
7 May 2024

FY25 to FY27 Production Target 70 to 75kozpa Simberi AI Collaboration Success

Highlights

- Simberi annual gold production target for FY25 to FY27 of between 70,000 and 75,000 ounces, compared with 60,000 to 70,000 ounces for FY24 guidance range
 - Available Carbon in Leach (CIL) treatable mineralisation extended beyond FY28 (if necessary) with transition to saleable gold concentrate or Ultra Fine Grind of gold concentrate anticipated during FY28
 - Collaboration with Stratum AI (Stratum) using artificial intelligence-based algorithms has identified CIL treatable sulphides that would previously have been considered unsuitable for the current CIL circuit
 - Deployed in Q2 FY24 in the grade control process and validated through Q3 FY24
 - Reclassification results in an additional 3.7 Mt @ 1.2 g/t Au for 143 koz of CIL treatable material suitable for the existing flowsheet
 - Simberi Outlook incorporating Expansion Concept Study outcomes remains on track for announcement later this month
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St Barbara Limited (“**St Barbara**” or the “**Company**”) (ASX: SBM) provides the following annual gold production target for Simberi for FY25 to FY27 of between 70,000 and 75,000 ounces. This follows additional work on delineation of available material for processing through the existing Carbon in Leach (CIL) circuit (CIL treatable material) and in anticipation of achievement of targeted mining rate and processing plant availabilities. Full year FY24 guidance for Simberi is towards the bottom end of 60,000 to 70,000 ounces by comparison.

This identification of additional material included collaboration with Stratum on the successful implementation of an AI-based material type classification approach based on deeper understanding of recovery characteristics. The use of this AI-based approach has allowed reclassification of 3.7 Mt @ 1.2 g/t Au for an additional 143 koz of CIL treatable material compared to the current Mineral Resource model material type classifications.

Managing Director and CEO Andrew Strelein said *“The work achieved with Stratum AI has been highly effective in enabling the Simberi team to delineate more ore which can be treated with the existing CIL plant.”*

“The increased confidence built from the practical application of the AI work in the last quarter has given us the confidence to reclassify our material types under this new method and add 143 koz of material that can be processed through the existing circuit.”

“In addition, this allows us to plan for a stable annual gold production target over the next 3 years of 70 to 75koz in the lead up to transition to production of a gold concentrate from the sulphide ores.”

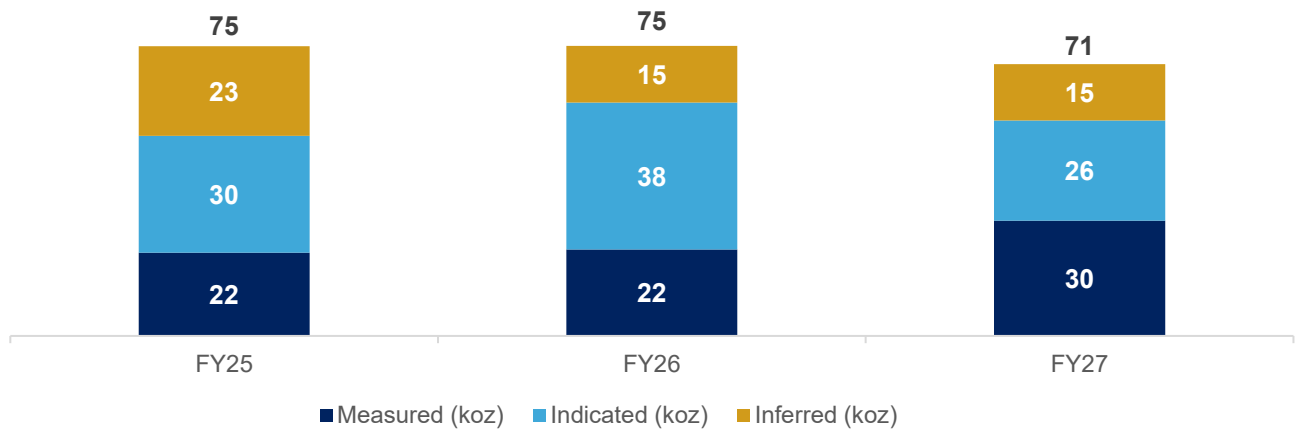


Production Outlook

The production target profile for Simberi for the next three financial years is shown below in Table 1, after which time it is currently envisaged that the process plant expansion would allow transition to production of a gold concentrate from sulphide ores during FY28.

The production target profile is entirely comprised of Mineral Resources, with 76% of the ounces produced over the three-year period being based on Measured and Indicated Mineral Resources.

Table 1. FY25 to FY27 Simberi Gold Production Target by Mineral Resource Classification¹



Stratum AI Collaboration on Material Type Classification

The specific application at Simberi was for Stratum to use its AI-based algorithms to model sulphur and other indicators of oxidation, to better classify oxide and sulphide mineralisation. The primary objective of this modelling was to identify additional mineralisation amenable to CIL treatment that may have been overlooked with the existing material type classification approach.

The use of the AI material type classification was deployed in Q2 FY24 as part of the site grade control process. During Q3 FY24 the use of the AI material type model identified an additional 10% of CIL treatable material which was successfully fed through the process plant. Gold recoveries for the additional material were in line with expectation and consistent with the recovery performance of previous quarters.

This AI based system of material type classification has now been incorporated into the Simberi mine plan by using the AI material type field in the current Mineral Resource model and has shown a reclassification of 3.7 Mt @ 1.2 g/t Au for an additional 143 koz of CIL treatable material when compared to the existing Mineral Resource model material type classification approach. Both models use the same underlying gold estimate.

This is equivalent to an extension of the current oxide processing life by 17 months and sees the operating mine plan with the current processing flow sheet now extending until at least the end of FY28 if required.

Following the successful deployment of the Stratum AI model through Q3, the intention is to incorporate the AI material type classification in the upcoming Resource model for Mineral Resource and Ore Reserve reporting at the end of Q4 this year.

¹ There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that future exploration work will result in determination of Indicated Mineral Resources or that the production target itself will be realised.



Figure 1. Example of the highly variable degree of oxidation at Simberi which results in material that can be either CIL-treatable (oxide-like) or where less oxidised requiring a different type of processing technology such as flotation to produce a saleable gold concentrate. In this example sulphide material is overlying oxide material.



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About Stratum AI

Stratum AI is a fast-growing Toronto-based startup, which uses advanced artificial intelligence (AI) techniques called Deep Learning to produce more accurate resource models for operational use. Stratum AI employs proprietary Deep Learning algorithms that learn the geological patterns of the system from already available exploration and production data. <https://www.stratum.ai/>

Mineral Resources and Ore Reserves Reporting

The information in this announcement that relates to Mineral Resources or Ore Reserves is extracted from the report entitled 'Mineral Resources and Ore Reserves Statement as at 31 December 2023' Released to the Australian Securities Exchange (ASX) on 13 February 2024 (Original Report) and available to view at stbarbara.com.au and for which Competent Persons' consents were obtained. Each Competent Person's consent remains in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by accompanying consent.

St Barbara confirms that it is not aware of any new information or data that materially affects the information included in the announcements referred to above (Original Announcements) and that all material assumptions and technical parameters underpinning the Mineral Resources and Ore Reserves estimates in the Original Announcements continue to apply and have not materially changed. St Barbara confirms that the form and context in which the Competent Person's findings are presented have not materially modified from the Original Announcements.