impacts to this Area IV.

The main species with conservation status in habitat Area IV are: Sumatran Tiger (critically endangered), the Sumatran Surili and the Agile Gibbon (both endangered primates) and 5 (critically) endangered tree species (Dipterocarps).

JUVENILE FISH

The streams originating from the ridge on which the project activities are located were during the baseline studies observed to be breeding places for fish and habitat for juvenile fish.

SURFACE WATER

The surface water quality baseline shows that the water in the local streams currently still meets quality standards of Class I of Indonesian Government Regulation 82 (2001) as well as WHO drinking water criteria.

A number of project activities could potentially lead to decrease of water quality and subsequently decrease of availability of surface water adequate for human activities such as the production of drinking water, washing, and animals husbandry, if no effective treatment of the surface water runoff from the project areas is conducted.

GROUNDWATER QUALITY

The baseline results from a groundwater monitoring well in the project area as well as from two springs show that groundwater quality in the baseline situation (2009) met acceptable environmental criteria.

The concentrations of metals and other relevant parameters were below Indonesian and WHO drinking water standards.

The Mine Water Management Report by Schlumberger mentions for the Sihayo deposit that, given there is an active groundwater system within the pit area, in the early stages of mining, when the sumps are located above the groundwater system, there is potential for significant seepage from the sumps into the groundwater system. Seepage from pits and waste rock disposal potentially could contain elevated concentrations of Antimony (Sb) and Arsenic (As).

The design of the TSF incorporates seepage collection and monitoring system for downgradient groundwater.

IMPACTS ON LIVELIHOODS

The Project will provide jobs for some 1200 people during the construction stage and some 1000 people during the operational stage. Many of the activities, such as operating the processing facilities, will require skilled labour, which may not be available in the wider project area.

A number of areas currently used for agriculture will be required as land for the project activities, such as the access roads, the TSF area and some facilities such as security and local community offices located in the valley of Batang Gadis River.

STAKEHOLDER CONSULTATION

Stakeholders that were invited for and participated in the public consultation included:

· Provincial governmental organisations (e.g. Mining Department)

· Regent (Bupati) office of Mandailing Natal

· Sub-district head (Camat) office of Naga Juang and Sia bu

· Village heads (Lu rah) of the villages

· Community representatives of those villages (e.g. spiritual leaders, youth leaders)

· Permata Hospital Madina

· Environmental Organisations such as: Balai Ta man Nasional Batang Gadis, Forum Pengelolaan DAS Batang Gadis, Organisasi Konservasi Rakyat, Rahmad Centre

· Non Governmental Organisations such as: LSM Fomapelipe, ICW Madina, LSM GIB Madina, Forum Masyarakat Naga Juang Tolak Tambang

In the UPI report on the community perception of the PTSM mining activities (Appendix B, literature 21) distinguishes the following stakeholder groups:

· Local government (Kabupaten, Kecamatan, village heads)

· Local parliament (DPRD)

· Security forces

· Formal and informal community leaders

· Students and NGOs

· National Park Batang Gadis organization

· Traditional land owners

· Minority communities

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

Apart from the potentially significant impacts and risks that were identified in the AMDAL, a number of other impacts, normally associated with a mining project will have to be managed and monitored.

The Project will develop a general environmental and social management plan, aligned with the Environmental and Social Management and Monitoring Plans (RKURPL) that are being developed as part of the AMDAL process.

The following elements will be part of the overall Environmental and Social Management Plan:

- Mine Water Management plan
- Waste Management plan
- Greenhouse Gas Emissions reduction plan/ Energy Efficiency plan
- Transportation plan
- Emergency and Spill response plan
- Human Resources policy and management plan (including hiring and retrenchment
- plan)
- Occupational Health and Safety plan
- Community Health and safety plan
- Community development programs

The following elements will be part of the Biodiversity Action Plan:

- Biodiversity strategy
- Implementation of avoidance strategy for terrestrial and aquatic habitats
- Consultation with targeted stakeholders
- Management of weeds and pests
- Biodiversity monitoring plan

The following elements of a Land Compensation and Livelihood Restoration plan:

- Land acquisition and resettlement planning process;
- A designated Land acquisition and resettlement team;
- Confirm Project footprint;
- Land and associated social studies;
- Coordination with ESIA, DFS and CSR teams;
- Land acquisition and resettlement planning integrated in Project timeline.

A Mine Closure Plan to Indonesian regulations (Decree of the Minister of Energy and Mineral Resources No. 18 of 2008) is being developed. In this plan the aspects with regards to biodiversity conservation as well as livelihood of affected communities will be taken into account. The Project is also preparing the associated 5-years Reclamation Plans.

PROJECT EXECUTION & OPERATIONS

The execution of the project will be a joint effort between the PT Sorikmas Mining (PTSM) Client team and a primary engineering partner. The PTSM Client team will be responsible for Project and Construction Management while the engineering partner will provide Engineering and Procurement Services, a construction contractor will be used for the construction of the project.

Detailed engineering shall be carried out in close consultation with the Project Manager and Client Representative. The Engineering Manager will develop and maintain the design standards and basis of design for the project and will manage resources to achieve the requirements of the project schedule.

In general, the plant will be designed to the latest Indonesian, ISO and American Standards.

Detailed Engineering commences as soon as possible to enable the purchasing of critical lead time equipment as well as for preparation of critical construction tasks.

As construction of the Site Access Road (SAR) is the critical path, the primary focus of the construction team will be the construction of the Site Access Road and Quarry.

Once the SAR is adequately complete, the construction team will then prioritise completion of the permanent accommodation, messing and office facilities for use by the construction team.

In parallel with the construction of the administration and camp facilities, the pioneering team will also continue to complete the Main Site Access Road and start on the Process Plant Access Road. Construction manning levels will increase as permanent accommodation facilities are completed.

Once the Main Site Access Road is completed the Bridge Access over the Batang Gadis river will commence. Once the Process Plant Access Road is completed the Process Plant Pad earthworks will commence.

Dams, TSF and sediment sump construction works will be carried out by major civil earthworks team.

The process plant construction sequence will be major earthworks, structural concrete for the crushing and mill with mechanical tankage, structural steel, mechanical equipment, piping and electrics/instrumentation to follow.

Commissioning will then be conducted by the engineering contractor in collaboration with owners operation team, with first pour to occur in April 2020.

RISK ANALYSIS

A formal project and business risk assessment process was undertaken by the company (opposite).

Key Project Risks

Area	Risk/ Opportunity	Mitigation Strategy
Economic	Gold Price Variability	Ensure a minimum AISC. Initiate appropriate financing arrangements
Capital	Increased Construction Cost	Implement and manage appropriate construction scheduling and cost Controls. Maximise the use of owner managed construction
Political	Unfavorable CoW Renegotiations	Coordination with local partners
Regulatory	Construction/Operations Permit Delay	Coordination with local partners
Sustainability	No Social License to Operate	Implement CSR Strategy
Implementation	Delays to commercial Production	Identify and implement controls on project risks
Operating Cost	Alternative Power Supply	Investigate alternatives
Gold Production	Variable Au Recovery	Further metallurgical testwork and geological investigation

PTSM is planning to have a full-national operational workforce on site. The operation will adopt owner mining, drilling and laboratory therefore the organisation structure will reflect the owner operator philosophy. This philosophy has been successfully applied in a number of gold mine operations in Indonesia.

Much of the workforce will be recruited from the neighboring villages and surrounding regions. It is planned that workforce will be housed on site and work in a commute roster.

