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Zacks Small-Cap Research

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Theta Gold Mines Limited (TGMGF-OTCQB)

Pre-Feasibility Study (PFS) expected in 1Q 2021

Based on a calculation of fully diluted share value of attributable resources, which uses the most recent financial statements and studies/reports on the company's projects, a target of US$0.61 per share is indicated.

Current Price (02/12/21)	$0.31
Valuation	**$0.61**

OUTLOOK

Theta Gold Mines is **on the verge of transitioning** from a junior exploration company **to a gold producer**. By targeting high-grade, near-surface gold deposits in the brownfield Pilgrims Rest and Sabie Gold Fields in South Africa, management plans to **employ modern mining and gold processing techniques** to produce over 225,000 oz. Au during **Phase 1** of management's **4 Mine Strategy**. Furthermore, through multiple exploration campaigns, the company's total **Mineral Resources has increased by over 100%** over the last four years. A surface mining permit is in the final stage of review and is expected to be granted in the near future.

SUMMARY DATA

52-Week High	**$0.39**
52-Week Low	**$0.16**
One-Year Return (%)	**N/A**
Beta	**-0.25**
Average Daily Volume (shrs.)	**24,740**
Shares Outstanding (million)	**462.2**
Market Capitalization ($mil.)	**$143.3**
Short Interest Ratio (days)	**1.34**
Institutional Ownership (%)	**N/A**
Insider Ownership (%)	**N/A**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/M**
Earnings Per Share (%)	**N/M**
Dividend (%)	**N/M**
P/E using TTM EPS	**N/M**
P/E using 2021 Estimate	**N/M**
P/E using 2022 Estimate	**N/M**

Risk Level	**Above Average,**
Type of Stock	**Small-Value**
Industry	**Mining -Gold**

ZACKS ESTIMATES

Revenue
(in millions of $)

	Q1 (Sep)	H1 (Dec)	Q3 (Mar)	H2 (Jun)	Year (Jun)
2019		0 A		0 A	0 A
2020		0 A		0 A	0 A
2021		0 E		0 E	0 E
2022					

Earnings per Share
(EPS is operating earnings before non-recurring items)

	Q1 (Sep)	H1 (Dec)	Q3 (Mar)	H2 (Jun)	Year (Jun)
2019		-$0.007 A		-$0.009 A	-$0.016 A
2020		-$0.013 A		-$0.000 A	-$0.013 A
2021		-$0.014 E		-$0.005 E	-$0.019 E
2022					

Quarterly EPS may not equal annual EPS due to rounding

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EXECUTIVE SUMMARY

Management anticipates that a **Pre-Feasibility Study** (PFS) for the near-surface Beta and Frankfort mines will be completed during **1Q 2021**, which will include a **maiden underground mining reserve**.

The PFS will include details of the **modern mining methods** to be employed that will dramtically improve rate of production and the grade of the recovered ore. Some graularity has been given on the company's planned use of modern mining methods in the company's investro presentation and quarterly report (see *Modern Mining and Processing Methods* in Recent News section below).

Modern gold processing techniques are expected to enhance the gold recovery rate. Select results of a metallurgical from a 450 kg bulk sampling program were in a press release. Average gold recovery rates between 91% and 94% for some of the bulk composites from the Rietfontein, Beta and Vaalhoek Mines were well above management's expectations.

Theta gold Mines acquired a **5% equity interest in Bullion Asset Management** through the issuance of 2,087,682 TGM shares (worth AUD$700,000). The investment vertically integrates Theta Gold Mines up the precious metals value chain. Management foresees possible future synergies by collaborating with Bullion Asset Management (see Recent News section below for further details).

RECENT NEWS

Metallurgical Results from Bulk Sampling Program

On November 18, 2020, Theta Gold mines provided an update on the **underground gold bulk sampling program.** Sampling was undertaken at the Rietfontein, Beta and Vaalhoek mines in order to assess the viability of reopening these historic underground mines. The underground rock chip samples were collected manually from the *in situ* vein exposures on face, sidewall and roof channels across the total vein widths. On the surface, samples were taken from the Rietfontein tailings dump in order to gauge historical Run-of-Mine (ROM) ore. All told, nine 50 kg **bulk samples** were collected **totaling 450 kg**.



Diagnostic leach tests (DLT) and conventional Carbon In Leach (CIL) process test work were performed. The **highlighted metallurgical results** using CIL resulted in an average gold recovery between 91% and 94% for **bulk composites** from the Rietfontein, Beta and Vaalhoek Mines, all of which had **average head grades between 4.79 g/t and 7.52 g/t** (see table below). The average gold recovery rates were well above management's expectations.

Highlights of Gold Bulk Sampling Metallurgical Test Work

Element	Unit	RTF Dump Composite[2]	RTFWRMet 1 Composite[3]	RFTMet 1 Composite[4]	RFTMet 2 Composite[4]	BETMet 1 Composite[4]	VaalHMet Composite[4]
Au Head Grade	g/t	1.12	11.60	4.60	5.68	7.76	5.80
Au (duplicate)	g/t	1.12	10.90	4.92	5.44	7.48	5.92
Au (triplicate)	g/t	1.20	11.20	4.84	5.32	7.32	5.96
Au av Head Grade	**g/t**	**1.15**	**11.23**	**4.79**	**5.48**	**7.52**	**5.89**
Gravity recoverable gold	Unit	RTF Dump Composite	RTFWRMet 1 Composite	RFTMet 1 Composite	RFTMet 2 Composite	BETMet 1 Composite	VaalHMet Composite
Gravity (80% -75um scout test)	**%**	**7.82**	**7.96**	**41.05**	**27.84**	**12.04**	**26.03**
CIL Recovery Results	**%**	**62.74**	**78.69**	**95.53**	**92.09**	**90.91**	**91.63**

Theta Gold Mines Quarterly Report December 2020

The average gold recovery from the **Rietfontein dump composite** was 62.7% on an average head grade of 1.15 g/t. A unique composite sample from the Rietfontein ROM pad (RTFWRMet) assayed at a much higher average head grade of 11.23 g/t, though was processed with a lower average gold recovery rate of 78.7%.

Rietfontein Tailings Dump Samples

Mine	Sample Locality	Sample Tag	Samples No.	SGS Assay Grab Au g/t
Rietfontein Mine	Tailings Dump	RTFDUMP1	1	0.76
		RTFDUMP2	1	1.15
		RTFDUMP3	1	1.03
		RTFDUMP4	1	1.12
		RTFDUMP5	1	0.40
		RTFDUMP6	1	1.10
		RTFDUMP7	1	0.44
		RTFDUMP8	1	0.62
		RTFDUMP9	1	0.93
		RTFDUMP10	1	1.52
		RTFDUMP11	1	1.49

Theta Gold Mines Press Release November 18, 2020



Pre-Feasibility Study

While advancing the Theta Open Pit Starter Project, the Board of Directors has approved the commissioning of a Pre-Feasibility Study (PFS) in order to **simultaneously advance the development of the Beta and Frankfort underground mines**.

Drawing on the 2017 scoping studies on the Rietfontein and Beta Mines and the easily accessible gold faces encountered in the recent 450 kg underground gold bulk sampling program, the **PFS is**

anticipated to convert some of Theta's Measured and Indicated (M&I) Mineral Resources at the Beta and Frankfort Mines (currently 575,00 oz.) **into a Mining Reserve**.

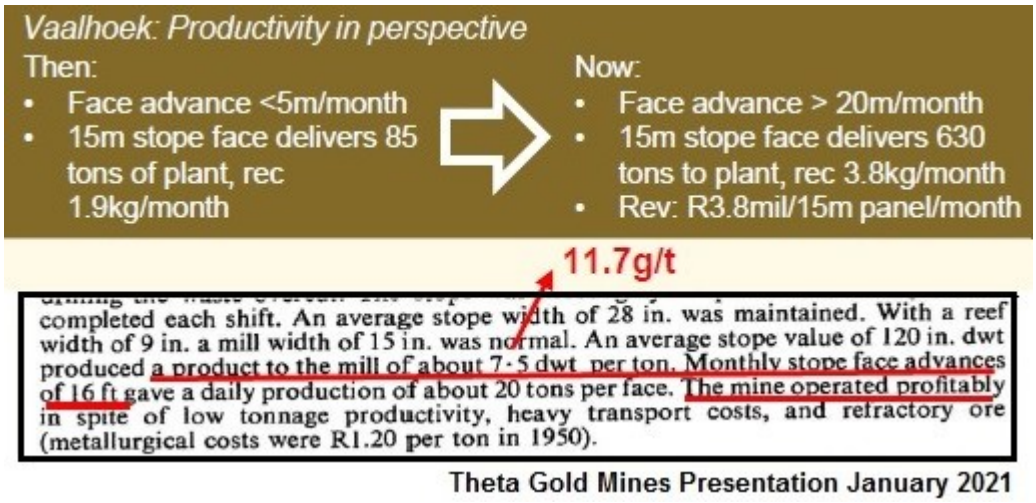
Work that has already been completed will be incorporated into the PFS includes

- the 450 kg underground **bulk sampling program**, along with the related **metallurgical results**
- a review of the immense repository of **historic information** for the locations of **easily accessible gold reefs**
- an **underground workings survey** carried out to assist metallurgical studies, which led to the "discovery of many kilometers of accessible, on-reef, pre-developed underground tunnels,"[i] as well as access to old mining faces
    - identified targeted underground stopes, along with mode of access through existing historical adits and shafts
    - completed rock engineering drilling and tests of unconfined compressive strength (UCS) at targeted stopes
    - reviewed suitability of mining method
    - completed mine planning and scheduling

This maiden underground mining reserve for the Beta and Frankfort Mines would supplement Theta's existing 205,000 ounces of open-pit mining reserves from MR83. Management anticipates that the PFS will be completed by the end of first calendar quarter of 2021.

Modern Mining and Processing Methods

Management has shared some specifics about bringing modern mining methods and technology to the company's South African gold projects in the latest Investor presentation (January 2021). **Historically, conventional manual** (mining by hand) **methods were utilized** to extract ore from gold reefs. Manual operations are time-consuming with low levels of ore extraction. The potential use of normal-sized mining equipment is not economical, since the ore's average grade is too low.



Modern methods employ mechanized equipment. In Theta's case, the preferred method of underground mining is **Mechanized Long Hole Stoping** due to the narrow, flat dipping reef systems prevalent at Pilgrims Rest and the Sabie Gold Fields. Low-profile mechanized equipment can **accurately cut gold reefs**, particularly those narrower than 60 cm. The result is **higher grade ore** since only the channel width of the ore body is mined. The end result of processing **higher grade ore** is that **cost efficiency per ounce improves dramatically**. In addition since less ore is transported to the mill (like the **Sandvick low-profile LHD loader)**, intra-mine **transportation costs are reduced**. Furthermore, an added benefit is that the life of the tailings dam is lengthened, since less ore and post-processing waste is produced.

Modern underground mining methods & technologies to boost Theta's underground mine economics:

- Modern mining methods – to recover maximum grade with improved dilution
- Modern gold processing – to maximise gold recovery
- Modern mining planning – to maximise production rates



Sandvick low Profile LHD – At a height 1.6 m designed for operation in narrow-reef drill drives

Theta Gold Mines Presentation January 2021

Bullion Asset Management

In January 2021, Theta Gold Mines invested in **Bullion Asset Management** (BAM) by participating in BAM's $1.7 million Series A financing. The investment was part of a strategic agreement, under which Theta issued 2,087,682 shares (worth AUD$700,000) as an initial subscription to acquire roughly a 5% equity interest in Bullion Asset Management Services Pte Ltd.

The management of Theta Gold Mines views the transaction as a means to vertically integrate up the precious metals value chain and also foresees possible future synergies by collaborating with Bullion Asset Management, including:

- opportunities to invest in advanced gold projects and operating mines through Dec. 31, 2025
- the ability to offer any future Theta dividends in cash or in the gold tokens issued by xBullion.
- the capability to access liquid capital by tokenizing part of future gold production

Based in Singapore, Bullion Asset Management is a fin-tech bullion management business that focuses on the financing, tokenization and trading of gold and other precious metals. Through blockchain technology, BAM can deliver digital ownership of physical bullion at a low cost and also offers a storage solution for the management of bullion and other assets. BAM plans to service precious metal miners, fund managers, gold bullion/precious metal dealers and digital asset investors.

Bullion Asset Management's wholly-owned subsidiary **xBullion Holdings launched a digital gold token** (**xBullion GOLD**) in September 2020 on the Ethereum blockchain. The token trades on

Zipmex (a Singapore-based digital assets exchange) and represents direct ownership in vaulted, audited, insured and redeemable gold bullion. GOLD currently trades against the Singapore dollar (SGD), the U.S. dollar, Australian dollar (AUD), Thai Baht (THB) and the Rupiah of the Republic of Indonesia (IDR). One token of GLD represents one gram of gold and is redeemable in 1,000 token increments for an underlying 1 kilogram physical bar of 99.99% pure gold. Bullion Asset Management plans to launch additional commodity-backed tokens for silver and other precious metals.

