

GRUYERE GOLD PROJECT WESTERN AUSTRALIA:

PART 1 – FROM DESIGN TO COMMISSIONING

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ABSTRACT

The Gruyere Gold Project was discovered by Gold Road Resources Limited in October 2013 on the Yamarna Belt 200 kilometers east of Laverton in Western Australia. The Feasibility Study for Gruyere, which was completed in October 2016, envisaged a large-scale open pit mine feeding a 7.5 million tonne per annum processing plant and producing an average of 270,000 ounces of gold a year over an initial 13-year mine life.

A comminution circuit option study was conducted as part of the Feasibility Study, which examined four circuit options that were selected on the basis of power cost being a key factor in the project economics. The preliminary option study identified a primary crush SAG-ball circuit with recycle pebble crushing (SABC) and two-stage crush-HPGR-ball mill as the two options to evaluate in detail for the Gruyere Gold project. Ultimately, primary crush-SABC was selected due to its operational robustness and being the more cost-effective solution for the life of the project.

Gruyere Management Pty Ltd (GRM) – a wholly owned subsidiary of Gold Fields, has undertaken detailed reviews of Feasibility Study engineering, procurement and construction which has resulted in a number of improvements and enhancements to the Project. Gold Fields extensive operational experience has directly contributed to these improvements and enhancements, which aim to deliver:

- improved operational ergonomics and maintainability,
- advanced process plant control,
- increasing throughput beyond design and
- more consistent metallurgical recovery.

An Engineering, Procurement and Construction (EPC) contract was executed in June 2017 with commissioning of the project commencing mid 2019.

This paper examines the comminution test work and the subsequent modelling completed during the feasibility study. It also discusses changes to the early design of the project and reasons for driving those improvements, as well as covering commissioning issues in the grinding circuit during the early stages of processing.

Keywords - Comminution option study, primary crushing, SAG milling, commissioning, optimisation, modelling, process control.