

Installation, commissioning, operation and performance review of TowerMill at OceanaGold Haile Gold Mine, South Carolina

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ABSTRACT

Haile Gold Mine is an open-pit gold mine located in the state of South Carolina, USA. The concentrator consists of semi-autogenous mill - ball mill - pebble crusher (SABC) circuit, flash flotation, rougher flotation, concentrate regrinding and leaching. The original regrind circuit consists of six units of fluidised stirred mills that receive a combined flash and rougher flotation concentrate. The fluidised stirred mill circuit could not cope with the coarser feed size from the flash flotation concentrate to produce the leach feed of 13 µm (80 % passing). In 2019, Haile Gold has modified the regrind circuit by introducing two stages of the regrinding circuit. One unit of ETM 1500 TowerMill and a horizontal fluidised stirred mill were installed in the regrind circuit. The mill was successfully installed in five days and commissioned within six days in November 2018 and January 2019. At the beginning of the operation, the TowerMill was operated in open circuit configuration for the first three months. In April 2019, the TowerMill circuit was closed with a cluster of 10" hydrocyclone. The feed to the leach circuit was reduced from 23 µm to 15 µm when the TowerMill was brought online. The TowerMill circuit was designed to reduce from 100 µm to 22 µm at a specific energy consumption of 16.2 kWh/t. A recent TowerMill circuit performance review indicated that the circuit is performing within the design specifications. The wear rate of the first set of the tip and flight liners were 0.2 and 0.07 g/kWh respectively. This paper will discuss the installation, commissioning and operational experience of the TowerMill circuit plus its process performances.