Bullion Asset Management and xBullion's accounts and physical gold are audited by BDO, a global auditing firm. The accounts are audited annually and all physical gold is audited quarterly.

Bullion Asset Management already has many metals supply, corporate and logistic partners:

- StoneX (NASDAQ: SNEX), a Fortune100 commodity trading house
- Baird & Co, UK's largest independent gold refiner & trader and a supplier to the Royal Mint
- Jaggards, a reputable Australian bullion and numismatic merchant

Along with Theta Gold Mines, other significant investors in BAM are:

- Decentralised Capital Pte Ltd, is part of the Aura Group and specializes in blockchain assets and investments
- Jaggards Trading Pty Ltd, Australian bullion and rare coin merchant
- DigitalX Ltd (ASX:DCC) (OTCMKTS:DGGXF) (FRA:VSL), a blockchain technology and digital asset management services company

Theta Gold's strategic agreement with BAM allows Theta to:

- acquire up to 15% of Bullion Asset Management before January 17, 2022
- opt-in and invest in up to 50% of BAM's future gold mining acquisitions (advance gold projects or operating mines) through December 31, 2025
- offer shareholders the option of receiving Theta's dividends in cash or GOLD tokens
- tokenize part of Theta's future gold production

Progress Report - **Environmental Authorization (EA) for Open Pit Mining**

On October 26, 2020, Theta Gold Mines was informed by the **DMRE** (the South African Department of Mineral Resources and Energy) that it **supports Theta's application** to amend MR 83, which requests a **permit for open pit mining** for the Theta Open Pit Starter Project. The last step in the process is the approval of the application for Environmental Authorization (EA) to permit open-pit mining on MR83. **Currently, the application is being reviewed**. MR 83 already is approved for underground mining, the processing of ore and the use of an existing tailings dam.

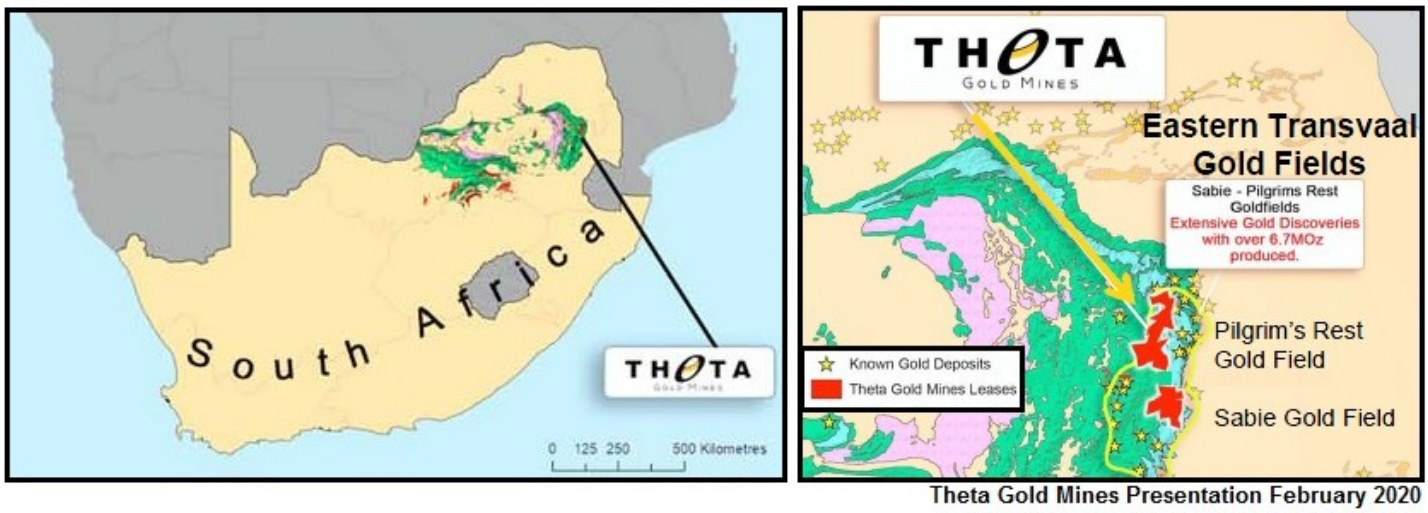
KEY POINTS

- Theta Gold Mines (OTCQB: TGMGF, ASX: TGM) is a junior gold development company **on the threshold of becoming a gold producer**.
- The company holds mining rights encompassing **62,000 hectares** (620 km^2) situated in the **Eastern Transvaal Gold Fields** of northeastern **South Africa** that contain more than 40 historical mines.
- Management is implementing a **4 Mine Strategy** in order to monetize 2.75 million ounces of gold
    - **Phase 1** targets shallow, **near-surface**, **high-grade gold reef deposits** around Theta Hill (in MR83), which is within 3km of the existing, fully permitted processing plant
        - **Scoping Study** completed
        - **Feasibility Study** completed
            - Estimated **gold recovery** of **234,063 oz. Au**

        - At gold price of $1,600,
            - estimated **IRR of 157%**
            - **payback period** - only 6 months
    - **Phase 2** also targets shallow, near-surface deposits that are continuations of the mineralized reefs of Phase 1 that extend into another mineral right (MR 341)
        - **Scoping Study** completed
        - Estimated **resource of 500,000 oz. Au**
        - Drilling programs planned to upgrade and expand resource
    - **Phase 3** is the project to mine the **underground** resource at the **Rietfontein Mine** (MR358 and MR10161)
        - **Scoping Study** completed with est. **resource of 779,800 oz.** Au (8.42 g/t)
    - **Phase 4** consists of mining the **underground** mineral resource at the **Beta Mine** (MR83)
        - **Scoping Study** completed with est. **resource** of **1.003 million oz. Au** (6.75 g/t)
- Theta Gold Mines owns an existing **CIL processing plant** with a 2.5 million-tonne **tailings storage facility**
    - A **ball mill** was acquired and delivered to the plant site. Management plans to upgrade its current nameplate capacity (820,000tpa) by adding a crusher. By reducing the feed size, throughput is expected to increase to **1.2 MMtpa**.
    - In January 2020, an optimized plant study was completed raising the planned operating capacity to 600,000tpa.
    - Management is working on securing the financing to refurbish and upgrade the CIL processing plant.
- The estimate of total (Measured, Indicated and Inferred) mineral resources has been upgraded five times since 2017 from 2.99 million to 6.03 million oz. Au.
    - An innovative application of resource-type specific **3-D electronic geological models** helped upgrade the estimate for total Mineral Resources by 38% in April 2018
    - Multiple **drilling campaigns** have driven the other increases in total resources
- Theta Gold Mines continues to explore the reef systems in several brownfield gold mines utilizing modern techniques.
    - In February 2020, a new **gold mineralization system model** was developed by CSA Global Consultants. The improved understanding of the mineralization will greatly aid in the determination of future drilling targets
- We expect the stock of Theta Gold Mines to react to upcoming announcements concerning the permit for surface mining on MR83, financing for refurbishing the CIL processing plant and the commencement of mining operations.
    - Also expected is news flow concerning the advancement of:
        - Phase 2 - drilling program to expand resource
        - Phase 3 – results of underground exploration program at Rietfontein Mine
- Management expects to be pouring gold by the end of 2021.

OVERVIEW

Headquartered in Sydney, Australia, Theta Gold Mines Limited (OTCQB: TGMGF, ASX: TGM) is a junior gold development company **on the verge of transitioning to a gold producer**. The company controls a highly prospective area of **62,000 hectares** (620 km^2) situated in the **Eastern Transvaal Gold Fields** of northeastern **South Africa** through its 74% ownership of Transvaal Gold Mining Estate Limited (TGME). Founded in 1895, TGME is first gold mining company incorporated in South Africa and holds nine mineral mining tenements in the **Pilgrims Rest Gold Field**, along with tenements in the **Sabie Gold Field**, both of which encompass more than 40 historical mines in the area.



Theta Gold Mines Presentation February 2020

The intent behind management's 4 Mine Strategy is to develop two historically productive goldfields in the Eastern Transvaal Goldfield, the Pilgrims Rest Gold Field and the Sabie Gold Field. Management's development plan differs from prior attempts. Management's method is strongly based on the **optimization** of the project, not only with respect to initially **targeting higher-grade near-surface deposits**, but also by **optimizing the methods of both mining and processing**.

New Initiatives

Theta Gold Mines (formerly known as Stonewall Resources) acquired the TGME and Sabie Mines properties in 2010 and proceeded to develop them. After a brief period of extract gold from tailings dams, dumps and reef residue material from 2011 to 2014, there were conventional efforts to revive the Rietfontein Mine. In 2018, with a new management team led by Bill Guy, several innovative initiatives point to success for the current development plan.

- **Modern mining techniques** are going to be employed during the implementation of the 4 Mine Plan in order to deal with the challenges of extracting gold ore from the reef systems present in the Pilgrim's Rest and Sabie Gold Fields. Management talent with specific expertise in pursuing reefs has been brought on board to help execute management's strategy
- The **speed of progress** is impressive with 24 press releases having been issued since May 2018 that detail the progress being made towards initiating production
- The company is at the brink of being granted an Environmental Assessment, which opens the door to the immediate commencement of surface mining on MR 83
- In addition, the exploration campaigns since 2013 have **increased total Mineral Reserves by over 100%** (see Mineral Reserve section)
- The company is **building a new, modern CIL (Carbon-in-Leach) plant** on the existing permitted footprint of the old plant, together with the planned refurbishment of the old processing mill includes the **implementation of modern gold processing techniques** to deal with the metallurgical challenges posed by the nature of sulfide ore in order to maximize gold recovery
- A new geological model was developed in February 2020 that better explains the origin of the gold deposit that should enhance the effectiveness of exploratory efforts in the future.

Equity Developments

Nov. 2018	Consolidation of shares on a 10:1 basis
Nov. 2019	TGMGF listed on OTCQB market
July 2020	Theta Gold Mines Limited (OTCQB: TGMGF) became DTC eligible

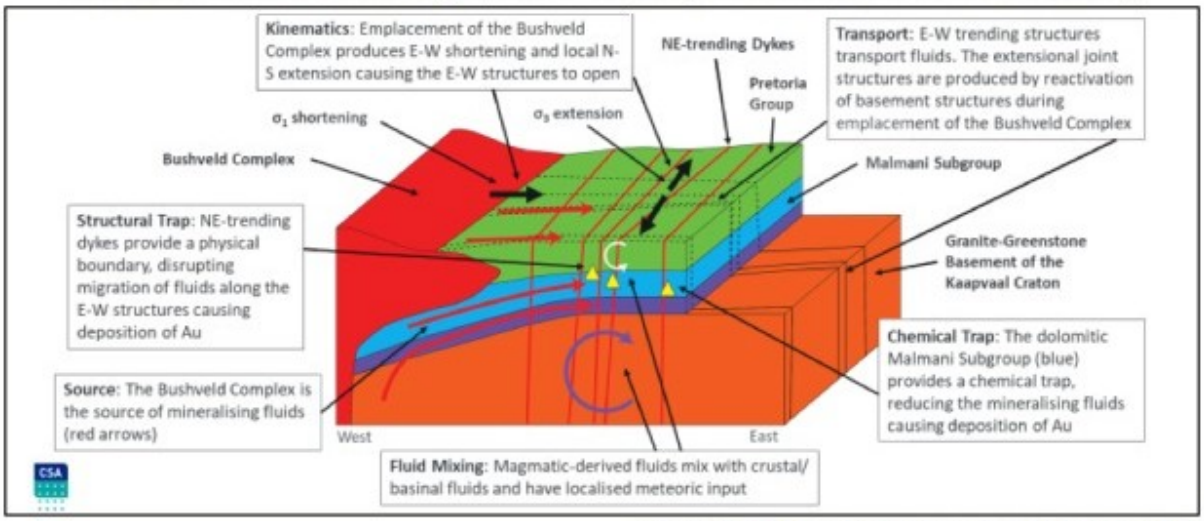
In November 2019, the company's shares were admitted to the OTCQB market under ticker TGMGF. The company's primary listing is on the Australian Securities Exchange under the ticker TGM. In July 2020, TGMGF became DTC eligible, which facilitates electronic trading of the stock, particularly by individual investors.

GEOLOGY OF EASTERN TRANSVAAL GOLD FIELDS

The **Transvaal Basin** is a large original basin, which consists of a succession of sedimentary rock depositions, roughly 12km in thickness. During the Neo-Proterozoic era, the intrusive **Bushveld Complex** (the main source of gold-bearing fluids) was emplaced within the sedimentary rocks of the Transvaal Basin resulting in epigenetic mineral deposits. The Bushveld Complex is the largest (67,000 km^2 or 25,900 sq. miles) layered igneous intrusion on the Earth's crust. The large, saucer-shaped Bushveld Complex hosts the world's greatest resources of platinum group metals (PGM).

