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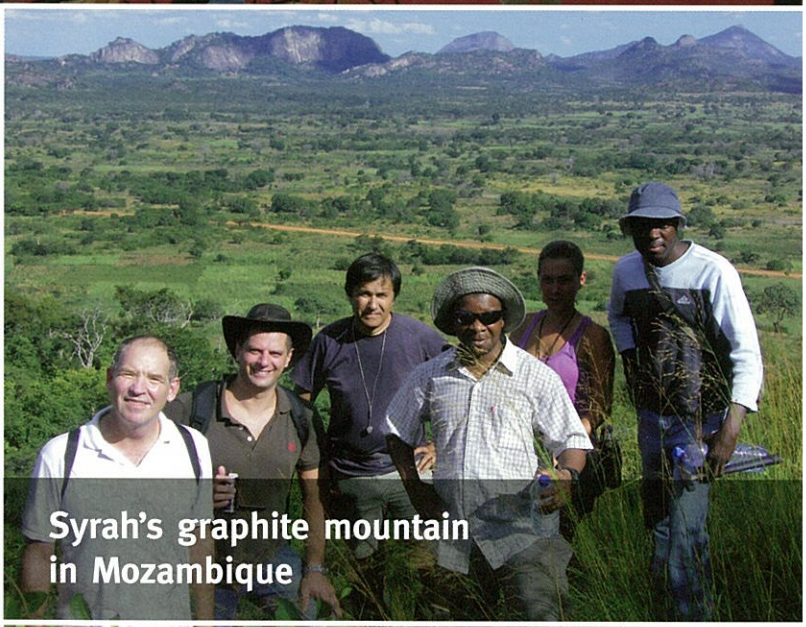

Syrah's graphite mountain in Mozambique

# Albion Process plant for Armenian mine

GeoProMining recently upgraded its Ararat gold plant in Armenia, implementing Xstrata Technology's Albion Process technology in the gold extraction line. The technology is designed to recover gold and silver from sulphide concentrates, using fine grinding and oxidative leach technology, prior to recovery through a CIL plant.

**XSTRATA TECH** worked with GeoProMining (GPM) for several years prior to the upgrades at the company's Ararat plant, which is located in western Armenia.

GPM says it expects the Albion process to substantially increase gold extraction from the sulphide-bearing ore that is supplied to the Ararat plant from GPM's Zod mine, in eastern Armenia.

GPM's planned investments in the Ararat plant are expected to enable increased volumes of processed ore from the Zod mine without the need to construct any additional processing facilities at the mine itself. GPM said based on testing of ore from the Zod mine, it concluded the Albion Process could significantly increase the gold extraction coefficient.

Test work in feasibility studies prior to implementation of the Albion process was conducted by Xstrata Technology's marketing partner, Core Process Engineering. The feasibility study demonstrated the Albion Process' capability for high gold and silver recoveries from the GPM sulphide concentrates on a cost competitive basis compared to bacteria and high pressure oxidation.

Xstrata Tech's general manager of hydrometallurgy, Mike Hourn, said while the original deposit being treated by the Ararat plant consisted of weathered oxide ores, it now has to treat more complex refractory sulphide ores and needs more advanced technology to process the ore, particularly as gold and silver is found in the arsenopyrite and pyrite minerals.

Another benefit of the Albion Process in this application, according to Heard, is its ability to convert any arsenic minerals present in the feed into inert goethite and ferric arsenate, that pose no threat of leaching from tailings.

Xstrata Technology will provide the Albion Process plant as a lump sum design and supply package. The supply will include the company's proprietary IsaMill grinding package, twelve ZipaTank modular leach and slurry storage reactors, a 10m diameter high rate thickener, 120tpd oxygen plant and 140tpd limestone grinding plant.

Also included will be 54 HyperSparge oxygen injection spargers, designed to achieve supersonic injection of oxygen gas, allowing high oxygen utilization in the leaching reaction due to the high transfer rates between the supersonic oxygen jet and the mineral slurry.

Xstrata Tech is also providing the design for GPM to increase the throughput of the existing concentrator from 500,000tpa to 1,000,000tpa. The existing concentrator was constructed in 1973 and requires modernisation and upgrading to treat the increase in throughput, as well as the addition of the Albion Process to treat the high proportion of sulphides in the feed.

To date, long lead items have been ordered for the project and civil works have started at the plant site, with major equipment under construction. The Albion Process plant will be commissioned in April 2013. □

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(below left) The Armenian President, Serzh Sargsyan, opening GPM's upgraded facility. (below right) Xstrata Tech's HyperSparge in operation. (at top) Xstrata Tech's IsaMill in M10,000 and M3,000 sizes.