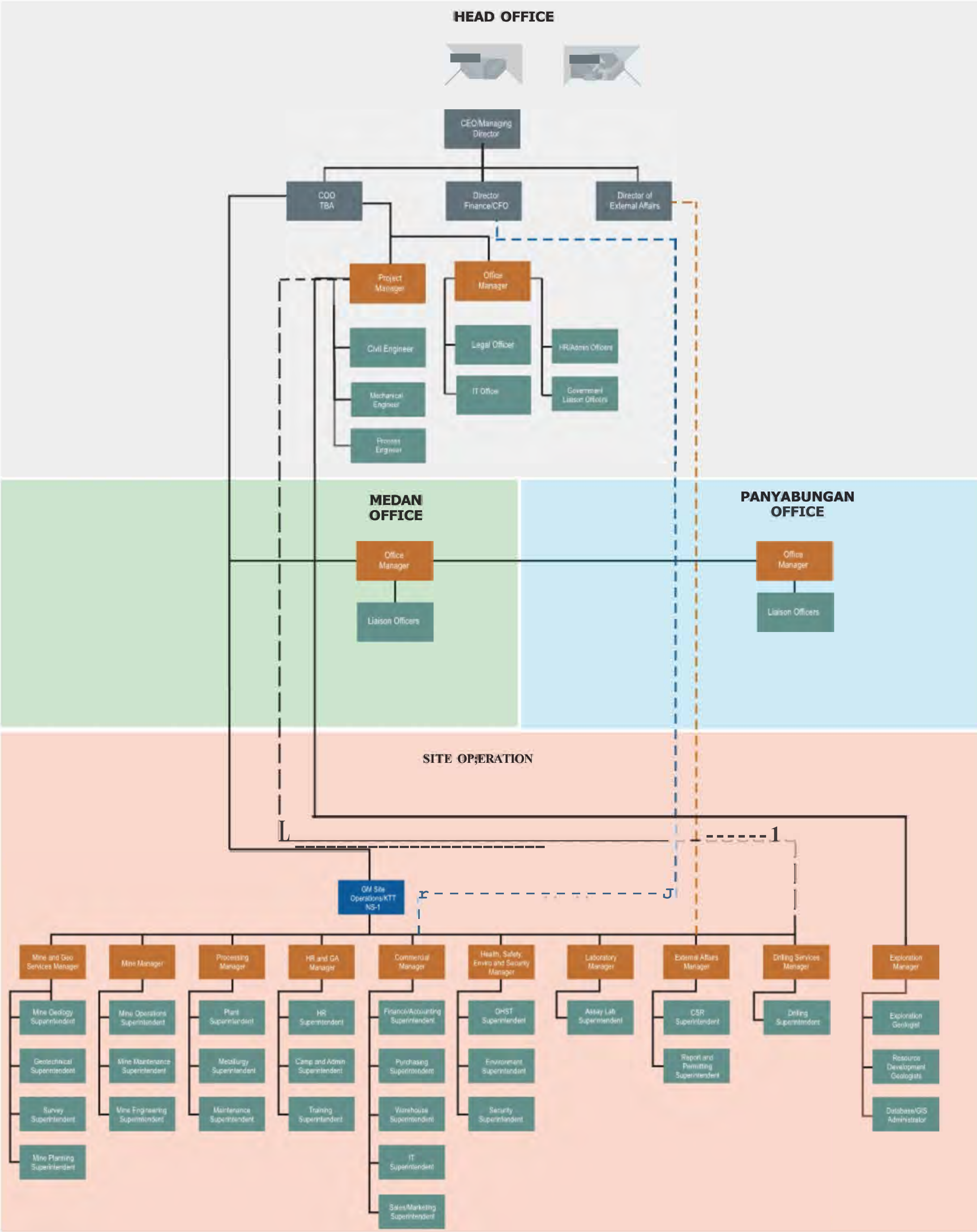
A philosophy of employing staff that do not necessarily have extensive experience in the mining industry will be adopted; utilising available workforce in the surrounding area. Senior supervisory personnel with experience in the mining industry will be employed to assist with training of staff without mining experience.

The project construction and development schedule is described in this Volume. Within this construction framework, allowances are made to ensure an orderly transition from construction to operations. This transition will include consideration for the timely completion of facilities, hands-on operations training and recognition of learning curves as applied to production build-up. This will require close coordination and open communications between the construction and operations groups. To facilitate the operation of the treatment plant, a sequential completion of the various project components is planned.

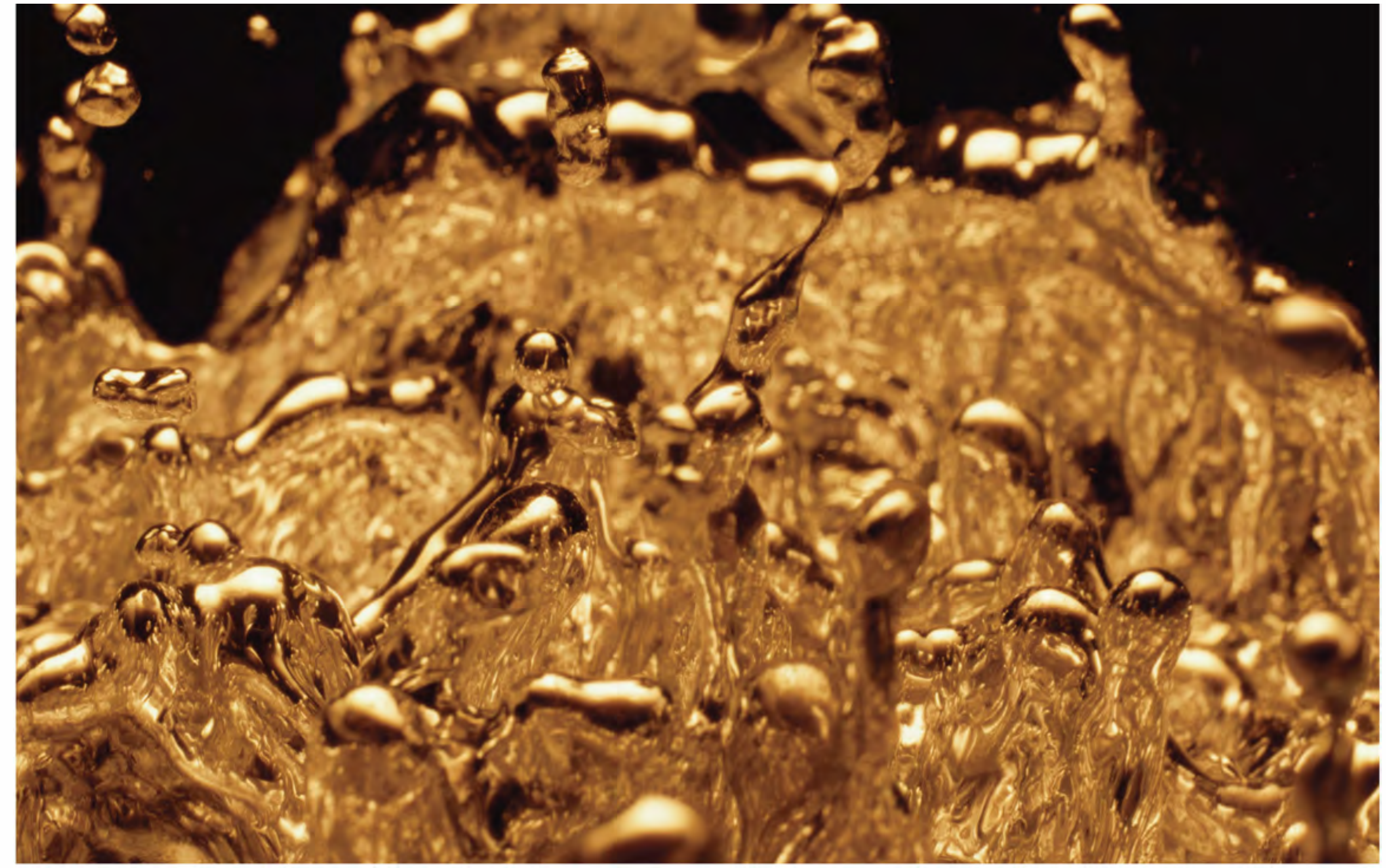
Inventory, in the form of onsite storage of stocks held via consignment will be controlled by the suppliers who will monitor levels and consumption rates remotely and will ensure a minimum working volume of each reagent is maintained. The site will co-ordinate with the suppliers of reagents held on consignment in order to minimise overall stocks held on site without compromising the integrity of the operation.

The overall structure of the operations will be for the purposes of this study as outlined in the organisational chart. The entire operations workforce will be under the control of a Mine General Manager who will be supported by ten main departments each with a senior person heading the department.

- Health, Safety, Environment and Security Department.
- Human Resource and General Administration Department.
- Mine and Geology Services Department.
- Mining Department.
- Processing Department.
- Commercial Department.
- External Affairs Department.
- Laboratory Services Department.
- Drilling Services Department
- Exploration Department



Sihayo Gold Project Organisation Chart



Capital is first divided into its application areas such as plant or mobile equipment and then treated according to its funding source and timing requirement. For example, the inclusion of owner mining means a substantial capital commitment, but mainly funded through leasing.

It is recognized the Sihayo Project has significant Infrastructure costs, mainly due to the difficult topographical site conditions for constructing the access road and the Tailings Storage Facility. Earthworks for the site access road, plant site and the TSF are the main capital cost.

The Process Plant capital has been developed based on vendor quotes for major equipment and rates applied to estimated quantities for civils and structural steel.

Infrastructure building costs are taken directly from actual costs for similar buildings on a recent project.

Services are costed according to equipment cost and associated construction costs.

Sustaining capital is provided for such items as mobile equipment replacement and has a component of contingency for unpredictable costs such as equipment replacement.

The following table gives a summary of the main capital components.