The Mining Rights held by Theta Gold Mines are located within the Pilgrim's Rest and Sabie Gold Fields, which are situated within the **Eastern Transvaal Gold Fields**, which are spatially related to the igneous Bushveld Complex. Several other small epigenetic gold deposits have been discovered in the eastern Transvaal Basin; however, the significant mineralization in the restricted area of Pilgrim's Rest and Sabie is believed to a result of the pressure, heat and transportation of acidic mineralized fluids emanating from the emplacement of the eastern limb of the Bushveld Complex.

Gold Mineralization System Model (CSA Global Consultants)



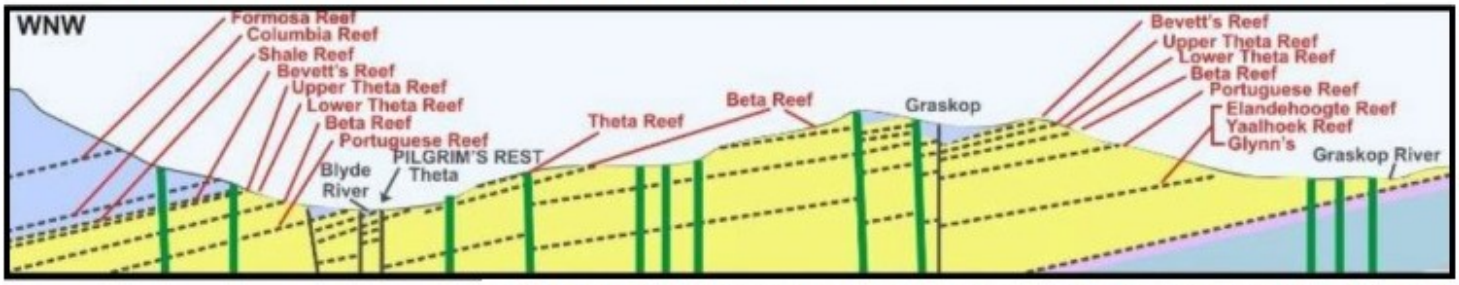
Theta Gold Mines Presentation February 2020

The gold mineralization found on Theta's properties display the characteristics of a **Carlin-type deposit**, namely epigenetic, sediment-hosted disseminated gold deposits grading between 1 to 20 g/t. Gold may occur in several forms, including free gold or gold telluride or may be associated with quartz veining. Due to the availability of economic concentrations of gold, Carlin-type deposits have been mined from both open pit and underground operations depending on the depth of the mineralization.

The sub-surface gold mineralization discovered in the Eastern Transvaal Gold Fields occurs as concordant and discordant reefs (veins), which have a NNE-SSW strike within host sediments of the Pretoria and Chuniespoort Groups in the Transvaal Supergroup (a South African stratigraphic term that refers to all rocks formed in the Transvaal Sedimentary Basin approximately 2.2 billion years ago). These **relatively flat-lying, gold-bearing reef systems** (dipping gently between 2^o to 7^o to the west) occur in different stratigraphic horizons within the sedimentary host rocks. **The most prolific recoveries have come from concordant bedding parallel reef horizons** comprised of narrow quartz-carbonate or

quartz-sulfide veins. Such mineralized zones are usually are formed by an over-pressured fluid system, which is consistent with the Bushveld Complex emplacement theory.

Schematic of Reef System in Pilgrim's Rest and Sabie Gold Fields



Theta Gold Mines (formerly Stonewall Resources) Presentation December 2016

AUSTRALIAN SECURITIES EXCHANGE (ASX) - SUMMARY DATA

Theta Gold Mines Limited

ASX: TGM

Current Price	**AUD 0.32**	**Average Daily Volume (shrs.)**	**200,436**
52-Week High	**AUD 0.40**	**Shares Outstanding (million)**	**512.781**
52-Week Low	**AUD 0.18**	**Market Capitalization (million)**	**AUD 164.090**

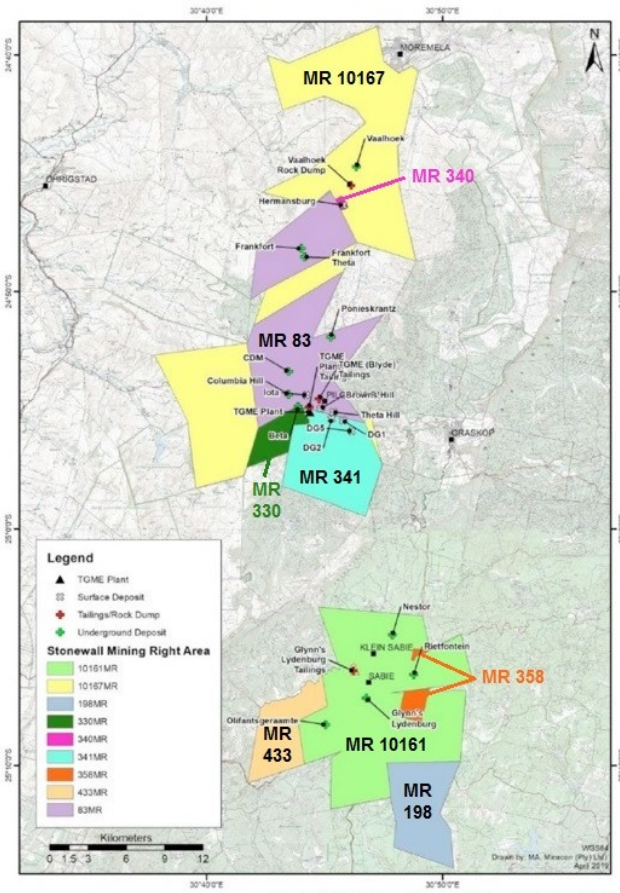
LOCATION AND MINING RIGHTS

The gold mineralization tenements of Theta Gold Mines are located approximately 370 km northeast of Johannesburg in the vicinity of the towns of Pilgrim's Rest and Sabie. The Project area consists of **two blocks of contiguous tenements** that extend roughly 65 km in a north-south direction and 25 km east-west.

The block surrounding **Pilgrim's Rest** consists of **five mining rights** (north-to-south MR10167, MR340, MR83, MR330 and MR341). Often referred to as the **Northern and Central areas**, the most prodigious historical mines (each milling over 1,000,000 tonnes of ore) were Dukes-Clewer (1.79 MM tonnes of ore milled), Theta (1.68 MM), Vaalhoek (1.3 MM) and Columbia Hill (1.028 MM) mines.

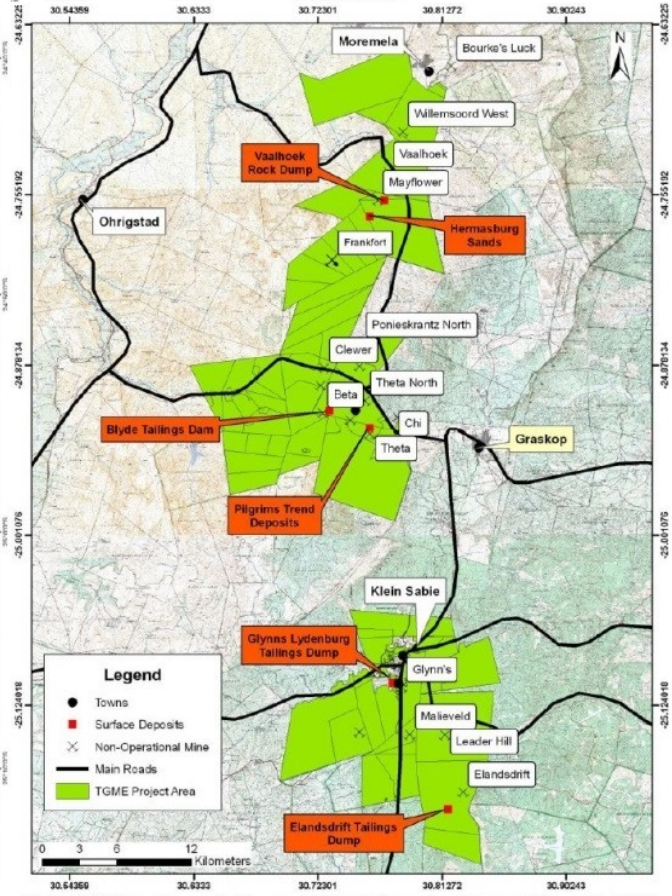
The block surrounding **Sabie** consists of **four mining rights** (north-to-south MR10161, MR358, MR433 and MR198) Dubbed the **Southern section**, it is composed of the assets of Glynn's Lydenburg Ltd, which was acquired by TGME in 1955). Between 1895 and 1955, the Southern section (under the control of Glynn's Lydenburg Ltd) milled 3,428,000 tons and produced 1.241 million ounces of gold.[ii] The historic **Rietfontein mine**, which milled 227K tons of ore that produced 65K oz. of gold and 36K oz. of silver, is the resource target for **Phase 3** of management's 4 Mines Strategy.

Mining Rights



Theta Gold Mines Presentation October 2020

Farms



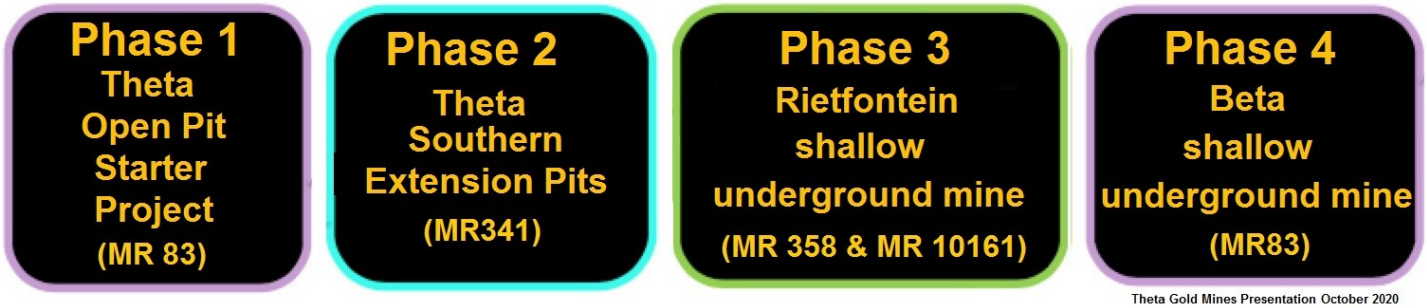
Theta Gold Mines (formerly Stonewall Mining) Competent Persons' Report Apil 2012

Theta Gold Mines Ltd		
Mining Rights	**Farms**	**Select Historic Mines**
Northern & Central Sections (contiguous to the town of Pilgrim's Rest)		
MR 10167 (aka TGME)	Buffelsfontein, Granite Hill, Willemsoord, Manx, Vaalhoek, Klondyke, Sacramento, Hermansburg, Desire, Doomhoek, Rotunda Creek, Blackhill	Willemsoord Mine, *Vaalhoek Mine*, Mayflower Mine
MR 340 (aka Hermansburg)	Hermansburg	Hermansburg Sands
MR 83 (aka Greater TGME)	Frankfort, Krugershoop, Morgenzon, Ponieskrans, Peach Tree, Van der Merwes Reef	*Dukes Hill Mine*, Frankfort Mine, *Clewer Mine*, *Columbia Hill Mine*, Iota Mine, Theta Hill Mine
MR 330 (aka Beta & Grootfontein)	Grootfontein, Grootfonteinberg	Beta Mine
MR 341	Grootfontein	
Southern Section (contiguous to the town of Sabie)		
MR 10161 (Sabie)	Spitskop, Hendriksdal, Grootfontein, Waterval, Sheba, Vertroosting, Rietfontein, Olifantsgeraamte	Rietfontein Mine, Nestor Mine, Olifantsgeraamte Mine, *Glynn's Lydenburg Mine*
MR 358 (aka Rietfonein)	Waterval, Spitskop, Maliveld Vallei	Leader Hill Mine
MR 198 (aka Elandsdrift)	Elandsdrift	Elandsdrift Mine
MR 433 (aka Glynn's Lydenburg)	Grootfontein, Olifantsgeraamte	

Mine in italics - over 1 MM tonnes milled

4 MINE STRATEGY

Management is implementing a **4 Mine Strategy** in order to monetize 2.75 million ounces of gold **over five years**. A methodical 4 phase program has been developed, where each phase focuses on the mining of specific gold deposits in the Pilgrim's Rest and Sabie Gold Fields. In the process, the company is expected to create a platform with a production profile of 160,000 ounces per annum, which could monetize the other deposits, particularly additional open pit opportunities and Glynn's Lydenburg mine.



