

Improving Recovery at the Syama Gold Mine

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ABSTRACT

Resolute Mining Limited owns and operates the Syama Gold Mine located in southern Mali, West Africa. The sulfide processing facility consists of conventional crushing, grinding and flotation circuits for a double refractory ore to produce a pyrite and gold rich concentrate which is suitable for roasting. Gold extraction from calcine is accomplished using standard carbon-in-pulp leaching followed by gold recovery to bullion using elution, electrowinning and smelting.

Several process flow improvements under the umbrella of Project 85 have been implemented to lift overall plant gold recovery from circa 78% to 85%. Such improvements include extraction of residual gold from flotation tails, enhancing cyanidation of roaster calcine by selective particle size reduction, detoxification of tailings return water to improve flotation performance and installation of additional process control strategies in the flotation area. Project 85 represents an opportunity for Resolute to extract increased value from the Syama gold operation.

This case study describes the various elements of Project 85 including design considerations, equipment selection, commissioning and operation of the new circuits