Capital Summary

PRE-PRODUCTION OPERATING EXPENDITURES	USD (m)
PRE OPERATION COST	5.6
MINING OPS	3.8
INVENTORY (FIRST FILL, CONS AND SPARES)	3.9
SUBTOTAL	**13.3**
CONSTRUCTION	
PROCESS PLANT	21.6
GENERAL EARTHWORKS	12.0
SERVICES AND INFRASTRUCTURE	21.0
ACCESS ROAD	9.8
TSF	10.8
EPCM	36.0
IT COMMS	1.0
PLN CONNECTION	0.9
SUB TOTAL	**113.2**
MOBILE EQUIPMENT	
MINING EQUIPMENT AND LIGHT VEHICLES	23.8
TOOLS AND EQUIPMENT	2.5
SUB TOTAL	**26.3**
SUSTAINING CAPITAL	**5.0**
TOTAL CAPITAL EXPENDITURE	**157.8**

OPERATING COST

Site Operating costs are categorised according to three departments, Mining, Processing and Administration. This approach fits in with the Operations Phase and Operations Budgeting requirements.

The mining costs are all inclusive, total costs related to mining, including Grade Control, assaying, maintenance and labour.

The same applies to Processing, the rate per tonne is all inclusive.

Administration is everything not included above, including all remaining site costs for Finance, HR, IT, CSR, Rehabilitation, Security, Camp Maintenance etc.

Other departmental costs such as assay and drilling are distributed to the appropriate areas on a cost basis.

Site operating costs do not include depreciation.

Non-site costs include Bullion Refining, Royalties, Head Office and Corporate costs.

SITE OPERATING COSTS

Site operating costs are split into three categories, Mining, Processing and Administration. The site organisation structure provides senior management responsibility for each area, including budgeting, purchasing and cost control. The DFS is formatted to be the template for the operational budget to allow easy reference against design.

OFF-SITE COSTS

Head Office costs include such items as Dead-Rent, Insurance, PTSM Corporate costs are shown separately from Head Office costs.

The costs for bullion refining and escort are derived from quotes by Logam Mulia and G4S.

The higher royalty rate of 3.75% is used as it is assumed this will apply by the time production starts.

ECONOMIC ANALYSIS

Capital and operating costs have been estimated from mining and processing fundamentals, including substantial testwork, but then compared and modified against known actuals where appropriate. This particularly applies to the mining section where a complex build up from fine detail can often arrive at an erroneous number. There are many assumptions made in compiling the costs such that errors are compounded. The operating costs used are bench marked against similar sized operations in Indonesia, omitting reference to foreign operations.

The financial model from which the project economics are estimated is an Excel based model that has been derived from a proven model used in an operational context, but with the additional capital component.

OPERATING COST SUMMARY	TOTAL	$/t ore processed	$/oz
MINING OPERATING COST	169,163,861	13.00	247.8
PROCESSING OPERATING COST	154,255,426	11.85	225.9
SITE & REGIONAL ADMIN COST	53,070,202	4.08	77.7
CORPORATE COSTS	28,780,933	2.21	42.2
ROYALTY	33,232,101	2.55	48.7
SUSTAINING CAPEX	5,000,000	0.38	7.3
TOTAL OPERATING COST	**443,502,523**	**34.07**	**649.6**

Physical Inputs into the Financial Model

The physical inputs to the Financial Model are derived from the Mining Inventory, Mining Schedule and Process Plant operating estimates. Mining rates are generally dictated by the Process Plant treatment rate according to ore type. A reasonably large ore stockpile (700kt) has resulted from the revised schedule.

A construction contractor will be utilised to build the project and their construction costs have been provided, for adoption into the financial model.

The Mineable Inventory Estimate includes a portion of Inferred Resource, which is used in the optimisation, but excluded in the Reserve numbers. The mining schedule is detailed on a monthly level for production and cost estimating and reduced to annual for summary tables. There is a low level of geological confidence associated with inferred resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised.

The design plant capacity gives an average annual gold production rate of 91,000oz. This number is believed to be most appropriate for the size and type of ore body at Sihayo and the minimum capacity to provide a robust economic return. The present mine life is 7.5 years, although returns could be improved with a shorter mine life at higher capacity. 7.5 years is believed to be a more prudent sizing, compatible with practical mining and processing rates.

It is recognised that detailed mine planning will often change in the light of grade control drilling.

Metallurgical testwork is presently underway to examine the potential to recover a concentrate from plant tailings. It should be recognised that this is simply an "add-on" process and will not impact the main production circuit.

FINANCIAL MODEL

Mining Feasibility Studies are derived from a complex mix of assumptions and estimates, including the Resource and Reserve estimates categorised by JORC. The derived quantities are fed into an economic model, which has further cost elements to derive an expected financial outcome. The Sihayo Gold Project DFS has been put together by a team of competent experts with a high degree of experience and understanding of developing and operating gold projects in Indonesia. There is a high level of confidence in achieving the physical and financial outcomes as presented in the 2018 DFS.

The cost estimates have been derived from first principles but modified where believed necessary by reference to actual operating costs. The authors have broad access to verified and detailed operating cost data from relevant Indonesian Gold Operations.

The financial model, although in Excel format, is based on a working model used for many years for budget simulation in a successful Indonesian gold operation.

As with most aspects of the project design and development, it is the operational phase concepts that influences the structure and form of the model.

Mining

The mine plan is a core input to the model, derived on a monthly basis for the life of mine (LOM). The physical parameters reflect the inputs to the Reserve estimate, including process inputs.

Mining costs are based on owner mining and consider the mined materials physical properties ranging between low strip ratio, soft, surface material, to deeper, harder ore requiring drill and blast. Haulage distance and the depth of the mine are factored into the cost.

Mining costs include extended haulage of waste for the construction of the TSF dam wall (exuding initial construction by construction contractor), and it is shown in the dedicated TSF cost area. **Mine** haulage costs are assumed to be to the ROM stockpile, TSF dam or to the waste stockpile.

All mining equipment costs are supplied by internationally recognised vendors, including Volvo, CAT and Komatsu.

The mining sequence has been driven by desired gold production profile.

Processing

The Process Plant Capital and Operating costs are considered to be at an acceptable degree of accuracy as they are based on a substantial amount of experience and testwork for derivation of design criteria and recent commodity price. An accuracy of -/+15% has been applied to the estimate.

The metallurgical variability of the Sihayo ore was recognised early in its development and an unusually large number of leach tests were completed. These results have been applied to various discrete domains and recognised in the mine plan. It is also recognised that the domaining exercise does not completely overcome the extreme small-scale variability of the metallurgical recovery but does allow some degree of categorisation. This is a major differentiation from the previous study and is the reason the average metallurgical recovery has increased to 74%.

Besides the variability in the metallurgical recovery there is also a large variability in the physical attributes of the ore, especially in hardness, varying from clay to hard rock. This variability does not closely follow the normal influence of depth, but generally the oxidation levels have been determined in the Resource model and applied in the optimisation and mining schedule. The plant is designed to cope with this range of properties and the resulting plant throughputs considered in the scheduling.

ADMINISTRATION

The third cost centre in the Financial Model is site Administration costs, which collects all other site costs, including Regional Office costs. Administration has a large fixed cost component with variable costs related to employee numbers.

GENERAL

Refining costs are derived from Logan Mulia Refinery quotes, but care must be exercised in monitoring their performance. The costs include bullion transport, superintending at the refinery and referee assay cost.

Royalties are assumed at the higher level of 3.75% of revenue as the government are insisting on this change from the contracted 1%.

Metal sales will be at prevailing LME prices for export. A price of $1,300/oz is assumed.

Depreciation and Amortisation are derived from estimated project expenditure. They are based on clauses in the Cow that specify the accounting method.

Historical expenditure and carried forward losses are included in the assessment as in the 2014 study. These amounts influence the tax calculations over the life of mine including other tax planning inputs.

PROJECT SCHEDULE

		Month#	Calendar Schedule
1	Issuing Feasibility Study Report	-29	Jul2018
2	Pre-Funding Activities	-28 to-23	Aug 2018 to Jan 2019
3	Construction Commencement	-22 to -1	Feb 2019 to Nov 2020
4	Mining Preparation	-3 to-2	Sep 2020 to Oct 2020
5	Processing Pre-commissioning	-2	Oct 2020
6	Ore Mining	-1	Nov 2020
7	Processing Commencement	1	Dec 2020
8	Sales Commencement	2	Jan 2021
9	Project completion	91	Jun 2028

Financial Assumptions & Metrics

Gold price =	$1,300	/oz
Exchange rates =	Rp13,300	/US$
WACC Rate =	8%	p.a.
Royalty =	3.75%	gross sales
Income Tax Rate =	25%	taxable income

POTENTIAL ECONOMIC UPSIDE

There are several potentially significant opportunities to improve the predicted project economics that are not included in the present scenario due to time constraints and lack of certainty. There are two short term targets identified and two longer term.

· The first area is in metallurgical recovery, whereby the low average recovery of 74% can be improved with a subsequent treatment step. The plan is to recover an arsenic/sulphide rich concentrate from the plant tailings that will justify a more aggressive treatment step. This option will be tested in the second half of 2018.

· As a consequence of the increased recovery a second opportunity is opened in terms of increasing the Reserve ounces, especially with the high grade deeper ore that has a very low recovery.