Phase 1 targets shallow, **near-surface deposits** in MR83 (Theta Hill, Browns Hill and Columbia Hill) that are very close (within 3km) of the existing, fully permitted processing plant. Known as the **Theta Open Pit Starter Project**, it includes rehabilitating the existing CIL plant and expanding its annual processing capacity to 600,000 tonnes. Management expects to be pouring gold by end of 2021.

Phase 2, or the **Theta Open-Pit Extension Project**, also targets shallow, **near-surface deposits** that are continuations of the mineralized reefs of the Theta Hill and Browns Hill systems that extend into MR 341.

Phase 3 targets shallow, underground gold deposits at the **Rietfontein underground** mine (MR358 and MR10161), approximately 40 km south of the processing plant.

Phase 4 targets shallow, underground gold deposits at the **Beta underground** mine in MR83.

In March 2018, Bill Guy joined the Theta Gold Mining (then known as Stonewall Resources) as a Director, and was appointed Chairman of the Board in September that year. At the time, the company's strategic business plan had been shifted so that in the near-term, Theta Gold Mines would first mine and process shallow, near-surface projects to demonstrate the economic viability of the company's South African properties (Phases 1 & 2) and also to help fund the advancement of the Rietfontein and Beta mine toward production.

The objective of Phase 1 is to mine and process the near-surface reef deposits in MR83 near the processing plant. **Management plans to attain a production profile of 40,000 ounces per year during Phase 1** and expand it to greater than 80,000 ounces per annum during Phase 2 when the near-surface deposits that extend into MR341 are mined. Eventually, **in Phase 4, management anticipates that the annual production profile will reach 160,000 ounces**.

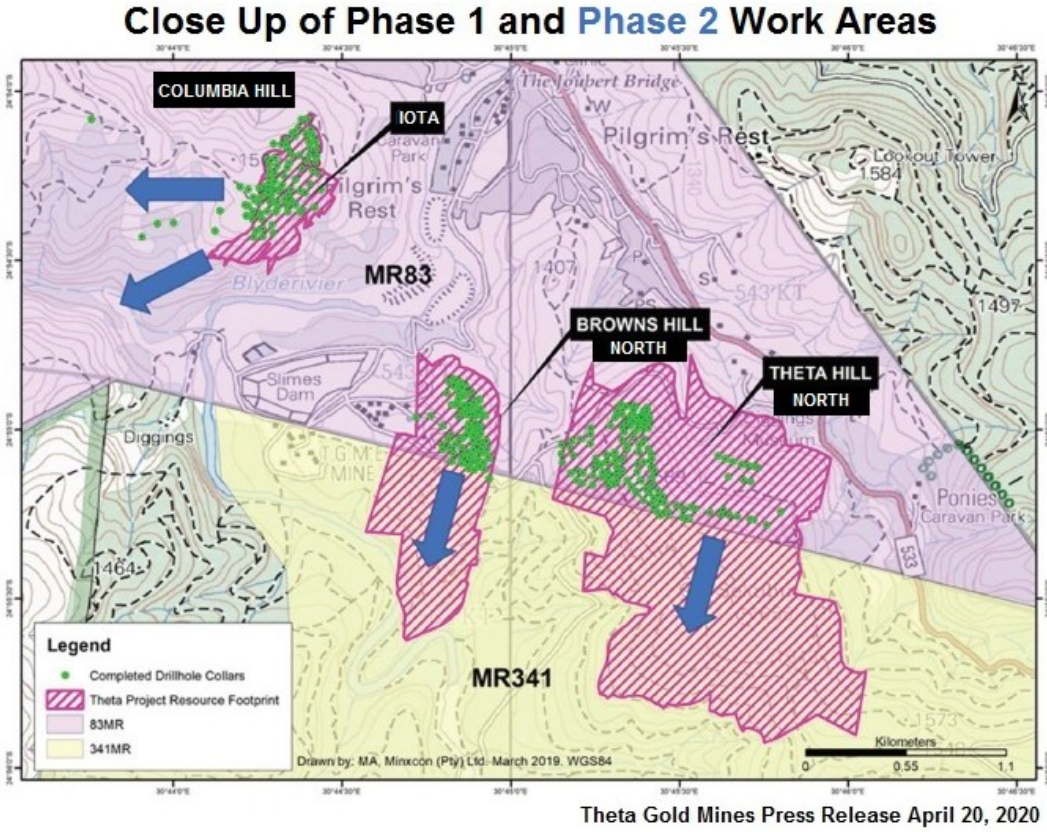
Also, the mineral resources being targeted in each successive phase increases in size. In **Phase 1**, according to the mine plan, the expected production is **234,063 ounces** of gold; the estimate for **Phase 2** is approximately **500,000 ounces**. The estimates for the Rietfontein and Beta Mines have not yet been put forward. Further exploration is expected to increase the mineral resources at both mines. However, utilizing the currently available resource estimation reports announced in May 2017, Rietfontein Mine's Indicated and Inferred mineral resource is 779,800 ounces (average grade

8.42 g/t), of which 242,200 ounces are in the Indicated category. The Beta Mine's Measured, Indicated and Inferred mineral resource is 1,086,000 ounces Au (average grade 6.1 g/t).

Theta Gold Mines Ltd				
Phase	Mine Targets	Mining Right	Type of Mining	Est. Ounces to be Recovered
Phase 1	Theta, Browns Hill, Columbia Hill	MR83	open pit	234,063
Phase 2	Theta, Browns Hill	MR341	open pit	500,000
Phase 3	Rietfontein Mine	MR358 & MR10161	underground	779,800
Phase 4	Beta Mine	MR83	underground	1,028,000
			TOTAL	2,541,863

PHASE 1 (Theta Hill North - Browns Hill - Columbia Hill [Iota] Open Pit Project in MR83)

Phase 1 of management's 4 Mine Strategy consists of surface mining three locations on the southernmost portion of MR83, along with waste rock dumps and select areas sampled by Rand Mines in the 1990's. All three primary locations (Theta Hill, Browns Hill and Columbia Hill) are situated between 700m to 3km from the existing CIL processing plant and tailings-storage facilities. Significant progress has been made toward initiating gold production, namely defining the resources, completing a feasibility study and optimizing it and selecting a mining contractor for trial mining.



To date, management has significantly advanced the Theta Open Pit Starter Project and has completed many critical developmental milestones.

Theta Open Pit Starter Project - Developmental Milestones

Oct. 2018	Completed scoping study on open-cut mining at Theta Hill
May 2019	Open pit **Feasibility study** completed
Aug. 2019	Completed optimized plant layout
Oct. 2019	Purchased used 2.5MW ball mill
Jan. 2020	Completed optimized plant design study
Feb. 2020	Developed **new Mineral System model** for Eastern Transvaal Gold Fields
Feb. 2020	Submitted Environmental Authorization (EA) for open pit surface mining on MR 83
March 2020	Ball mill delivered to site
April 2020	Phase 1 Theta Open Pit Starter Project **optimization study** (added 33,158 oz. Au)
July 2020	Selected Digmin Group as the preferred mining contractor
Oct. 2020	DMRE supports EA to permit open-pit mining on MR83

Feasibility Study

Completed in May 2019 (and now outdated), the initial feasibility study only called for the mining of the Theta Hill, Browns Hill and Columbia Hill near-surface deposits. At the time, gold was trading in the $1,270-to-$1,310 per ounce range. Management conservatively used a base case with a gold price assumption of $1,257. At that price, the project's processing rate was expected to be 500,000 tons per year, which over the five-year LoM would **recover 200,905 ounces Au** providing a projected post-tax **internal rate of return (IRR) of 65.1%**. The **payback period** from the start of production was estimated to be **14 months**.

Optimized Feasibility Study
Theta Open-Pit Starter Project (MR83)

Real Discount Rate	Unit	US$1369/oz Case	US$1500/oz Case	US$1600/oz Case
NPV @ 5%	**USDm**	**61**	**85**	**104**
Internal Rate of Return (IRR)	%	92.7%	123.0%	157.2%
Total ounces in Mine plan	oz	259 607	259 607	259 607
Total Oz Recovered	oz	234 063	234 063	234 063
Average Payback Period	Month	9	8	6
Total Capital Requirement	USDm	31.4	31.4	31.4
All In Sustaining Cost (AISC)	USD/oz	911	855	822
Return on investment	USDm	206%	350%	476%
EBITDA over LOM	USDm	108.5	150.2	181.4
Gold Price	USD/oz	1 369	1 500	1 600
Exchange Rate	ZAR/USD	14.64	16.00	17.00

Theta Gold Mines Annual Report 2020

Optimized Feasibility Study

An optimized study completed in April 2020 improved the economics and commercial viability of Phase 1. Though management conservatively highlights the base case that uses a gold price of $1,500 per ounce, we believe that the stretch case (at $1,600 an ounce) more realistically reflects the current gold price environment; hence, we will use those figures.

The **optimized study increased the ROM** ore with material from certain nearby waste rock dumps (an Inferred Resource) and select areas sampled by Rand Mines in the 1990's. Furthermore, the

processing rate was increased to 600,000 tons annually. Consequently, the **LoM** increased from 5 years to **6 years and eight months**.

The gold recovery increased 16.5% to **234,063 ounces**. As a result, LoM EBITDA is now projected to be US$181.4 million compared to the former US$99.6 million, boosting the expected **IRR** to **157%**.[iii] The peak funding requirement is estimated to be US$26.7 million.

With higher grade ore being mine and process first, the **payback period** from the start of production is estimated to be only **six months**. In addition, **gold production in the first year** of mining operations has been increased to **49,500 ounces** versus 46,300 ounces in the Feasibility Study completed in May 2019.

Infrastructure

Due to the historic mining activities in the area, Theta Gold Mines owns a processing plant near Pilgrims Rest. The site is easily accessible by road and has access to electrical power and water through properly permitted licenses. In addition, the company also has a large storage facility at Sabie.

Processing Plant

The company's processing plant site includes a **carbon-in-leach (CIL) circuit processing plant**, office building, store, machinery sheds, laboratories and equipment sheds. Also, there is a **tailings storage facility** with a capacity of 2.5 million tonnes of tailings material.

Theta Gold Mines Processing Plant Layout



Theta Gold Mines Press Release April 20, 2020

Mining Sites

The mine sites of the company's Phase 1 Theta Open Pit Starter Project are located within MR83, right on the border with MR341. The site of the company's processing plant lies on MR341, right on the border with MR83 and less than 3km west of Theta Hill.

Milling Capacity

Under the optimized plant study that was completed in January 2020, the CIL processing plant is designed to operate at a capacity of 600,000tpa, an upgrade from the initial feasibility study (released May 2019), which recommended a capacity of 500,000tpa.

The recently acquired **ball mill**, which has a nameplate **capacity of 820,000tpa**, easily meets the requirements of the optimized plant study. At the time of the initial feasibility study, the facility was equipped with a legacy ball mill with a capacity of 240,000tpa.

In October 2019, the company purchased a previously-owned 2.5 megawatt (MW) ball mill for ZAR 5.5 million (US$360,000). The cost for disassembly and transportation from Rustenburg to the plant site near Pilgrim's Rest was approximately US$165,000. The ball mill was delivered to the CIL plant site in late-March 2020.

The unit appears to be in excellent condition and comes with a spare girth gear, two spare motors, two spare gearboxes, seven spare slip pads and many other key parts and spares. A comparable new ball mill with spares would cost approximately US$3.6 million. The newly acquired ball mill significantly upgrades the plant's milling capacity.

The **tailings storage facility** is also compliant with the optimized study, since it is approved to operate at a disposition volume of up to **600,000tpa**.

Mining Contractor

In July 2020, Theta Gold Mines contracted **Digmin Group** to perform the trial mining activities at the Phase 1 Starter Theta Project. Once the permitting process has been successfully completed, Digmin will conduct two box cuts at the nearby Iota and Browns Hill pits. The trial mining exercise will help management select the appropriate grade control practices to be used at Starter Theta Hill Project. Thereafter, management expects to negotiate a final mining contract with Digmin.

Funding of Capital Expenditures

Phase 1 of management's 4 Mine Strategy requires a relatively low level of capital expenditures. The initial feasibility study completed in May 2019 estimated that the total capital required was US$34.26 million, of which US$6.89 million was directed towards mining and US$25.53 million was allocated to refurbishing the plant and tailings storage facility. However, according to the latest optimization study (completed in April 2020), the **total capital requirement** needed to **implement Phase 1** will be only **US$31.4 million**.

Relying on the latest optimization study, management believes that the **peak funding requirement** will be approximately **US$29 million**. The latest optimization study also estimates that at a $1,600 gold price (stretch case) the payback period should be only six months, based on the mind schedule to process high grade material first. Given the relatively small amount of capital funding required, a short estimated build time of only nine months and the quick payback period, it is difficult to foresee that it would be difficult for the company to find the financing necessary to fund Phase 1.

