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FLSmidth Increases Its Local Expertise In Summit Valley Metals Extraction Solutions

FLSmidth is steadily increasing its local expertise in its Summit Valley precious metals extraction solutions and a new order for a complete process flow solution, from elution through to electrowinning, for Shanta Gold's New Luika mine in Tanzania will further strengthen this local capability.

Shanta Gold is an emerging gold producer, engaged in both exploration and mining projects in highly prospective, under-explored areas of Tanzania. Its New Luika operation, which commenced production in August 2012, is located in the Lupa goldfields, Mbeya region, in the south-west of the country, which is the second largest gold-producing region in Tanzania.

"Although expertise is still regularly brought in from North America, we're building up robust proficiency in these technologies," Terence Osborn, capital sales & marketing manager - minerals, at FLSmidth, says. "Since FLSmidth acquired the Utah-based business of Summit Valley four years ago, we've been actively marketing these products in Africa and achieving a steady penetration of this market.

"The focus customers for these technologies are operating clients who wish to expand their gold recovery circuits, customers who would like to improve their efficiencies, as well as those who are building new plants. However, we've seen the biggest opportunities where customers are experiencing operating inefficiencies."

For New Luika mine, FLSmidth has designed a solution that will improve the efficiency of its process, and add an elution, carbon regeneration and electrowinning circuit to the plant. Osborn says the original plant lent itself very well to a Summit Valley solution because the mine was looking at installing a process island to link up with existing technology. The FLSmidth team was able to fill in the gaps in the process with a complete solution that takes existing equipment into account.

“After presenting this solution to Shanta Gold we were awarded a contract for a 2 ton per day carbon plant that includes an elution and stripping column, a carbon regeneration kiln and electrowinning cells in a process island,” he adds. “In effect, we’re offering this technology as a completely engineered solution to the customer.

“Since there is existing infrastructure, a process expert from Utah and one of our local specialists have visited the site to evaluate which of the existing equipment can be reintegrated into the circuit, ultimately providing a complete solution, while reducing the investment required.”

FLSmith’s Summit Valley offering includes design and fabrication of modular plants and equipment for the extraction of gold and silver and features the industry’s highest capacity electrowinning cell used in precious metals recovery. The Summit Valley speciality product range is known worldwide, having been used in 24 countries on six continents over the last 18 years. This equipment and know-how has boosted FLSmith’s existing offering in precious metals processing, positioning it as the only company in Africa capable of offering a complete end-to-end gold solution, drawn from in-house technology. Generally the tankage, piping and structural steel for the modular solution is constructed locally under FLSmith’s guidance.

“While this offering incorporates individual components, it also makes available world class capabilities in terms of combining these components into customer-specific integrated gold room and plant packages,” Osborn says. “This technology leads the world in gold electrolysis and mercury vacuum distillation and puts us among the top global companies offering indirect fired rotary kilns and packaged carbon strip systems.”

FLSmith designs and supplies complete integrated area packages for the stripping of the carbon, the electro-winning and recovery of the gold from the strip solutions, filtration, drying and smelting of the resultant sludge from the electrowinning process, the regeneration of the carbon in a horizontal kiln and the reactivated carbon before returning it to the leach circuits.

The patented integrated heater skid design enables energy savings of up to 30% by efficiently transferring energy across the stripping and electrowinning process.

Electrowinning cells

FLSmidth offers a patented new basketless cathode electrowinning cell, designed to decrease operator service time and decrease gold inventory in the cells, while providing the continued high cell efficiencies characteristic of Summit Valley cells.

Gold sludge servicing is performed in the cell by washing precious metal sludge from the cathodes with a pressure sprayer and sludge is pumped from the cell bottom to a sludge filter. Since the cathodes are serviced in the cell, less cathode handling is required during servicing and this minimises operator exposure to toxic metals when metals such as mercury, arsenic and cadmium are present in electrowinning solutions. The new electrodes eliminate the need for cathode baskets.

FLSmidth patented innovative split Zadra carbon elution process harnesses variable valve timing and an additional strip vessel to boost production levels by as much as 30% on existing plants and can reduce the cost of a new plant by the same percentage. The gold plants can be designed to accommodate a Zadra or AARL process depending on the customer's preference, and the applicability of the process for the specific ore type.

Carbon regeneration kilns

FLSmidth designs and manufactures indirect heated carbon regeneration kilns and calciners from half a ton per day and larger. These kilns and calciners can be fuel gas, oil, or electric, and are skid mounted, pre-wired and pre-piped. The company's patented bellows kiln seal has proved effective in eliminating air ingress and process gas egress and can be retrofitted to kilns from other manufacturers. FLSmidth holds the world record for the lowest emissions on a carbon plant.

EXTRACTION SOLUTION FOR SHANTA GOLD PIC 01 : FLSmidth electrowinning cells.

EXTRACTION SOLUTION FOR SHANTA GOLD PIC 02 : CIL and elution circuit.

EXTRACTION SOLUTION FOR SHANTA GOLD PIC 03 : Electrowinning cells with basketless cathodes and anodes.

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