The two longer term opportunities are:

· Upgrading the 592,000oz of Inferred Resource to Reserve, as would occur simply from in-fill drilling or grade control. Some inferred material is included in the Project Economics, but it is expected that this would increase.

· Continuing the Exploration drilling to prove up known target areas outside the present Resource.

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Diamond drilling was used to obtain core samples. The majority of holes were selectively sampled based on observation of lithology and apparent mineralization. Total 545 drill holes collar data and 21,041 samples assay were used for this study. • Sampling intervals were determined by the geologist. Core sampling was logged for Lithology, structure, alteration, mineralisation, geotechnical and other attributes. Sorikmas sampling protocols have been reviewed and are considered to be as per industry best practice procedures. • Sample standards and blanks were inserted the sample stream at varying frequency throughout the various drilling campaigns. Between 2003 and 2010, quality control samples were inserted on every 10th sample. For subsequent campaigns, the frequency appears to be every 20-30 samples. • Drill holes were regularly surveyed for deviation using an Eastman single shot camera and an electronic single shot camera. 2,163 measurements are recorded in the Sihayo database. • The Sihayo mineralisation is associated with recognizable host rock alteration so selective sampling was considered appropriate. However, there are clear instances where sampling was indiscriminant and excessive. • Diamond drilling was used to obtain core samples. The sample length data tabulated by year is shown in the following table.

Year	No. Samples	Sample Length Statistics (m)			
		Minimum	Average	Mode	Maximum
1999	606	0.2	1.83	2	6
2003	564	0.1	1.16	1.5	39.8
2004	961	0.1	1.25	1	3.4
2005	1251	0.1	1.27	1	2.6
2006	530	0.5	1.13	1	2
2007	791	0.55	1.21	1	21
2008	684	0.6	1.23	1	15
2009	1082	0.15	1.17	1	2.45
2010	11405	0.15	1.29	1	22.65
2011	2000	0.5	1.32	1	3
2013	1167	0.5	1.05	1	2.2

Reference Section 2.7

Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• At Sihayo, a total of 545 drill holes used the diamond drilling core type and wireline triple tube barrel. Only 3 holes were drilled using a standard barrel. There were 3 core size types: PQ, HQ and NQ.
		  ◦ Marking the core for orientation was attempted by the drillers using a spear and china graph marker for those holes which were not vertical. Orientation attempts were made every 5 meters if the core was in good condition, and at closer intervals in veins or mineralisation zones.
		  ◦ Where successful, orientations were marked on the core by a senior field assistant, and orientation measurements taken by the geologist. It should be noted that this was not a particularly successful method and little of the data is of much use in aiding interpretation of the structural geology.
		
		Reference Section 2.6.5

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.*	• The core recovery was measured as a standard part of the core logging process during the drilling program. The recovery ranges between 0% – 115%. The recovery 0% is caused by core lost or cavities. The average core recovery is 90%. The intervals having recovery exceeding 100% were usually in the clay materials. Some intervals in the drillholes, i.e

	• *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.*	SHDD370 have no recovery measurement from 31.7m - 125.30m. There is no information explaining the reason for these missing intervals. • In problematic ground, drilling was completed in short runs to maximize recovery. • To be assessed further **Reference Section 2.6.6.3** • There is no evidence to indicate that sample bias has occurred due to variance in core recovery.
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.*	• For the most part, core and chip samples have been geologically and geotechnically logged to a satisfactory level. However, the use of 4 different logging sheets and lithology code dictionaries throughout the life of the project has caused some inconsistency and confusion in the logging process. There are numerous instances where lithological descriptions are different across the various log sheets for the same interval. Subsequent checking of core photos for such intervals sometimes reveals miss-identification across all log sheets. • Future logging should include fracture, competency, structure, orientation measurements, and density. • Logging is both quantitative (e.g. sand content; grain size) and qualitative (e.g. colour). • All intersections have been logged; total drilling length is 59455 meter; total intersect 8238 meter; around 14% of total length. **Reference Section 2.6.6**
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 maximize 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*	• PQ core was quarter-cut, and NQ / HQ core half-cut with a diamond saw and sampled by the field assistant. If the core was too oxidised, it was cut using a knife rather than a saw. Core was cut parallel to the orientation line if present. • All samples used for resource estimation are core samples • Sampling of half core is an industry standard technique in minerals exploration and represents 50% of the total sample. • Sample preparation involved drying, crushing (95% <5mm), Pulverizing (95 %< 75um) entire sample. Pulverized pulps were then mat rolled to further homogenize the sample before splitting using a riffle splitter to obtain a 250g pulp.

<table>
<tr>
<td></td>
<td>sampling.

• Whether sample sizes are appropriate to the grain size of the material being sampled.</td>
<td>• If a QAQC sample was a duplicate, quarter core was used for the drill sample and another quarter for the QAQC duplicate.

• Gold is very fine grained typical of a Sediment rock hosted disseminated gold. The half split of core is deemed satisfactory for this type of deposit.

Reference; Section 2.7 and Section 2.8.1</td>
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<td>Quality of assay data and laboratory tests</td>
<td>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.

• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.

• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</td>
<td>• All samples were completely pulverized, prepared and assayed at Intertek Testing Services laboratory; PT Intertek Utama Services; http://www.intertek.com/contact/asiapacific/indonesia/
Drillcore samples were regularly assayed for Au, Cu, Pb, Zn, Ag, As, Sb and Mo at the Intertek laboratory in Jakarta.
The following table shows the assay schemes used for analyzing each element, and the total number of assays per element in the database.
<table>
<tr><th>Element</th><th>Assay</th><th>Method</th><th>Finish</th><th colspan="2">Detection Limit (ppm)</th><th>No of Assay</th></tr>
<tr><td></td><td>Schedule</td><td></td><td></td><td>Lower</td><td>Upper</td><td></td></tr>
<tr><td>Au</td><td>FA51</td><td>Fire Assay</td><td>AAS</td><td>0.01</td><td>50</td><td>19,557</td></tr>
<tr><td>Ag</td><td>GA02</td><td>HClO4/HCl</td><td>AAS</td><td>1</td><td>120</td><td>19,567</td></tr>
<tr><td>As</td><td>XR01</td><td>XRF</td><td>XRF</td><td>1</td><td>10000</td><td>19,565</td></tr>
<tr><td>Cu</td><td>GA02</td><td>HClO44/HCl</td><td>AAS</td><td>2</td><td>4000</td><td>18,929</td></tr>
<tr><td>Pb</td><td>GA02</td><td>HClO44/HCl</td><td>AAS</td><td>4</td><td>10000</td><td>18,929</td></tr>
<tr><td>Zn</td><td>GA02</td><td>HClO44/HCl</td><td>AAS</td><td>1</td><td>10000</td><td>18,928</td></tr>
<tr><td>Sb</td><td>XE01</td><td>XRF</td><td>XRF</td><td>1</td><td>10000</td><td>19,557</td></tr>
<tr><td>Mn</td><td>GA02</td><td>HClO44/HCl</td><td>AAS</td><td>5</td><td>10000</td><td>1,291</td></tr>
<tr><td>Mo</td><td>XR01</td><td>XRF</td><td>XRF</td><td>1</td><td>10000</td><td>17,430</td></tr>
<tr><td>Hg</td><td>CV02</td><td>Cold Vapour</td><td>AAS</td><td>0.01</td><td>50</td><td>26</td></tr>
</table>
• Not applicable; internal quality analysis of test results is within</td>
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</table>

		acceptable tolerance. • QAQC Procedure; ➢ Standard sample, a total of 825 Au standards were analysed throughout the Sihayo drill programs. The frequency of standard samples insertion has varied over time with standards used infrequently in holes SHD001 – SHDD0028. From SHDD028 onwards the standards appear to have been inserted at a frequency of approximately every 20 to 30 samples. Early standards were sourced from Garnet Holdings Pty Ltd based out of Perth, Western Australia. With “ST’ labels, Later ORE Research & Exploration purchased standards are prefixed with “Oreas” labels. ➢ Blanks, A total of 695 blanks were analysed for Au. The PTSM blank was used extensively up to drill hole SHDD120, when it was realised that some samples of the Tertiary sandstone, from where the blank was sourced, were actually anomalous for Au. At this time Sorikmas started to use the Blank IPF which was purchased from Intertek. ➢ Duplicate Up to 2012, Sorikmas collected 451 duplicate samples throughout the project. The resulting correlation plot displays the majority of data postings inside the indicative +/- 15% tolerance limits. A small proportion of the samples, plot outside the tolerance boundaries, indicating a poor correlation between the original sample and the duplicate sample. ➢ Repeat assay analysis showed very good correlation while the duplicate sample analysis indicated some variation between the original and duplicate sample assays for some samples. Analysis of duplicate pulps against the original pulps indicates a very close correlation and suggests the Intertek sample preparation process was thorough. There is no indication of significant bias in the results. **Reference Section 2.8**
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.*	• Verification of significant intersections was carried out by competent person Anthony J. McDougall. BSc, MSc (hons), MAusIMM, Manager Geology & Mining Studies, Senior Resource and Senior Database Geologist and Full time employee of PT Sorikmas Mining. • No Twin Holes • Geologists on site entered data from paper logs into excel spreadsheet then the Database geologists entered into an SQL server database, back end via a Microsoft Access front end. All historic data was