Permitting Status

March 2011	Granted Water Use License
March 2011	Tailings storage facility approved for the disposition of residues for 2.5 million tons at a rate of up to 600,000tpa
Oct. 2013	Granted underground mining permit in MR83
Oct. 2013	Plant permitted for the processing of ore

With management having made the decision to pursue an open cut operation to mine near-surface reefs in the vicinity of Theta Hill/Browns Hill/Iota, the necessary permit documentation for **amending the underground mining permit to allow surface mining on MR83** was submitted to Department of Mineral Resources and Energy (DMRE) in February 2020. The final comment was received from the South African Heritage Resources Agency (SAHRA) on October 7, 2020. The process is in the final stages of the Environmental Assessment (EA). On October 26, 2020, the DMRE wrote a letter of support for Theta's application. **A decision is expected in the near future**.

Pathway to Production

- A previously-owned ball mill was acquired in October 2019 in order to boost the processing capacity of the CIL plant. The ball mill was delivered to the plant site in March 2020 and is awaiting refurbishment.
- The permitting process is almost complete except for the amendment granting approval for surface mining on MR83. The approval of the company's Environmental Assessment (EA) is pending.
- **At least US$30 million in funding will be required** to implement Phase1.

Upcoming milestones (expected in next three quarters)

1) Completion of surface mining permitting process for the Theta Open-Cut Starter Project on MR 83. The EA is nearing completion. The DMRE supports the approval of the amendment that would allow for surface mining.
2) Completion of detailed engineering design plan for CIL processing plant
3) Secure financing for refurbishing and upgrading the CIL processing plant
4) Select a plant construction contractor to bring the CIL processing plant on line
5) Begin refurbishment of ball mill & CIL processing plant
6) Complete current program of underground exploration work at Rietfontein and Beta Mines
7) Secure final project financing for mining operations
8) Select mining contractor and sign contract

Upcoming exploratory milestones

1) Complete geo-technical drilling program for numerous underground mines
2) Exploration to increase underground mining reserves
3) Pre-feasibility study on numerous underground mines (expected in 1Q 2021)
4) Start drilling program to expand resource in Theta Hill area
5) Conduct geophysical surveys guided by new gold mineralization system model

Currently, management is in discussions with five engineering firms for the construction contract to refurbish the CIL processing plant

If all items on timetable proceed according to plan, within the next 12 months, Theta Gold Mines should be able to

1) start the refurbishment and expansion of the gold processing plant and
2) commission the beginning of mining activities

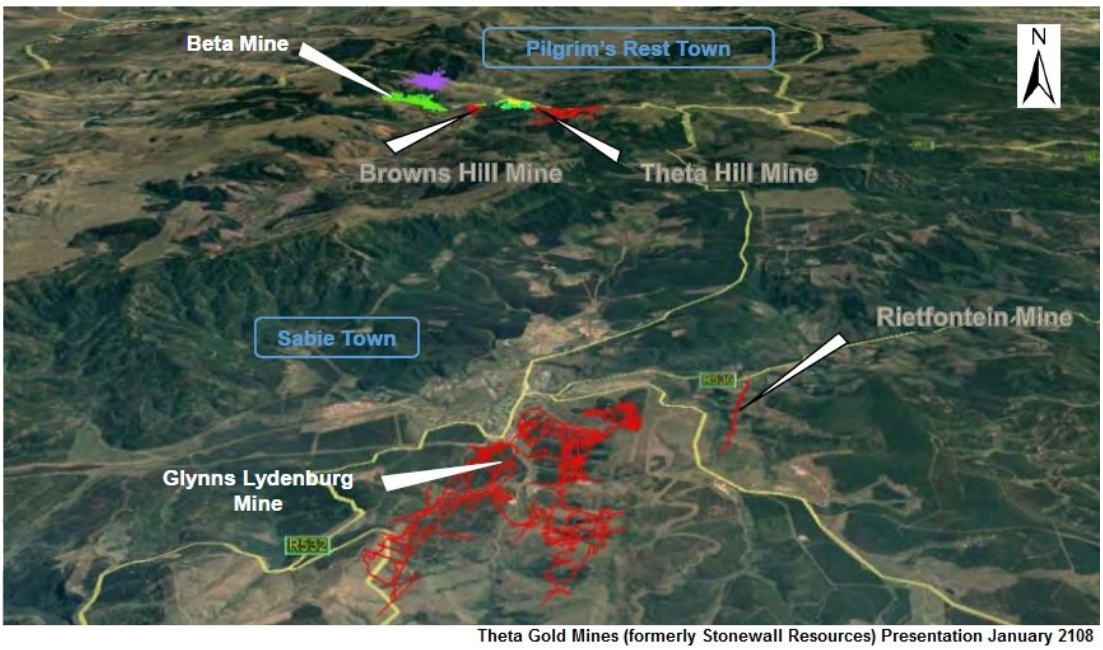
PHASE 2 (Theta Hill South – MR341)

Phase 2 is simply an **open pit extension of the same ore body** from Theta Hill and Browns Hill in Phase 1 that crosses the boundary from MR 83 into **MR 341** (see the blue arrows in the map at the beginning of the Phase 1 section). Approximately 500,000 ounces of gold are available to convert into a

Mining Reserve through a definition drilling program. Management estimates that during Phase 2, the annual goal production rate will be able to be increased to at least 80,000 ounces.

PHASE 3 (Rietfontein Mine - shallow underground mine)

The **Rietfontein Mine** (on MR358 and MR10161) is the mining target for **Phase 3** of the company's five-year 4 Mine Strategy. The project is located at approximately 40 km from the CIL processing plant on MR341.



Theta Gold Mines (formerly Stonewall Resources) Presentation January 2108

The Rietfontein project has been advanced with a **Scoping Study** (completed in February 2017) and an **Estimated Resource** (May 2017 and upgraded in September 2018). This brownfield project with **3km of underground workings** is **fully permitted for underground mining**.

Phase 3 targets shallow, high-grade (average grade 8.42 g/t) reef deposits, primarily in quartz vein structures. The company plans to mine and truck pregnant ore to the CIL processing plant. The gold mineralization consists of both horizontal flat line reefs and vertical components, the latter formed in structural traps that will require stope mining techniques.

Rietfontein Milestones

Feb. 2017	**Scoping Study** on Rietfontein Mine
May 2017	**Updated Scoping Study** on Rietfontein Mine
Sept. 2018	Gold mineral **resource upgraded** to 779,800 oz. Au

A scoping study was completed on the Rietfontein underground mine in February 2017. The study indicated that the mine contained an estimated resource of 2.55 million tonnes grading 11.02 g/t for 905,000 ounces of gold. The scoping study was updated in May 2017, in which the suggested mineable resource was 1.47 million tonnes grading at 9.51g/t Au. The estimated contained gold was 448,000 ounces with 387,000 ounces recoverable**,** assuming 10% dilution and a recovery rate of 86%.

Subsequently, the estimated mineral resource of the Rietfontein Mine was revised to 4.59 million tonnes grading 8.42 g/t for **779,800 ounces of gold** in September 2018.

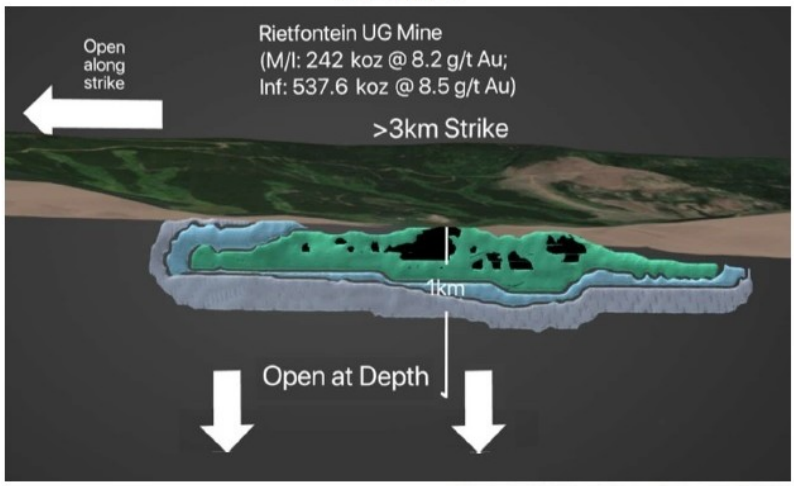
Mineral Resources - Rietfontein Mine

Resource Classification	Reef Grade	Stope Grade	Reef Width	Stope width	Reef Tonnes	Stope Tonnes	Au Content	
	g/t	g/t	cm	cm	Mt	Mt	Kg	koz
Total Indicated	14.57	8.20	52	92	0.52	0.92	7,534	242.2
Total Inferred	14.06	8.52	57	94	1.19	1.96	16,721	537.6
Total	**14.21**	**8.42**	**56**	**94**	**1.71**	**2.88**	**24,255**	**779.8**

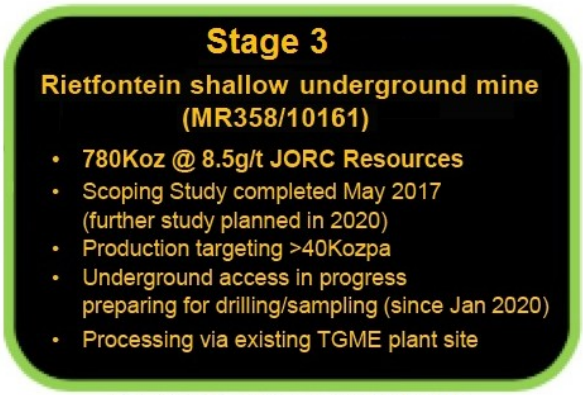
Theta Gold Mines (formerly Stonewall Resources) Presentation October 2018

Management has plans for further exploration of the Rietfontein Mine in order to upgrade and expand the estimated mineral resource. The Rietfontein Mine sits in 16km structure with only 3km of confirmed gold mineralization. The ore body is open at depth and along strike. The campaign includes sampling, drilling and metallurgical test work.

Rietfontein Underground Mine
3 D Visual



Theta Gold Mines Presentation April 2020



Theta Gold Mines Presentation October 2020

In 2018, the mine was partially dewatered by natural decant, and the underground incline was improved for better access to level IV. In 2020, the surface adit entrance to level IV was opened, and underground samples were gathered for metallurgical test work, the results of which are expected in November.

Work continues on the preparation of a Preliminary Feasibility Study on the Rietfontein underground mine. In the meantime, the company is attempting to confirm that permits are in place for underground mining and potentially for surface mining in the area.

PHASE 4 (Beta Mine - shallow underground mine)

Phase 4 consists of mining the underground mineral resource at the Beta Mine in MR83 and transporting the ore to the company's CIL processing plant, which is situated immediately adjacent to the Beta Mine in MR341. The Beta deposit is permitted for underground mining in both MR83 and MR341; an area west of the Beta Mine (located in MR330) has an underground mining permit pending.

The current estimated mineral resource at the Beta Mine is 5.7 million tonnes grading at 6.10 g/t for **1.086 million ounces of gold**, of which 48% is in the Indicated category. Work continues on the preparation of a Preliminary Feasibility Study on the Beta underground mine.

