PROJECT PROFILE



Commodity:	Phosphates
Client:	Foskor
Location:	South Africa
Project Type:	EPCM
Scope:	Increase capacity by 2 million t/yr
Duration:	2008 – 2011
Value:	USD77 million

FOSKOR EXTENSION 8 DE-BOTTLENECKING

The Foskor Extension 8 De-bottlenecking Project not only met all project milestones, but also achieved an exceptional safety record. The project, with total manhours of 730,000, was completed with no lost-time injuries (LTIs).

The project followed an update and re-validation by Bateman of its February 2007 feasibility study, and restored production throughput capacity to the design level of 5.2 million t/yr, by adding 2 million t/yr of crushing and milling capacity. The new 250 t/hr tertiary crushing, rod milling, ball milling, classification and flotation feed thickener circuit was fully integrated into the Extension 8 process facility to make use of the surplus flotation capacity, left by the existing milling circuit.

The process was based on studies that indicated that the key to improving recoveries was to identify ways of milling the ore to produce a narrower size distribution. Computer simulation showed the process to be the option providing the lowest required specific energy for grinding, making it very cost competitive.
In the process, feedstock is drawn from the existing intermediate silo at 400 t/h and conveyed to a variable slope single deck screen in the crusher building. From here, the oversize feeds to two tertiary crushers at a rate of 270 t/h and is then returned to the screen circuit. Undersize from the screen is conveyed directly to the 4,000 t capacity wet mill silo.

Sixteen-millimetre ore is in turn conveyed from the wet mill silo at 250 t/h to a primary ball mill in a closed circuit, with two stages of classification via flat bottomed hydrocyclones. Milled product is dewatered via conventional scalping hydrocyclones, with overflow discharged to an intermediate thickener. The underflow of both the scalping cyclones and thickener is pumped to the existing flotation conditioner tanks.