<table>
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<td>migrated into this database system and validated.
Electronic data is stored using MS Access and SQL server and backed-up across several physical sites (Panyabungan and Jakarta office). Data was reported using Micromine and Excel spreadsheets.
No adjustments were made to assay data.
Reference Section 2.8</td>
</tr>
<tr>
<td>Location of data points</td>
<td>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.</td>
<td>Aberfoyle commissioned PT Dwinad Nusa Sejahtera (Sejahtera) in April to June 2005 to establish 7 base stations with differential GPS over Sihayo. Using a theodolite, a baseline was surveyed through Sihayo to the nearby Sambung prospect, with cross lines surveyed at regular 100m spacings.
In July-August 2006 PT Piramindo Tekno Sakti (Piramindo) was commissioned by Sorikmas to survey and mark the Sambung baseline, and associated Sambung crosslines as well as to pick up the collar locations for SHDD066 to SHDD079. The survey was completed with a theodolite using the base stations established by Sejahtera. From the base stations, bench marks were surveyed and then holes picked up by using a theodolite (Dwinad, Piramindo) or total station (Scinodata, Sorikmas Surveyor, Cetta Bumi).
<table>
<tr><th>Surveyor</th><th>Collars in database</th><th>Description</th></tr>
<tr><td>Dwinad</td><td>1</td><td>in 2005, SHD001-
SHD0059.</td></tr>
<tr><td>Piramindo</td><td>357</td><td>in 2006 -2010, SHDD001-SHDD448,
update Dwinad result</td></tr>
<tr><td>Scindodata</td><td>43</td><td>in 2010, SHDD382-SHDD438,
72 holes quoted
in the report but no data in the report</td></tr>
<tr><td>Cetta Bumi</td><td>49</td><td>in 2011-2013,
SHD010-SHDD514,
update Piramindo and
Scindodata result</td></tr>
<tr><td>SM Surveyoı</td><td>95</td><td>other hole that not surveyed, no report</td></tr>
</table>
The surveyed grids are based on UTM zone 47 northern hemisphere projection.
In October 2010, a LiDAR survey was commissioned over the Sihayo project area. The work was carried out by PT Surtech. Comparing LiDAR to the Benchmarks (GPS03 and GPS04) surveyed by PT Dwinad on 2005 resulted elevation differences from -1.3 meters to –1.4 meters. In the North West and Southern part of Sihayo, the collar elevations are lower than LiDAR. In the North East part of Sihayo, the</td>
</tr>
</table>

		elevations of the collars are higher than LiDAR elevation. Table below shows the elevation discrepancy for every collar surveyor **Surveyor** / **Discrepancy (+/-)** / **Description** **Dwinad** / 2 meters / Below LiDAR **Piramindo** / 0-5 meters, average 0.67 meters / Above and Below LiDAR **SCINDODATA** / 0-5 meters, average 1.84 meters / Above and Below LiDAR **Cetta Bumi** / 1-4 meters, average 2.1 meters / Below LiDAR **SM Surveyor** / 0-5 meters, average 1.77 meters / Above and Below LiDAR **Reference Section 2.6.1** Where considered appropriate, the LiDAR elevation model prepared for the purpose of estimating resources has been corrected based on drill hole collar data. It is considered that the topographic control is of sufficient quality for use in the estimation of the gold resource at Sihayo. However, further analysis is needed in future to understand the reason for the observed discrepancies.
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 spacing is generally of a detailed nature with drilling on a predominantly 50m NW-SE line spacing, 25m SW-NE hole spacing grid pattern over the near surface mineralisation with minor infill on some critical sections down to 25m NW-SE line spacing. • Of note is the slightly uneven distribution of drill holes by depth. This is a reflection of the objectives of the various drilling campaigns. Some of the earlier campaigns focused almost exclusively on the upper oxidised zone and so drill holes were generally terminated a few meters in to the Permian deposits. In such cases, holes were not drilled deeply enough to intersect the lower parts of the ore body. In some cases, this has a minor impact on the classification of the resource. • The mineralisation and geology show good continuity from hole to hole and sufficient to support the definition of a Mineral Resource or

Surveyor	Discrepancy (+/-)	Description
Dwinad	2 meters	Below LiDAR
Piramindo	0-5 meters, average 0.67 meters	Above and Below LiDAR
SCINDODATA	0-5 meters, average 1.84 meters	Above and Below LiDAR
Cetta Bumi	1-4 meters, average 2.1 meters	Below LiDAR
SM Surveyor	0-5 meters, average 1.77 meters	Above and Below LiDAR

		Ore Reserve and the classifications contained in the JORC Code (2012 Edition). • No sample compositing has been applied during sampling process. **Reference Section 2.6.4**
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *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.*	• The drill hole grid is oriented NE / SW which is approximately perpendicular to the strike direction of the mineralisation. • Owing to the generally flat lying nature of the ore bearing strata, the majority of the drill holes are vertical. A small number of holes were drilled at high angles to answer specific questions around ore body geometry and structure. • Consistent sampling bias is not considered to be an issue for the purpose of resource estimation.
Sample security	• *The measures taken to ensure sample security.*	• Samples are taken in covered trays from the drill site to the core shed at Sihayo site. Company personnel log, photograph and spilt the core. PQ core was quarter-cut, and NQ / HQ core half-cut. Remaining core is retained in the core shed as a geological reference and for use should further tests be required. • Chain of custody is managed by PTSM. • There is no mnetion of samples being held in secure storage areas on site while awaiting dispatch to the lab. Nor is there mention of the use of security seals / tags as is normally standard procedure.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Selective sampling based on lithology and apparent mineralisation was considered appropriate for the Sihayo project. However, there are clear instances where sampling was indiscriminant and excessive. Further refinement of the sampling procedures is necessary for future programs.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• PT Sorikmas Mining is an Indonesian Company owned under joint venture arrangement between Aberfoyle Pungkut Investments (API) and PT Aneka Tambang, Sihayo Gold Limited (formerly Oropa Limited) acquired all of the shares of Aberfoyle Pungkut Investments Pte Ltd in April 2004, and is currently managing the project in a joint venture 75% Sihayo Limited : 25% PT Aneka Tambang (Antam). Pungkut Project funding is by way of loans to Sorikmas and under the terms of the Loan Agreement, Antam is required to repay its share of loans to Sihayo or other lenders to Sorikmas from 80% of it is attributable share of available cash flow from production, until Antam's 25% share of the loans are repaid in full. PT SM was granted a 7th generation Contract of Work (COW) with the Indonesia Government by virtue of Presidential Decree No. B.53/Pres/1/1998 February 19, 1998. A COW is the highest standing legal tenure achievable in the Indonesian mining industry and describes in detail the rights and obligations of both the Company and the Government during the term of the COW. PT SM's initial COW covered an area of 201,600 ha, but as a result of subsequent relinquishments, the COW currently covers an area of 66,200 ha. • PT SM was granted Construction permit in concession COW by decree of Minister Energy and Mineral Resources No.490.K/30/DJB/ 2016. This license valid until 6 October 2019. • PT Sorikmas was granted borrow to-use-permit of forest areas which is valid 8 years until 19 September 2024 • The Company has a small but competent team to address mine development permitting, compliances and Government/community relations. This team is aware of the key first-tier permitting obligations and has a generically competent strategy for pursuing these permits.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Between 1995 and 1997, Aberfoyle Resources Ltd executed regional exploration work throughout the Pungkut project area. • Detailed surface exploration work over Sihayo-Sambung prospect was undertaken by Aberfoyle Resources between late 1997 and 1999 which included soil sampling, rock chip sampling and geophysics. • The initial drilling of Sihayo-Sambung deposit commenced in 1999. After a