Beta Mine Milestones

May 2017 **Scoping Study** completed on Beta Mine
Sept. 2018 Gold mineral **resource upgraded** to 1.086 million oz. Au

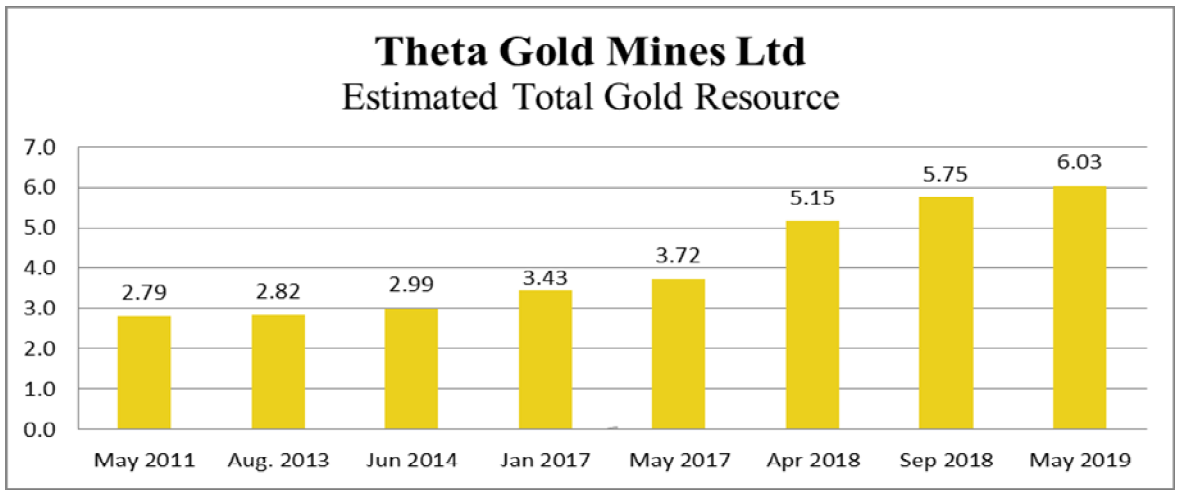
Mineral Resource Statement - Beta Mine

Resource Classification	Mine	Reef	Reef Grade	Stope Grade	Reef Width	Stope width	Reef Tonnes	Stope Tonnes	Au Content	
			g/t	g/t	cm	cm	Mt	Mt	Kg	koz
Indicated	Beta	Beta	21.66	6.58	23	90	0.716	2.357	15 506	498.5
Inferred	Beta	Beta	16.51	5.43	25	90	1.107	3.367	18 285	587.9
Total Indicated & InFerred			**N/A**	**N/A**	**24**	**90**	**1.823**	**5,724**	**33 791**	**1 086.4**

Theta Gold Mine (formerly Stonewall Resources) Press Release September 26, 2018

GOLD RESOURCE ESTIMATES

In 2010, when Stonewall Resources (now named Theta Gold Mines) acquired TGME, which includes the Sabie Mines properties. The total (Measured, Indicated and Inferred) estimated mineral resource was 2.794 million ounces of gold. In May 2013, a Competent Person's Report (that included additional resources for Dukes Hill and the Beta Main Rock Dump) increased the estimated mineral resource to 2.823MM oz. Au. Over time, management has undertaken multiple drilling campaigns, which have resulted in upgrading the resource six additional times, with the most significant increases occurring in 2018 and 2019.



Recent Total Resource Upgrades

April 2018 Increased Total Mineral Resources to **5.15 million ounces** from 3.72 million ounces
- Driven by a geological modeling project

Sept. 2018 Total Mineral Resources increased to **5.75 million ounces**
- Added Maiden Resource on Theta Open-Pit Starter Project

May 2019 Increased Total Mineral Resources to **6.03 million ounces**
- Added Ore Reserve statement on Theta Open-Pit Starter Project

Looking back at relatively recent prior increases in the estimated mineral resources, the 38% increase in resources to 5.147MM oz. Au in **April 2018** was driven by a **geological modeling project**, along with new open-cut discovery at **Vaalhoek** that was included in the estimated resource. The modeling project involved a **reinvestigation of the historical data** for the purpose of collating, capturing and digitizing the information from historic production and sampling since 1873 (along with 20,000+ meters of drilling results) and then **applying modern modeling and estimation techniques**. Also, during the process of reviewing historical information, additional historical sampling data was uncovered.

Not only did the modeling project incorporate the use of **3-D electronic geological models**, but also four types of digital 3-D models were utilized on the different types of ore bodies, namely a sub-vertical discordant reef model for cross reefs, a sub-horizontal concordant reef model for leaders, topographical surficial reef model for eluvial deposits and a topographical TSF model for tailings and dumps. The modeling project led to a 146% increase in Mineral Resources at **Glynn's-Ladenburg**

Importantly, the modeling project identified a number high grade, **shallow reef structures amenable to open pit mining**, specifically at Theta Hill, Browns Hill and Columbia Hill. **This lends to greater confidence in management's Phase 1 project**.

Project	Type of Potential	Comment
Rietfontein	Lateral and depth extensions	Lateral extension is possible to the south which is untested as well as at depth below the current historical mine
Beta	Lateral extension	Lateral extension of the main Beta "payshoot"
CDM	Lateral extension	Lateral extension to the south toward Dukes Hill south
Vaalhoek	Depth extensions and open pit opportunities	Near surface potential exists on the Vaalhoek reef and Thelma Leader reef
Glynns Lydenburg	Shallow lateral extensions	The new model has identified new high grade exploration targets for possible near surface open pit opportunities
Theta and Browns Hill	Shallow lateral extensions	The new geological interpretation has indentified Theta Hill and Browns Hill as potential open pit targets that are currently being drilled
Columbia Hill	Shallow lateral extensions	The new geological interpretation has indentified Columbia Hill as potential open pit target that will be drilled

Theta Gold Mines (formerly Stonewall Resources) Press release May 1, 2018

The driver of the increase in the mineral resources in **September 2018** was the **maiden Mineral Resource** for the **Theta Hill Open Cut Starter Project**, which added **599,710 oz. Au** to the total estimated mineral resource.

Theta Hill - Maiden Open Pit Resource

Resource Classification	Open Pit Mine	Reef	Diluted g/t	Diluted cm	Diluted Mt	Au Content Kg	Au Content K Oz
Indicated	Theta Hill	Upper	1.13	100	0.185	210	6.74
	Theta Hill	Lower	4.26	100	0.587	2 500	80.37
	Theta Hill	Beta					
Total Indicated			**3.51**	**100**	**0.772**	**2 709**	**87.11**
Inferred	Theta Hill	Upper	1.85	100	0.776	1 440	46.28
	Theta Hill	Lower	7.17	100	1.632	11 734	377.25
	Theta Hill	Beta	2.13	102	1.302	2 770	89.07
Total Inferred			**4.27**	**101**	**3.710**	**15 944**	**512.60**
Total Indicated and Inferred			**4.14**	**101**	**4.482**	**18 653**	**599.71**

Theta Gold Mines Press Release September 26, 2018

In May 2019, Theta Gold Mines upgraded the **gold resource** to a total of **6.026MM oz.** grading at 4.18 g/t, which is a **101% increase since June 2014**. Of the total, **1.312MM ounces are open pit resources**. Most recently, the exploratory drilling campaigns have focused on expanding the indicated mineral resource for the **Theta Open-Pit Starter Project** (Phase 1 of management's 4 Mine Strategy).

Estimated Total Mineral Resources

Mineral Resource Classification	Type of Operation	Tonnage	Gold Grade	Gold Content	
		Mt	g/t	Kg	koz
Measured	Underground	0.091	5.37	489	15.7
Total Measured		**0.091**	**5.37**	**489**	**15.7**
Indicated	Underground	4.774	6.21	29,661	953.7
	Open Pit	7.161	2.11	15,091	485.2
	Tailings	5.244	0.83	4,373	140.6
Total Indicated		**17.179**	**2.86**	**49,126**	**1,579.4**
Inferred	Underground	21.452	5.22	111,880	3,597.0
	Open Pit	5.922	4.35	25,730	827.3
	Tailings	0.023	0.57	13	0.40
	Rock Dump	0.121	1.64	199	6.40
Total Inferred		**27.518**	**5.01**	**137,823**	**4,431.0**
Grand Total		**44.788**	**4.18**	**187,438**	**6,026.2**

Theta Gold Mines Press Release May 16, 2019

Estimated Resources and Reserve for Phase 1 Theta Open-Pit Starter Project

In preparation for implementing the company's Phase 1 Theta Open-Pit Starter Project, management has conducted drilling campaigns to better delineate and estimate the minable resources in the Theta Hill area. In a drilling program that commenced in November 2017 and continued through May 2019, 371 vertical holes were drilled totaling 18,857 meters. Consequently, the increased estimated mineral resource that was announced in **May 2019** also included an **Estimated Mineral Resource** and **an Ore Reserve statement** for the **Phase 1 Theta Open-Pit Starter Project**. In addition, there were adjustments to the Optimized Mining Plan.

Estimated Mineral Resources for Theta Project

Mineral Resource Classification	Open Pit Mine	Reef	Reef Grade	Reef Width	Content	Reef Tonnes	Au Content	
			g/t	cm	cm.g/t	Mt	Kg	koz
Indicated	Total Theta Project	All	2.14	246	526	5.2	11,157	358.7
Inferred	Total Theta Project	All	3.30	132	435	4.9	16,202	520.9
Total Indicated and Inferred			**2.70**	**190**	**514**	**10.1**	**27,359**	**879.6**

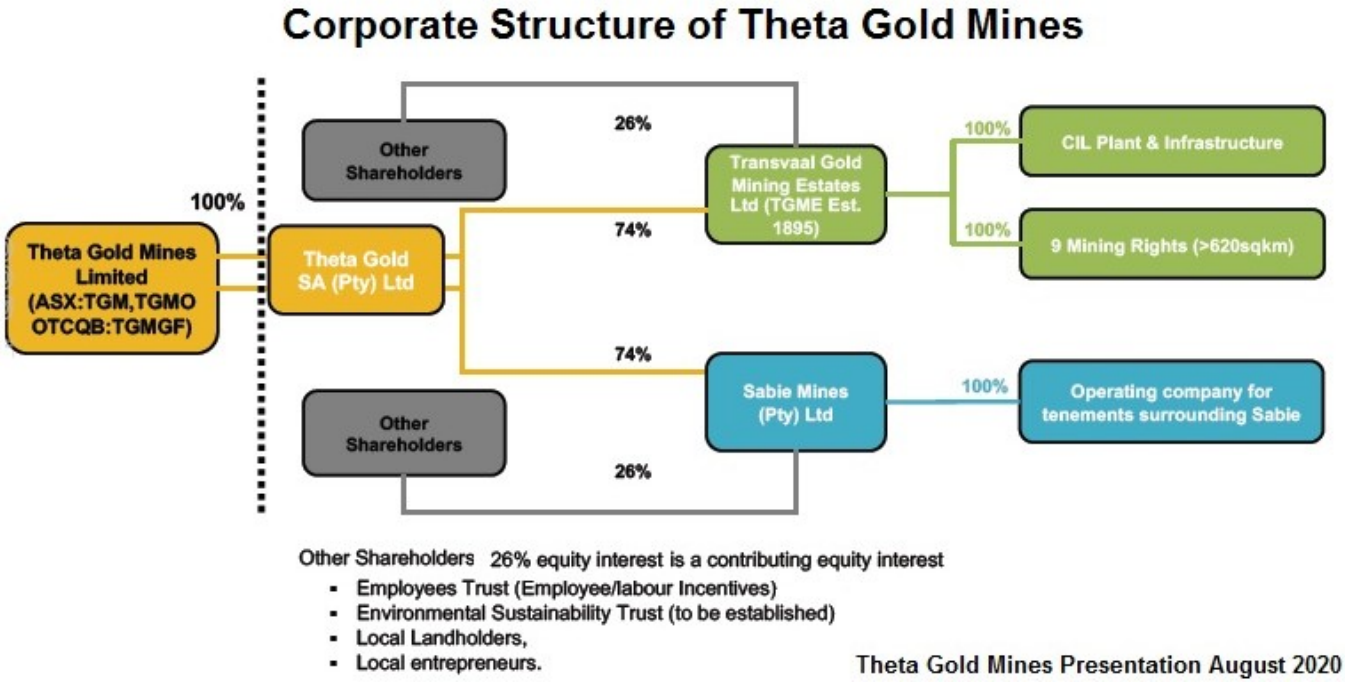
Theta Gold Mines Press Release May 16, 2019

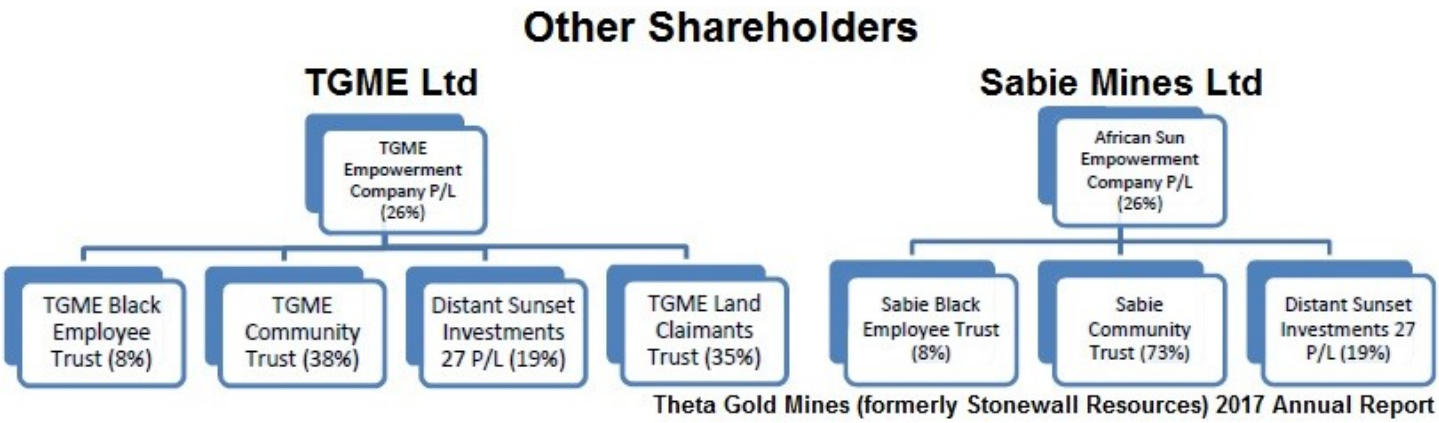
The estimated total Mineral Resources (Indicated and Inferred) for the Theta Open-Pit Starter Project are 879,600 ounces of gold with an average grade of 2.7g/t. The Mineral Resources in the Indicated category include the estimated Ore Reserve presented in the table below. The Theta Project does

not yet contain any Mineral Resources in the Measured category. The Ore Reserve calculation appears to have been provided to give further clarity to the ROM ore planned under Phase 1.

