

» CASE STUDY

BioSulphide® Plant, USA

PROJECT OBJECTIVES	Copper recovery from drainage of low grade ore stockpile.
PROJECT SIZE	<ul style="list-style-type: none"> · 12,000 m³/day flow · bioreactor capacity up to 3.8 tonne/day sulphide · production capacity of up to 1.8 million lb Cu annually
TECHNOLOGY	BioSulphide® plant
COST	\$3.2 million US (2004)

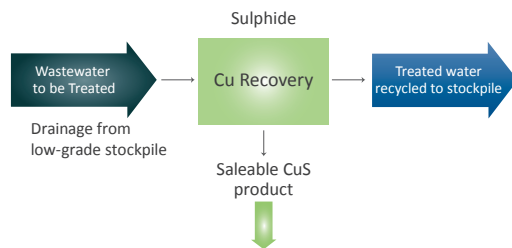
BioteQ operates a plant in the southern US in joint venture with a large US-based mining company, treating drainage from a large low-grade stockpile at an inactive mine site. The plant recovers dissolved copper and produces treated water for re-use at the site.

The water treatment plant, in operation since 2004, harnesses BioteQ's BioSulphide® process, which uses an anaerobic bioreactor to biologically generate hydrogen sulphide gas (H₂S) on demand. The H₂S is used in the water treatment process as a sulphide source. The plant has a treatment capacity of up to 12,000 m³/day, and the bioreactor can produce up to 3.8 tonnes of H₂S daily.

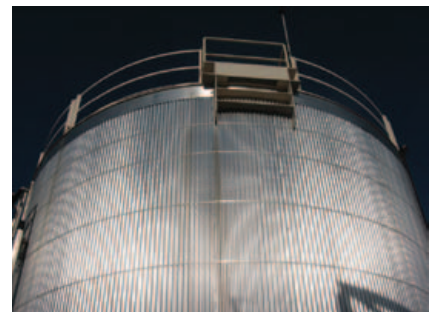
The plant recovers a high grade copper sulphide concentrate (~40% Cu), which is sold and refined into useful products. The treated water is recycled to the stockpile to continually recover additional copper, and accelerate site remediation. BioteQ's plant eliminates the production of a metal-laden sludge and the need for ongoing sludge management.

BioteQ provided process design, plant supply and construction, commissioning, training, and continues to provide ongoing operating services at the site on behalf of the joint venture.

Figure 1: BioSulphide® Plant Process Flowsheet



The BioSulphide® plant recovers a high grade copper product that can be refined into useful products. Treated water is recycled back to the stockpile to accelerate site remediation.



BioteQ's BioSulphide® operation uses a bioreactor to produce H₂S on demand, which enhances site safety and reduces operating costs.

"...the BioSulphide process delivers both environmental and economic benefits...remov[ing] more than 99% of dissolved copper from the water, producing a high-grade saleable copper sulphide product... providing a source of funds that can be used to offset eventual site remediation costs."

- Russ Noble
Wealth from Waste
Canadian Mining Journal
August 2010