		cessation of drilling between 2000 and 2002, work re-commenced in 2003 and steadily increased over the years until 2009, when there was a deliberate increase in drilling activity on the project.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• **Geological setting:** The Sihayo deposit is situated within a sedimentary rock package consisting of Permian age calcareous sedimentary rocks and volcanoclastics which are unconformably overlain by tertiary sediments (sandstones, mudstone and siltstone). Structures related to the Trans Sumatera Fault Zone (faults and sheared) and lithological contacts have most likely acted as dominant conduits of hydrothermal fluids that have deposited gold bearing jasper lodes by partial replacement of calcareous formations. • **Deposit Type** is Sediment hosted disseminated gold or Carlin Trend Type. The general characteristics are; - Non-visible gold in arsenopyrite or pyrite - Non-visible, extremely fine visible gold in oxidized units - Anomalous value; Ag, As, Hg and Sb. - Associated mineral; Realgar (Arsenic sulphide), Orpiment (Arsenic Sulphite), Stibnite (Antimony Sulphide). - Sediment host sequence containing Silty limestone and calcareous sediment. - Intense silicified zone – Jasperoid - Complexity of structure / high angle faults / shear zone. - Pervasive chemical carbonate dissolution/decalcification • **Mineralisation style**; Sihayo Mineralisation has formed via a process of chemical dissolution (decalcification) and recrystallization of the host carbonate (silty limestone) forming in-situ sedimentary brecciation (karst deposits) there by facilitating the migrating silica-sulphide rich fluids to penetrate and replace the carbonate – jasperoid. Cavity infill deposits in the Permian carbonates also appear to have been influential.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole*	• See separate table 2.4 and table 2.5 and separate figure 2.25 and Figure 2.26 See section 2.6.3 and section 2.6.4 • There are no exploration results reported for the immediate Sihayo area that have not been reported previously

	o *down hole length and interception depth* o *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.*	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Exploration results are not being reported separately from Resources and so are not elaborated further in this Section. • Aggregate intercepts have not been adopted in this study • No metal equivalent values are reported here. Silver is known to occur at Sihayo and may prove to be of significant economic value in future but the focus of the current study is on gold only.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• There are no exploration results reported for the immediate Sihayo area that have not been reported previously in the 2014 Feasibility Study (https://www.asx.com.au/asxpdf/20140129/pdf/42mc8tn80g48fg.pdf). Based on the historic work the relationship between drill hole intercept length and true ore body thicknesses is well understood.
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.*	• There are no exploration results reported for the immediate Sihayo area that have not been reported previously
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 separately from Resources.
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;*	• There are no exploration results reported for the immediate Sihayo-area that have not been reported previously

	metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• There are no exploration results reported for the immediate Sihayo-area that have not been reported previously. • No further work is presently planned, but may be considered in the future. Future work will most likely focus on infield drilling, sterilization drilling, confirmatory drilling and refinement of the geological/resource models and updating resource estimates.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Primary data was collected by Sorikmas geologists on laptop computers in Excel or Micromine tables using drop down codes. • Field data and original assay certificates compiled and validated by database administrators • For the purposes of this study, drill hole data was compiled into Micromine format. Mostly, the data was sourced from excel log sheets and SQL backup. Original assay certificates were also retrieved from Intertek Lab as part of the validation process, although not all of these were located. • The geological logging data was imported from original Excel log spreadsheets. Drill holes from 1999-2011 were logged using a different template, compared to the drill holes from 2013. The previous template allows the geological data logged by geological changes. The latest template allows the geological data logged by following the sample Interval. • The decision to import data from original source was made because there are differences between the original excel log sheet intervals and records stored in SQL backup. For example, the original lithological log sheet contains 10600 intervals and SQL backup contains 12332 records. There is no clear information about the reasons for this. • The sample and assay results are sourced from SQL backup tables on the site server. During the course of this study, it was discovered that the core sample data remain same • The data was validated in Micromine software whereby collar, assay, geology and survey entries were checked against each other for inconsistencies which included but was not limited to missing holes, overlapping intervals, missing intervals, incorrect northings, easting, elevations, azimuths deviation, dip deviations, hole depths comparisons, numbers out of range for all files, number sequencing variations, maximum hole deviations and sample intervals. Errors were highlighted data was coded. From the checking process, there were some issues that are already explained in section 2.10.2.
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 brief site visit was undertaken by the Competent Person and various other technical personnel in November 2017. The focus of the visit was to observe ground conditions on site, determine the status of exploration data and drill core held at the Sihayo exploration camp, and to observe drill core from key lithological and mineralogical type sections. Additional observations included viewing the location and extent of illegal miner workings in and around the CoW

Criteria	JORC Code explanation	Commentary
		area, and determining the extent /status of human habitations in and around the proposed mining area.
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.*	• The 2017 Geological model was built based on review of the previous geological model and interpretations from the 2013 H&SC model. A fundamental difference in the study teams approach was to recognize the likely intense structural complexity of the Sihayo deposit. Detailed analysis of the LiDAR data in combination with observation of drill hole logs adjacent to interpreted fault zones has led to a higher level of structural interpretation than previously attempted. Interpretation was carried out section-by-section on-screen using Micromine 3-D software. In each section, the ore body outlines were manually digitized, primarily on the basis of lithology, geotechnical information and then gold grade. Once all members of the geology study team were satisfied with the interpretations, a wireframe model was prepared prior to block modeling. This resulted in the production of 3-D solids that could be viewed and checked for sensibility, again on a section-by-section basis. • While the ore body geometry and structure is complex, it is considered that the current interpretation is a reasonable representation of the Sihayo deposit geology, and forms a robust foundation for the estimation of resources and reserves. • All data used was obtained from core logging and core measurements together with secondary information obtained from LiDAR. • Alternative interpretations are possible and likely however the competent persons do not expect that these potential alternatives will materially affect the estimated Mineral Resources. The Resources reported here reconcile well with previous estimates using the same data sets. • Most of mineralisation is controlled by lithology and structure. Lithological contacts have acted as the dominant conduits for distribution of hydrothermal fluids within the sedimentary pile. There are three main controls on the primary mineralisation in Sihayo as follows: ➢ The Tertiary / Permian unconformity ➢ Marble strata interbedded with silty to sandy limestone. ➢ Diorite porphyry sill. • As discussed above, the geological continuity is affected by local and regional faulting associated with deformation about the Trans Sumatra Fault Zone. Mineralization is focused at the Tertiary / Paleozoic unconformity, Cavity fill and regolith lodes were formed after erosion and exposure of primary Jasperoid

Criteria	JORC Code explanation	Commentary
		lodes. • The trend and geometry of the various domains within the Sihayo ore body are strongly influenced by the location and orientation of the host lithologies, and faults /shear zones. The strong directional trends evident have been used to inform the interpolation. • Factors that potentially affect the continuity of grade and geology include: o Structural disruption / termination / dislocation of mineralised zones at faults o Sedimentological pinching out of host units o Extreme natural grade variability (although the average coefficient of variance is acceptable). **Reference Section 2.12.2**
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 Sihayo project extent from SE-NW is approximately 1900 meter along strike N 310 ^{0}E. The Sihayo mineral resources were divided into 24 discrete domains of 33 wireframes with length variability from 40m until 900m and thickness from 1m until 63m, with average thickness of 11m. The elevation range for the Sihayo model is 880m to 1245m above sea level.
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*	• The coefficient of variance in the Sihayo ore body averages 1.07, confirming moderate complexity in grade distribution. Incorporating the level of spatial and statistical complexity (Coefficient of Variation and histograms), gold grades were interpolated into the block models using Ordinary Kriging into parent cells only, with discretisation of 5x5x5 subdivisions north, east and RL. • Top Cuts were applied to assay grade which has extreme value based on the grade histograms for each domain. Despite cutting, only a very small proportion of the assays were considered sufficient to remove significant outliers from the datasets. • The Sihayo ore body was divided into 33 individual wireframes, Geostatistical analysis was carried out separately for each group of wireframes. Fourteen small satellite wireframes did not have a sufficient number of samples for robust geostatistical analysis. Therefore, due to the similar strike orientation, a total of 19 semivariogram models were applied for grade interpolation of the satellite wireframes. • A spherical search ellipsoid was used to select the samples to be used in interpolating each block. Azimuth and plunge direction of each domain was

Criteria	JORC Code explanation	Commentary
	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 (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	chosen from the semivariogram model result. To ensure that data was declustered, eight sectors were used in the search ellipse with a maximum of 4 points per sector. Five runs were required using different search radii and parameters to populate all blocks. The first interpolation run was set up to include at least three drill hole sections, and search radii were determined by calculating range of 90% of total sill. The following table shows the OK search parameters.

OK PASS	Radius (Multiply)	Axis Factor (m)	Ellipse (Sector)	Min Point (Total)	Min Hole	Max Point (Sector)
RUN 1	1	90% of Total Sill	8	16	3	4
RUN 2	2			8	2	4
RUN 3	3			4	1	4
RUN 4	6			2	1	4
RUN 5	10			2	1	4

- Previous resource estimates were undertaken by Geobase Australia in 2004, Mining Assets Pty Ltd in 2008, RUL in 2010, Runge in 2012, Hellman & Schofield 2011 and Hellman & Schofield 2013. The H&SC estimates are the most comparable to the estimates presented in this study and reconcile well across a range of cut-off grades.
- For the purposes of this study, no by-products are assumed to be produced from the mineral processing.
- No other deleterious elements were modelled during this investigation.
- An empty block model was created within the closed wireframe models for gold mineralization and coded accordingly. The parent block size ranges from half to one quarter of the average drill spacing and sub cells had a minimum size of half a meter. The block extents are sufficiently large to provide for grade estimation.