CORPORATE STRUCTURE AND OWNERSHIP

Theta Gold Mines owns 74% of both the TGME Project and Sabie Mines Limited, with the remaining 26% being held by Black Economic Empowerment (BEE) entities. The Project is fully BEE compliant. In this case of TGME, the BEE group consists of the TGME Black Employee Trust, TGME Community Trust, Distant Sunset Investments 27 P/L and TGME Land Claimants Trust. For Sabie Mines Ltd, the BEE stakeholders are the Sabie Black Employee Trust, Sabie Community Trust and Distant Sunset Investments 27 P/L.





Following the initial gold discoveries in the Pilgrim's Rest-Sabie area in 1873[iv] and the subsequent gold rush, the **Transvaal Gold & Land Exploration Company** was established in 1882. As a result, the company is now South Africa's oldest gold mining concern. In 1895, Transvaal Gold & Land combined the great majority of local mining companies and gold mining interests to form, through an amalgamation, one large entity, **Transvaal Gold Mining Estates Ltd** (TGME).

OWNERSHIP

In 1895, **Transvaal Gold Mining Estates Ltd** (TGME) was formed through the amalgamation of almost all the local mining companies in the vicinity of Pilgrim's Rest. In the same year, **Glynn's Lydenburg Ltd** was formed in the environs of Sabie, now a small town (then a village) 20 miles south of Pilgrim's Rest. When established, **Glynn's Lydenburg** held 803 claims; over time, the holdings increased to 3,887 claims in 1955 when it was acquired by TGME. The time period between 1873 and 1967 was characterized by the discovery and development of many gold deposits in the Pilgrim's Rest and Sabie Gold Fields, one after the other, with gold constantly being produced every year, though at varying levels.

Outline of Ownership

1882 Transvaal Gold & Land Exploration Company (TGLE) established[v]
1895 **Lydenburg Mining Estates Ltd** (LME) formed (amalgamated TGLE with small mining cos.)
1895 **Glynn's Lydenburg Ltd** formed (amalgamated small mining companies around Sabie)
1896 LME changed named to **Transvaal Gold Mining Estates Ltd** (TGME)
1896-early 1900's: TGME and Glynn's Lydenburg Ltd continuously acquired subsequently formed gold companies and mineral claims in their respective areas
1955 TGME acquires **Glynn's Lydenburg Ltd** (subsequently name changed to Sabie Mines Ltd)
1968 TGME acquired by **Rand Mines Properties Ltd**
1992 **Randgold & Exploration Ltd** acquired TGME as a result of a restructuring of Rand Mines[vi]
1998 TGME acquired by **Simmer & Jack Mines Ltd**
2010 TGME acquired by **Stonewall Mining Proprietary Limited** for R25 million (closed in 2012)
2012 **Meridian Resources Limited** (ASX: MRJ) acquired Stonewall Mining (back door listing)
2012 Meridian Resources changed name to **Stonewall Resources Limited** (ASX: SWJ)
2013 Shandong Qixing Iron Tower Co. Ltd launched takeover of Stonewall (US$141.5 million cash)
2014 Termination of Shandong Qixing deal announced on November 21
2015 Stonewall filed claim against Shandong Qixing Iron Tower Co. Ltd for non-completion of offer
2018 Stonewall received arbitral award ($A5.0 million) from Shandong (nka Northcom Group Ltd)
2018 Stonewall Resources Ltd changed name to **Theta Gold Mines Ltd** (ASX: TGM)

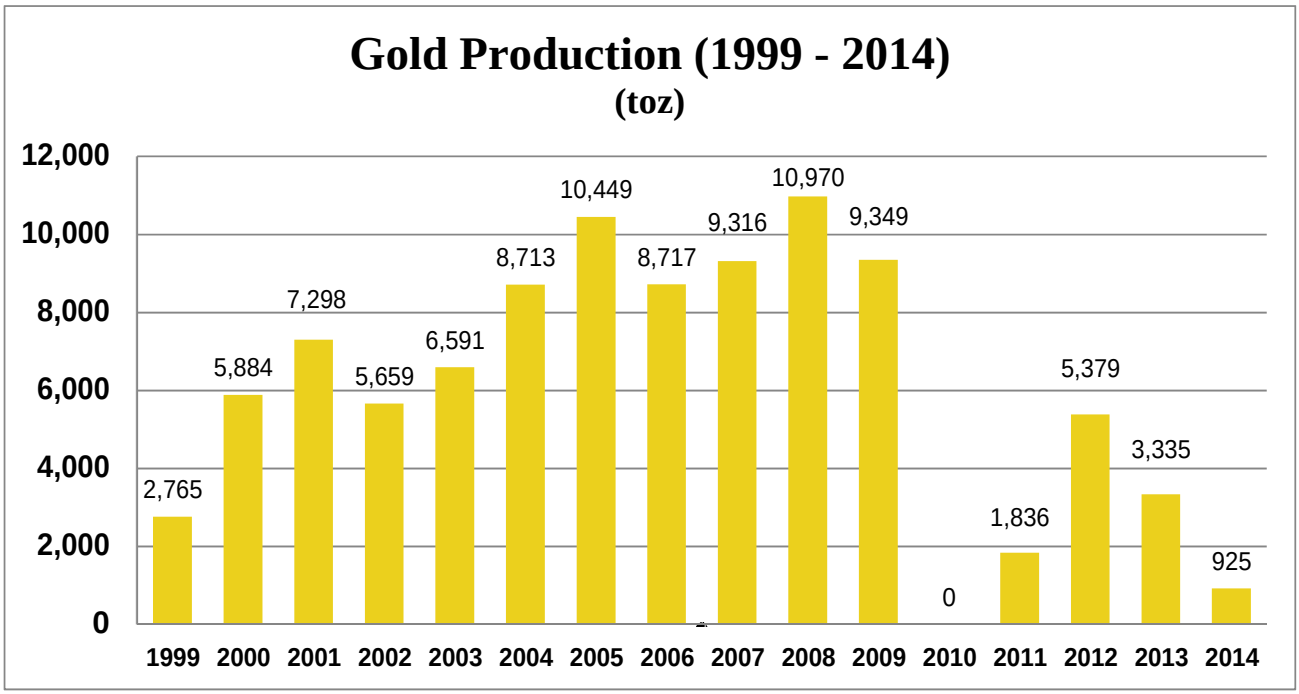
PRODUCTION HISTORY

Total historical gold production from the Pilgrim's Creek and Sabie Gold Fields is estimated to be approximately **5.5 million ounces of gold**. This estimate is conservative due to many factors. Records are sparse during several time periods, particularly during the early prospecting years between 1873 and 1895 and when the mining rights were in hands of private companies, principally Rand Mines between 1968 and 1998.

From the **initial discoveries** of alluvial gold on the Geelhoutboom and Elandsdrift farms near Sabie and in Pilgrim's Creek (**all in 1873**) through the 1880's, gold production (fine dust to large nuggets) was derived overwhelmingly from small-scale operations that extracted alluvial gold from placer deposits in the beds and banks of streams within the Pilgrims Rest-Sabie Gold Fields. Subsequently, in the 1880's, prospectors commenced shallow underground mining operations in the pursuit of lode gold through shallow open cuts and by tracing reef horizons and quartz leaders that extended from surface outcrops.

Between 1873 and 1968, approximately **5.18 million ounces of gold was recovered** from the alluvial workings and mines in the two goldfields: 3.94 million ounces from the Pilgrim's Rest

Goldfield and 1.241 million ounces from the Sabie Goldfield.[vii] The average grade of the ore has been estimated to be 10.35 g/t.[viii] At least 43 separate mines have been documented.



In 1968, Rand Mines Properties Ltd acquired TGME and Sabie Mines, and **in the 1970's**, the metallurgical plant processed old sand and tailings dams, along with waste rock dumps (under the Neptune Project). After some financial challenges due to exploratory expenses pursuing the Bentley Project, in due course, the properties were **acquired by Simmer & Jack Mines Ltd in 1998**. Gold **production commenced again in late-1999**. Initially, ROM (run of mine) ore was extracted from the Clewer and Morgenzon mines. Duke's Hill came on line in 2003, and Frankfort Mine began producing in 2005. By 2009, the processing plant was receiving ore from surface mining at Elandsdrift and from underground deposits at Theta Mine. Gold production ramped up from 2,765 ounces in 1999 to 10,449 ounces in 2006. Production levels hovered in the 9,000-to-11,000 ounce range through 2009. Simmer & Jack Mines Ltd placed the TGME operation and mines on care and maintenance in the first calendar quarter of 2010. **Gold production from 1968 through 2010** was approximately **230,000 oz. Au**.
In September 2010, Theta Gold Mines (at the time Stonewall Mining) acquired TGME, and by April 2011, a bulk test project commenced in order to extract gold from tailings dams, dumps and reef residue material (from both surface and underground sources). The small-scale project utilized a fine and ultra-grind preparatory circuit. Total production from **bulk testing project between mid-2011 and the first half of 2014** was approximately **11,474 oz. Au**.

FINANCINGS

To date, Theta Gold Mines has been successful in raising capital so that management has been able to continue advancing its 4 Mine Strategy. **During fiscal 2020**, the company received **net proceeds** of **US$5.73 million** from the placement of shares and the exercise of options resulting in the issuance of approximately 58,378,000 shares.

Subsequently, in late-July 2020, Theta Gold Mines closed an oversubscribed share placement and issued 16,667,084 ordinary shares priced at $0.24 per share. **Gross proceeds were approximately A$4,000,100** (USD$2.81 million). The net proceeds will be used primarily to accelerate the

development of the Theta Open Pit Starter Project in South Africa. Sanlam Private Wealth acted as the lead manager of the placement.

VALUATION

Managements of junior mineral exploration companies create value through evaluating, acquiring, exploring and/or developing mining properties. **Management's 4 Mine Strategy** is to increase shareholder value by bringing the brownfield mines in the Pilgrims Rest and Sabie Gold Fields back into production using modern exploration, mining (particularly open pit) and processing techniques. With the refurbishment of the mill and processing plant, along with a surface mining permit at MR83 expected to be granted soon, management is expected to be able to fast-track gold production in the Theta Hill area (Phase 1).

Our calculation of **share value of attributable resources** is based on the ascertained net asset value of each property, which is determined by **adjusting the value of estimated resources for the expected recovery rate and mining/processing costs**. Also, the resources are assigned a **confidence factor** that attempts to take into account the risks of each project, such as the locality of the deposits, the assurance level of the resources, various technical mining/production risks, etc. The methodology also accounts for balance sheet adjustments for working capital and assets, such as property, plant and equipment, along with anticipated development capital costs. The resource valuation methodology involves the following assumptions:

1) A 95% confidence factor is applied to the Phase 1 Project.
    a. Phase 2 is not yet being assigned a valuation. We await further information concerning the 500,000 oz. Au resource. The company is engaged in exploration programs and studies to better define, expand and upgrade the resource.
    b. Even though Scoping Studies have been completed on the Rietfontein and Beta Mines (Phase 3 and Phase 4), we await further drilling results and optimization studies. In the meantime, we are valuing the Indicated Resources with a very conservative 30% confidence factor for Rietfontein and 25% for Beta Mines.
    c. Furthermore, even though portions of the Inferred Resources at the Rietfontein and Beta Mines are part of the potential mine development in their respective Scoping Studies, we are not incorporating these Inferred Resources into our valuation model.
2) Upon being refurbished, we value the fair market value of the processing plant at US$5,000,000
3) The capital costs to bring the properties to commercial production (along with other relevant figures, such as estimated production life, ore grade, recovery rate, etc.) are derived from the appropriate Scoping Studies:
    a. Phase 1 - Theta Open Pit Starter Project Optimized Mine Schedule announced April 20, 2020
    b. Phase 3 - Rietfontein Mine Scoping Study announced February 28, 2017
    c. Phase 4 - Beta Mine Scoping Study announced May 16, 2017
4) Phase 3 and Phase 4 are expected to commence in 2026 and 2027, respectively.
5) A 10% discount rate is being applied in all of our Net Present Value (NPV) calculations.
6) The current gold price is used in our model.
7) Our asset value per share takes into account the dilutive effect of having options exercised below our target price.