	Extent (m)				Block Model Rotation		
AXIS	Min	Max	Block Size	Minimum Sub Block (m)	Azimuth	Plunge	Block Rotation
East	547400	548800	12.5	2.5			
North	101200	103300	12.5	2.5	313	0	0
Rl	870	1250	2.5	0.5			

- SMU were not employed during the modelling,
- Emplacement of gold, Arsenic and Antimony is said to be during the same mineralizing phase and as such the associated element are moderate correlated.
- Mineralization is focused at the Tertiary / Paleozoic unconformity, Cavity fill and regolith lode were formed after erosion and exposure of primary Jasperoid lodes. Mineralised envelopes were restricted by the geological domain, cavity

Criteria	JORC Code explanation	Commentary
		and stopped at the boundaries where faults were interpreted to have offset mineralized units. • Top Cuts were applied to assay grade which has extreme value based on the grade histograms for each domain. See **Reference section 2.12.7 TOP CUT** • Three methods were used to validate the OK (Ordinary Kriging) block model: ➢ The OK global grade was compared to an inverse distance weighting model (IDW) global grade. ➢ Swath plot analysis was performed on each drilling section line and also by long section. The swath plot statistically compared the OK block model result and drill hole assay. ➢ The OK model was checked locally on a section-by-section basis to determine if the original sample grades were similar to the block model grades.
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
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The natural log histogram shows a distinct break in the population between 0.27 g/t and 0.32 g/t. the population break also appears as an inflection in the probability plot. A comparison of the assay data with the geological logs confirms geological continuity at a grade of 0.3 g/t Au; this was selected as the minimum grade threshold separating mineralised and unmineralised material.
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.*	• Mining factors and assumptions are not considered here. This is because this aspects of the study focused on Geology and Resources. Mining factors are considered in Volume 3 and covered under JORC Table 1 for Reserves.
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*	• No metallurgical factors or assumptions have been used to restrict or modify the resource estimation. • Metallurgical recovery is estimated as a separate entity in the block model estimate. This is purely for the purpose of conducting additional analysis in future, particularly with regard to determining the effects on the Resource

Criteria	JORC Code explanation	Commentary
	treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	estimates of using leach recovery grades rather than fire assay grades.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• No environmental factors or assumptions have been used to restrict or modify the resource estimation. • Pak Augy Wilangkara, Study Manager for Sorikmas reports baseline studies completed by Golder in 2009 and 2010 as well as additional baseline data collected in 2012 by Golder. Assessment and ranking methodologies are contained within Section 5 of the report. Impacts on environment and surrounding habitats have been discussed and detailed findings provided. •
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.*	• Bulk density was estimated into block models based on a matrix of oxidation and lithology • Matrix based on logging records and core photography. Developed by PTSM geologists and H&SC for the 2014 DFS. Adopted for the purposes of this study in the absence of anything better. • Remains problematic in that there are only approximately 200 lab results that can be relied upon for accurate density reporting by lithology and oxidation state. • If the lithology or oxidation intensity was not available for given intervals, average values were assigned to those intervals.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• Classification was performed in a number of steps. As a first pass, blocks in the block model were flagged based on criteria that considered the number of drill holes, number of assays and the distance from the block to the assays utilised in the interpolated block grade. The results were viewed in Micromine's Vizex environment and were used to guide the creation of classification wireframes for each deposit. Classification wireframes were then adjusted based on drill hole density and the interpreted confidence in the geological and grade continuity of mineralisation in different parts of each orebody. • It is considered that the classification of Resources as presented is appropriate for the level of confidence in the available data in terms of quantity and quality. Uncertainty around grade and geological continuity is well considered in the criteria applied to each classification category. • The results of this study appropriately reflect the view of the Competent Person with regard to data veracity / integrity, geological interpretation, estimation

Criteria	JORC Code explanation	Commentary
		methodology, and resource classification.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Resource estimates presented in this study has been subjected to an internal review by Sorikmas' senior technical personnel and Board representatives on three separate occasions. • A comments register was maintained and changes incorporated where applicable.
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 compared with production data, where available.*	• Resource estimate using an approach or procedure deemed appropriate with recommendation; - Resolve issues around material density determinations, every opportunity should be made to collect samples across the full range of ore and waste materials in future drilling programs (Not by matrix of oxidation and lithology) - Continue to resolve database issues that have been identified during this study - Continue to develop a methodology for more accurately modelling and estimating the highly oxidised materials in the deposit. - Develop the structural model. - Develop the ore genesis model and controls on mineralisation. - Complete infill drilling in parts of the deposit where the historic drilling is sparse or nor deep enough to intersect continuations of the known ore bodies. - Resolve issues around surveying and in particular, the discrepancies between drill hole collar surveys and the LiDAR data. - Examine the use of domaining by interpolation method to better simulate the gold grade distribution. Ordinary Kriging has historically been the chosen method but there is very high Kriging variance in the central parts of the deposit around section 55225E, and it may be more appropriate to adopt Multiple Indicator Kriging in that area. • Total mineral resource estimate based on global estimate • No production data available

SIHAYO GOLD PROJECT August 2018
Reserve statement
JORC Code, 2012 Edition – Table 1

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.	PT Sorikmas Mining has a JORC 2012 compliant Mineral Resource. The mineral resource is inclusive of Gold (Au) only. The Resource model was developed by the Sorikmas Geology team. Interpretation was carried out section-bysection on-screen using Micromine 3-D software. In each section, the ore body outlines were manually digitized, primarily based on lithology and then gold grade. The sections were then tied together in the X and Y dimensions to determine the overall 3-D ore body
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral resources are reported inclusive of Ore Reserve. The Measured and Indicated portion of the Mineral Resource is included within the ore reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	A site visit has not been conducted by the competent person (Craig Mann). The Competent Person is satisfied that the descriptions of the planned infrastructure and locality provided by Sorikmas along with the surveyed 3D topography are sufficient information to carry out the mine design and classify the Ore Reserves.
	If no site visits have been undertaken indicate why this is the case.	The Sihayo site is in a remote area of Sumatra. No significant infrastructure is located at the site and no site visit was arranged.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	A Pre-Feasibility level of study was completed by Entech.
	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.	An update to the January 2014 PFS was completed in July 2018 and forms the basis of this Ore Reserves report.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	variable cut-off grade was calculated and attributed to the block model for the purposes of the Ore Reserves estimate. This variable cut-off grade utilized mining and processing costs to attribute fully costed and incremental ore. Calculations were based on an assumed gold price of US$1,300/oz.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pit. Open pit mine optimisation and detail design has been carried out on the Mineral Resource which forms the basis of the Ore Reserve. Open pit unplanned dilution has been mathematically modelled. Mathematical factors used were 10% mining dilution and 95% mining recovery.

<table>
<tr><td></td><td>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.</td><td>The selected mining methods for the Sihayo deposit are of a bench mining open pit method. The proposed open pit is to be mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 50 t class excavators and 38 t trucks. Due to the severity of the terrain some terrace mining will be required.</td></tr>
<tr><td></td><td>The assumptions made regarding geotechnical parameters (e.g. pit slopes, slope sizes, etc), grade control and pre-production drilling.</td><td>Pit wall angles are based on recommendations provided by Ground Risk Management (GRM). Holistic design criteria is within an acceptable level of accuracy for the project. Overall slope angles were utilised as inputs to the optimisation software for the analysis.
<table><tr><th>Depth Interval</th><th>Overall Slope Angle</th><th>Bench Height</th><th>Batter Angle</th><th>Berm Width</th></tr><tr><td>All Walls</td><td>52.5º</td><td>15 m</td><td>65º</td><td>5 m</td></tr></table>
There is a degree of uncertainty regarding geotechnical assumptions. The analysis undertaken by GRM has been completed to a PFS level of detail.</td></tr>
<tr><td></td><td>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</td><td>The Mineral Resource model supplied by Sorikmas was used for open pit optimisations (sih_ok_final_nov_2017.csv).</td></tr>
<tr><td></td><td>The mining dilution factors used.</td><td>Physicals are reported within the generated open pit mine designs for the open pit Ore Reserve. Mathematical dilution factor used was 10% based on industry standards for the proposed fleet size and geological spatial characteristics.</td></tr>
<tr><td></td><td>The mining recovery factors used.</td><td>Mathematical Recovery factor used was 95% based on industry standards for the proposed fleet size and geological spatial characteristics.</td></tr>
<tr><td></td><td>Any minimum mining widths used.</td><td>No minimum mining widths were used.</td></tr>
<tr><td></td><td>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</td><td>Any contained Inferred material included within the mine design has been treated as waste for the purposes of this Ore Reserve estimate. The Ore Reserve is technically and economically viable without the inclusion of Inferred Mineral Resource material.</td></tr>
</table>

	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Sihayo Open Pit operations have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. Planned infrastructure includes: • Processing facility • Offices, workshops and associated facilities; • Access / Haul Road; • Waste Dump • TSF; and • RoM Pad
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The processing facility comprises a standard CIL circuit with a ReCYN process. Ore will be hauled directly from the pit floor to the processing facility. It is expected that between 1.5 Mtpa and 2.0 Mtpa throughput will be achieved through the facility.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for surface ore but issues exist with the range of recoveries, being as low at 10% through to greater 95%.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	A number of studies and test work have been undertaken, spanning from 2005 through to 2014, including determining potential treatment routes for project development, testing samples based on depth ranges rather than weathering characteristics and further testwork carried out on 19 composite samples as recently as September 2013. While the overall metallurgical recoveries average 70%, recoveries for the 24 domains are detailed in the Production Target report.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements as none have been identified in the testwork.
	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.	There were two main leach test programs conducted – the agitated leach and bottle rolls tests on 19 composites from Sihayo and Sambung, and the Leachwell (CN09) test work conducted on individual samples. Each method has its own strengths and weaknesses and interpretation focuses on the method which provides the most accurate representation of the complexity of the orebody.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.

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.	Pak Augy Wilangkara, Study Manager for Sorikmas reports baseline studies completed by Golder in 2009 and 2010 as well as additional baseline data collected in 2012 by Golder. Assessment and ranking methodologies are contained within Section 5 of the report. Impacts on environment and surrounding habitats have been discussed and detailed findings provided.
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.	The Ore Reserve mine plan will require installation of infrastructure including processing facility, electrical power (supply, transmission, and distribution), water and compressed air supply, offices, ablutions, workshops, and surface magazines. Allowance has been made for supply and installation of this infrastructure. Suitable flat terrain exists for installation of all required infrastructure and the Competent Person sees no reason this infrastructure could not be installed at the site. Access to the site is via existing roads as well as the installation of a new site access road. Waste material will be contained in surface waste dumps and the construction of the TSF. A run-of-mine (ROM) pad will be required. Labour will be sourced from the local area on a residential basis.

Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital and operating costs have been supplied by Sorikmas, based on past operational data from similar operations and internal cost estimation at Sorikmas. Key assumptions are tabulated below:
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Single commodity pricing for gold only, using a long-term gold price of US$1,300 per ounce as per Sorikmas corporate guidance.

Gold price =	$ 1,300	/oz
Exchange rates =	Rp13,300	/US$
Interest Rate (Financial Lease) =	7.5%	p.a.
Down Payment for Lease =	20.0%	
Tenor (Financial Lease) =	4	years
WACC Rate =	8%	p.a.
Royalty =	3.75%	of total gross sales
Income Tax Rate =	25%	of EBT
Residual Value =	$ 8,314,882	
Opening Tax Losses =	$32,794,693	

	The source of exchange rates used in the study.	Sorikmas report in US dollars only. Therefore, no exchange rate is used or required
	Derivation of transportation charges.	All transportation charges have been supplied by Sorikmas, based on past operational data from similar operations. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on data supplied by Sorikmas, based on real costs from the Mirah gold project in Central Kalimantan which is a similar scale operation with a similar processing circuit. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	Indonesian government royalty of 3.75% has been used in the estimation of the Ore Reserves.
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.	Revenue has been based on the commodity price and exchange data provided by Sorikmas. Single commodity pricing for gold only, using a long-term gold price of US$1,300 per ounce, 3.75% Indonesian government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Using a long-term gold price of US$1,300 per ounce.
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.	Under Indonesian regulations, all dore products will be refined by Logam Mulia (Antam) and sold to an agreed party. Sensitivity analysis indicates that the Ore Reserves are still economically viable with negative commodity price movements of over 15%. 15% was considered appropriate using stochastic modelling.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Under Indonesian regulations, all dore products will be refined by Logam Mulia (Antam) and sold to an agreed party.
	Price and volume forecasts and the basis for these forecasts.	Sensitivity analysis indicates that the Ore Reserves are still economically viable with negative commodity price movements of over 15%. 15% was considered appropriate using stochastic modelling.

	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
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.	The Ore Reserve estimate is based on a financial model for that has been prepared at a "pre-feasibility study" level of accuracy (±15%) economic modelling, constructed by Sorikmas. All inputs from mining operations, processing, transportation and sustaining capital have been scheduled and evaluated to generate a full life of mine cost model. • Economic inputs have been sourced from Sorikmas. • A discount rate of 8% has been applied. • The NPV of the project is positive at the assumed commodity prices.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	No sensitivities other than gold price were conducted for cost model NPV calculations. Sensitivity analysis indicates that the Ore Reserves are still economically viable with negative commodity price movements of over 15%.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore	None.
	Any identified material naturally occurring risks.	A formal process to assess and mitigate naturally occurring risks will be undertaken prior to execution. Currently, all naturally occurring risks are assumed to have adequate prospects for control and mitigation.
	The status of material legal agreements and marketing arrangements.	None known.
	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	All regulatory approvals have been submitted and all permitted. All required studies such as flora and fauna surveys, stygofauna study, hydrogeological investigations, surface water assessment, pit lake modelling and assessment, geotechnical assessments and modelling, mine-waste characterisation study have been completed.

	third party on which extraction of the reserve is contingent.	Based on the information provided to him, the Competent Person sees no reason all required approvals will not be successfully granted within a reasonable timeframe.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Probable Ore Reserve is based on that portion of the Indicated Mineral Resource within the mine designs that may be economically extracted and includes an allowance for dilution and ore loss. The Proved Ore Reserve is based on that portion of the Measured Mineral Resource within the mine designs that may be economically extracted and includes an allowance for dilution and ore loss.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to the Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserves reporting processes has been subjected to an internal review by Entech's senior technical personnel in July 2018.
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 design, schedule and financial model on which the Ore Reserve is based has been completed to a "pre-feasibility study" standard, which represents a cost estimate accuracy of ±15% capital and operating cost, with a corresponding level of confidence.
	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.	All modifying factors have been applied to design mining shapes on a global scale.

	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.	Modifying factors have been applied on a global scale and future analysis of minable shapes may affect the Ore Reserve estimate. Considerations in favour of a lower confidence in the Ore Reserve include: • Future commodity price forecasts carry an inherent level of risk • There is a degree of uncertainty associated with geological estimates. The Ore Reserve classifications reflect the levels of geological confidence in the estimates. • There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the level of study.
	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.	Pre-mining, no production data to compare to yet

COMPETENT PERSON'S CONSENT FORM

Pursuant to the requirements of ASX Listing Rule 5.6 and clause 9 of the JORC Code 2012 Edition (Written Consent Statement)

Report Description

'Sihayo Open Pit Feasibility Study, July 2018'

Entech Pty Ltd

Sihayo Ore Reserves

19 July 2018

Statement

I, Craig Mann confirm that:

- 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 ("2012 JORC Code")
- I am a Competent Person as defined by the 2012 JORC Code, having five years' experience which is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Overseas Professional Organisation' ("ROPO" included in a list promulgated by ASX from time to time).
- I have reviewed the Report to which this consent statement applies.
- I am an employee working for Entech Pty Ltd and have been engaged by PT Sorikmas Mining to prepare the documentation for the Sihayo open pit deposit on which the Report is based, for the period ended 31 July 2018.

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Ore Reserves.

CONSENT

I consent to the release of the Report and this consent statement by the directors of:

PT Sorikmas Mining

Signature of Competent Person	Date: 19 July 2018
Professional Membership:	MAusIMM
Membership Number:	225373
Signature of Witness	Shane McLeay West Perth
	Print Witness Name and Residence (e.g. Town)

COMPETENT PERSON'S CONSENT FORM

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and Clause 9 of the JORC Code 2012 Edition (Written Consent Statement)

Report Name

Sihayo Definitive Feasibility Study, May 2018

(Name or heading to be publically released) (Report)

PT Sorikmas Mining

(Name of company releasing the Report)

Sihayo gold project, Sumatra, Indonesia

(Name of the deposit to which this report refers)

5th May 2018

(Date of Report)

Statement

I Anthony John McDougall confirm that I am the Competent Person for the Report and:

- 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 5-years' experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of the Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a "Recognised Professional Organisation" (RPO) included in a list promulgated by the ASX from time-to-time.
- I have reviewed the Report to which this Consent Statement applies.

I am a full time employee of PT Sorikmas Mining.

Consent

I consent to the release of the Report and this Consent Statement by the Directors of:

PT SORIKMAS MINING

Company name

Signature of Competent Person

Date: 5th May 2018

Professional Membership: Australasian Institute of Mining and Metallurgy

Membership number: 991536

Signature of Witness:

Print Witness and Address: Peter Mellor, Jl. Blumbang No.90, RT.5/RW.7, Kuningan, Karet Kuningan, Kecamatan Setiabudi, Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12940, Indonesia