Based on our calculation of share value of attributable resources (see table below), **our target for Theta Gold Mines stock is $0.61.**

Theta Gold Mines Limited

Projects	Metal	Indicated Resource (tonnes)	Grade Au (g/t)	Reserve/ Indicated In situ Metal Au (ozt)	Recovery Rate	Average Production Costs ($US per tonne)	Current Metal Price ($US)	Royalties ($US)	Adj. Net Value to TGM ($US)	Net Present Value to TGM
Phase 1	Au	3,860,000	2.09	259,607	90.2%	39.41	1,817	8,878,000	395,837,439	271,072,935
- Theta Hill et al										
Phase 2	Au	2,569,000	1.86	153,690	N/A	N/A	1,817	N/A	N/A	N/A
- MR384 extension										
Phase 3	Au	720,000	10.06	233,000	86.0%	101.00	1,817	1,656,000	108,748,372	23,908,349
- Rietfontein										
Phase 4	Au	2,150,000	7.00	481,000	79.6%	97.00	1,817	4,945,000	172,713,889	36,622,947
- Beta									156,963,871	
Processing Plant									5,000,000	5,000,000
BALANCE SHEET ADJUSTMENTS										
Working capital									(7,782,000)	(7,782,000)
Convertible notes									(198,000)	(198,000)
Provisions									(1,578,000)	(1,578,000)
Net proceeds from recent placements									(2,520,000)	(2,520,000)
Capital from Listed Options									8,502,229	8,502,229
Capital from Unlisted Options									0	0
Capital costs Phase 1									(31,400,000)	(28,230,607)
								Net Assets & Resources	804,287,800	304,797,852
								Shares Outstanding	462,226,030	462,226,030
								Listed Options Outstanding	36,418,353	36,418,353
								Unlisted Options Outstanding	0	0
								Unlisted Performance Rights	0	0
								Fully Diluted Shares	498,644,383	498,644,383
								Asset Value	1.61	
								Discounted Asset Value ($US)		**0.61**

RISKS

- As with almost all junior resource exploration companies, currently Theta Gold Mines does not generate sufficient cash flow to adequately fund its developmental and exploration activities and is in need of additional capital to continue pursuing management's strategy. Nevertheless, the company has effectively funded its operations and initiatives to date.
- Shares outstanding increased significantly in fiscal 2017 (+20.7%), fiscal 2018 (+22.2%), fiscal 2019 (+56.5%) and fiscal 2020 (+13.4%) as capital from equity financings have funded the company's exploration and developmental activities, along with general corporate expenses. As a consequence, the company's share experienced a 10:1 consolidation (reverse split) in November 2018.
- As with any mineral company, the price of the targeted mineral is beyond management's control, in the case of Theta Gold Mines, the price of gold. Consequently, any significant movements in the price of gold would materially affect the outlook of the company.
- The project area is situated in one of the locales with the highest rainfall in South Africa, more than 1,200 mm per annum compared to the global average of 786 mm. Flooding can occur and has happened during the rainy season between October and April. Generally, underground and surface mining operations can continue during the rainy season; however, water ingress into the underground mines (flooding) has impeded gold production in the past, most recently in the first calendar quarter of 2014. Also, heavy rain can be problematic for heap leach operations.
- Operations may be adversely affected by labor disputes or changes in the labor laws either by work stoppages or increased employee expenses.
- The gold mineralization of the Pilgrims Rest and Sabie Goldfields is characterized by an assortment of gold mineralization styles, some highly irregular. As a result, certain challenges arise in the processing of ore that is naturally resistant to recovery by standard processes, primarily sulfide ore. Management is addressing the challenges of the gold mineralization styles by employing modern processing techniques. Significant advances have been made in gold recovery processes since the late 1960's, when large-scale mining was last conducted on the properties. Metallurgists have developed pre-treatment methods to effectively deal with gold ore that is resistant to extraction, which fall under the categories of crushing, washing, drying, chemical treatments, fractionalization and incineration. Among the specific methods are ultra-fine grinding; furnace roasting, bio-oxidation, chlorination, acid and alkaline pressure oxidation, and electrolytic oxidation, among others.

BALANCE SHEET

Theta Gold Mines Limited

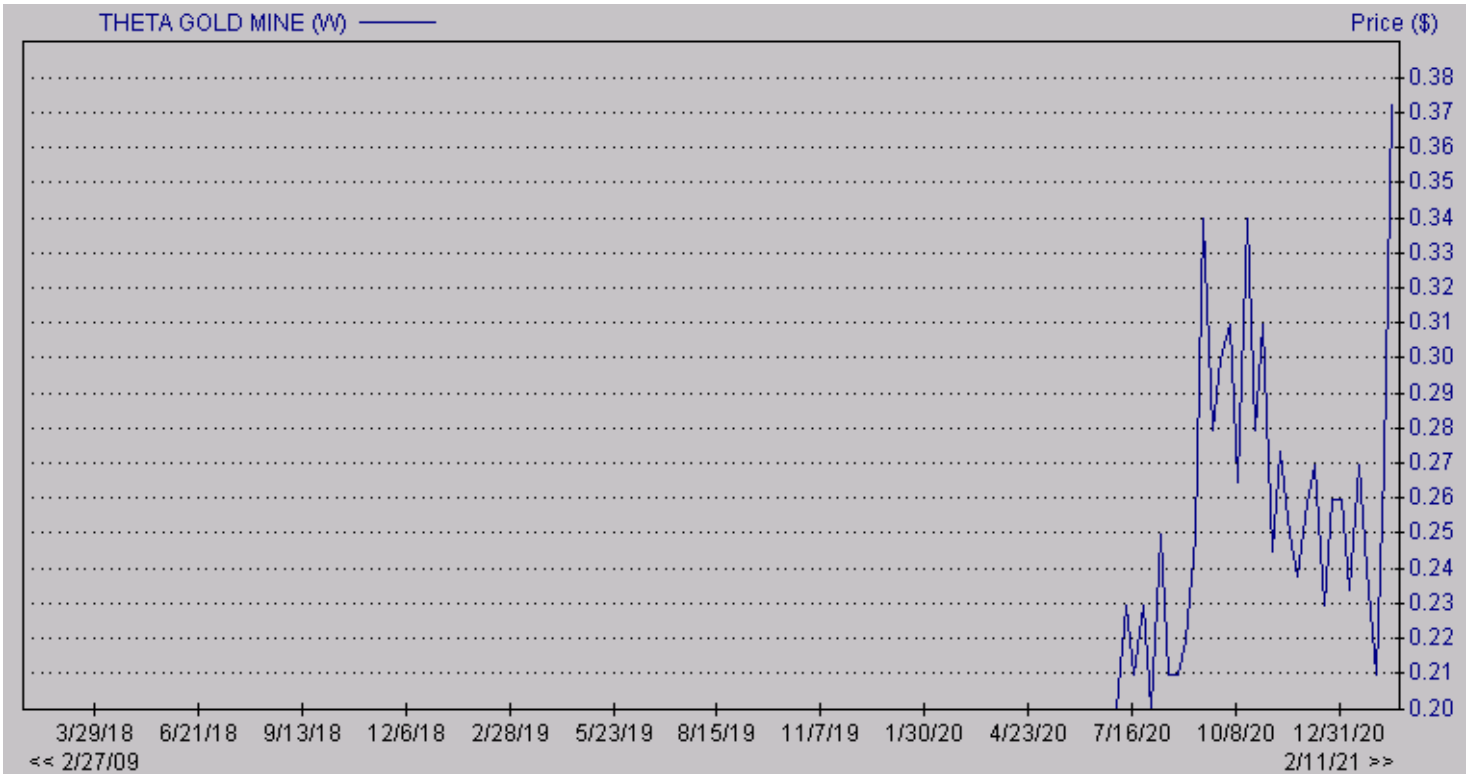
(in $US'000 except ordinary share data)	2016	2017	2018	2019	2020
Period ending	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
ASSETS					
Cash and cash equivalents	57	1,055	196	489	147
Accounts receivable	164	350	154	111	172
Inventories	139	-	-	-	-
Other financial assets	9	-	-	-	-
Non-current assets held for sale	132	-	507	64	0
Total Current Assets	**501**	**1,405**	**857**	**664**	**319**
Receivables	-	45	43	44	34
Other receivable	-	-	-	1,408	1,235
Property, plant and equipment	1,220	1,336	418	534	916
Capitalized exploration expenditures	8,494	9,604	10,771	12,375	11,379
Rehabilitation investment fund	1,176	1,356	1,378	0	0
TOTAL ASSETS	**11,391**	**13,746**	**13,466**	**15,025**	**13,883**
Trade and other payables	3,360	3,034	2,537	1,757	1,498
Provisions	299	489	344	411	828
Borrowings	6,183	2,226	7,002	5,195	5,775
Liabilities assoc. with assets held for sale	868	-	-	-	-
Total Current Liabilities	**10,710**	**5,749**	**9,883**	**7,363**	**8,101**
Provisions	269	6,322	211	1,688	1,578
Borrowings	1,170	1,195	1,362	178	106
Non-Current Liabilities	**1,439**	**7,517**	**1,573**	**1,866**	**1,684**
TOTAL LIABILITIES	**12,149**	**13,266**	**11,456**	**9,229**	**9,785**
SHAREHOLDERS' EQUITY					
Issued equity	57,692	61,997	67,316	75,629	81,349
Reserves	4,959	6,316	6,655	7,301	5,373
Accumulated losses	(60,578)	(67,833)	(71,961)	(77,134)	(82,624)
Non-controlling interest	(2,831)	-	-	-	-
Total Stockholders' Equity	**(758)**	**480**	**2,010**	**5,796**	**4,098**
TOTAL LIABILITIES & STOCKHOLDERS' EQ.	**11,391**	**13,746**	**13,466**	**15,025**	**13,883**
Ordinary shares outstanding	173,662,582	209,632,100	256,155,200	400,839,918	454,415,950

INCOME STATEMENT

Theta Gold Mines Limited

Income Statement (in $US '000, except share out. data)	2016 6/30/2016	2017 6/30/2017	2018 6/30/2018	2019 6/30/2019	2020 6/30/2020
Interest and other income	46	65	106	94	122
Fair value adjust't on convertible note	64	-	562	174	0
Other income	121	134	103	46	109
Total Revenues	**230**	**199**	**771**	**314**	**231**
Administrative expenses	422	512	467	462	455
Consultants expenses & prof. costs	758	1,090	351	310	694
Employee and contractor expenses	700	2,616	2,032	1,452	1,726
Depreciation	347	216	183	54	31
Share-based payment	-	-	-	585	389
Impairment of assets	229	360	108	996	204
Provision for doubtful debts	-	409	-		-
Other operating expenses	1,785	1,387	1,037	981	1,512
Expenses	**4,242**	**6,590**	**4,178**	**4,840**	**5,011**
(Loss) Before Other Income	**(4,012)**	**(6,391)**	**(3,407)**	**(4,526)**	**(4,780)**
Loans	(94)	(524)	(623)	(625)	(710)
Finance leases	(135)	(4)	(1)	0	0
Convertible notes	(665)	(427)	(98)	(21)	0
Total Other Income (Expenses)	**(893)**	**(955)**	**(722)**	**(646)**	**(710)**
Net Loss	**(4,906)**	**(7,346)**	**(4,129)**	**(5,172)**	**(5,490)**
Reclassified as exploration expenses	0	0	0	(1,070)	(841)
Total gain (loss)	**(4,906)**	**(7,346)**	**(4,129)**	**(6,242)**	**(6,331)**
Basic and diluted loss per ord. share	**(0.0357)**	**(0.0386)**	**(0.0182)**	**(0.0158)**	**(0.0128)**
Wgted. Avg. Ord. Shares Out. - diluted	137,432,330	190,275,360	226,478,953	328,262,806	428,178,692

HISTORICAL STOCK PRICE



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[i] Theta Gold Mines Press Release, Theta Appoints Debt Advisor and Strengthens Execution Team, January 22, 2021
[ii] Fowler, A.R.C., Mining at Transvaal Gold Mining Estate s Limited 1872-1967 Journal of the South African Institute of Mining and Metallurgy, February 1968, page 331
[iii] Theta Gold Mines 2020 Annual Report, Chairman's Letter, page 3
[iv] Fowler, A.R.C., Mining at Transvaal Gold Mining Estate s Limited 1872-1967 Journal of the South African Institute of Mining and Metallurgy, February 1968, page 292
[v] Fowler, A.R.C., Mining at Transvaal Gold Mining Estate s Limited 1872-1967 Journal of the South African Institute of Mining and Metallurgy, February 1968, page 292
[vi] Randgold & Exploration Co. Ltd, Form 20-F, page 12
[vii] Fowler, A.R.C., Mining at Transvaal Gold Mining Estate s Limited 1872-1967 Journal of the South African Institute of Mining and Metallurgy, February 1968, page 292
[viii] Stonewall Resources presentation, July 2016, page 14.