# **Briefing Paper**



# Tintaya Oxide Development

February 2001

# Summary

- BHP has committed to the development of an oxide plant at the Tintaya copper operations in Southern Peru.
- The oxide project is a low risk expansion of the existing operations with strong financial returns. The overall financial performance of the operation will be significantly improved, converting Tintaya to a shareholder value added (SVA\*) positive asset.
- The expansion is consistent with BHP's strategy to add value-creating growth to its Minerals business and supports a key component of the Minerals growth strategy to increase copper production in a capital efficient manner.
- The project involves construction of a copper leaching and solvent extraction electrowinning (SX/EW) facility to produce initially 34,000 tonnes per annum, raising to 40,000 tonnes per annum, of copper contained in cathode.
- Production levels at Tintaya will be increased by over 30 percent. Integrated cash costs will reduce to less than US\$0.50/lb. The oxide project has an average ROC in excess of 25% for the first 5 years of production.
- Estimated capital cost is US\$138 million. Construction will commence immediately with first production expected in mid 2002.
- Project economics are attractive from an IRR, cash, earnings and NPV perspective. The project is robust against all variables (capital, operating costs, acid price and consumption) and NPV positive to an average copper price in the low seventies (USc/lb).
- Over the last three years regional inferred resources have grown significantly in the Tintaya area. Tintaya Oxide is the first development of several projects being evaluated to capture value from these additional resources.

# Strategic Rationale

The Tintaya oxide development is consistent with BHP's strategy to add value-creating growth to its Minerals business. A key component of the Minerals growth strategy is to increase copper production in a capital efficient and value accretive manner. Tintaya oxide contributes to this increased production and represents a high return, value accretive expansion.

The project achieves two key outcomes:

1. The extraction of value from a significant oxide resource already in existence at the mine.

2. It extends the life of the existing sulphide operation by making additional resources economically recoverable.

The result is a greater than 30 per cent increase in production levels at less than US\$ 0.30/lb, generating significant cash and creating value for shareholders.



# **Project Description**

#### **Background**

BHP owns 99.96% of the Tintaya open-pit copper mine in Southern Peru. The mine commenced operations in 1984, with BHP acquiring its interest in 1996 as part of the Magma purchase.

The operation currently produces approximately 90,000 tonnes per annum of copper contained in concentrate. This represents about 10% of BHP's current annual copper production. Head-grade to the mill is expected to improve from the current 1.55% to 2.1% in FY05, increasing annual production to a peak level of 121,000, declining thereafter until end of mine life in 2009.

The sulphide operation is currently high cost and makes a minor contribution to the BHP group profit. The high cost is a result of the nature of the orebody, the mine's remote location, and a high depreciation/amortisation charge (FY01 estimate of US\$0.13/lb made up of Depreciation \$0.10/lb and Amortisation \$0.03/lb).

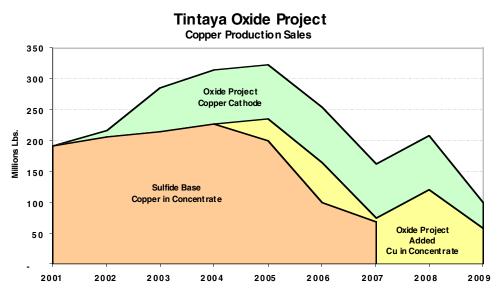
#### **Oxide Project Overview**

The Tintaya oxide project involves the construction of a copper leaching & solvent extraction electrowinning (SX/EW) facility to produce initially 34,000 tonnes per annum raising to 40,000 tonnes per annum of copper contained in cathode.

The basis for the oxide project is an oxide reserve of 15.6 million tonnes at 1.44% Acid soluble Cu proven reserve and 6.5 million tonnes at 1.44% Acid soluble Cu probable reserve providing a total available reserve of 22.1 million tonnes at 1.44% Acid soluble Cu that has been or will be mined and stockpiled during the operation of the existing Tintaya pit.

Initial production will be 34,000 tonnes per annum of copper contained in cathode. After two years production will increase to a steady state of 40,000 tonnes per annum.

The project will cease at the same time as the sulphide operation, which current mine plans estimate to be in 2009.



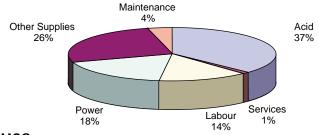
Estimated capital expenditure is US\$138m. Construction will commence immediately with first production expected in mid 2002. Engineering studies are approximately 90 per cent complete. The project will be implemented by BHP in conjunction with engineering company Kvaerner.



# **Financial Impact**

Cash operating costs are estimated at less than US\$0.30/lb at a production rate of 34,000 tonnes per annum. This is generally at or below the cost of similar operations in Chile.

#### **Operating cost break-down**



# **Key execution issues**

### Technical

Technical risk for the project is low. The oxide plant process technology is commercially proven and the usual risks of production are further reduced as a major proportion of the resource is already mined, increasing the confidence in the reserve size and grade.

#### **Copper Market**

Annual production from the Tintaya oxide project reflects a small fraction of the world's copper production. This level of incremental supply is not expected to significantly impact metal prices.

It is expected that the project will readily find markets for its cathode given the high liquidity of the copper cathode market and current projections for continuing strong demand for refined copper.

#### Acid price

Demand forecasts for Peru and Northern Chile indicate an increasing sulfuric acid surplus for the region in the coming years.

The project is currently negotiating letters of intent with acid producers in Peru to ensure supply and price in the early years of the project.

#### **Political risk**

BHP has extensive experience in Peru through its ownership and operation of Tintaya. It is BHP policy to limit the risk exposure of its asset portfolio and the Company will continue, as with similar projects, to actively examine ways to share those risks, including joint venture arrangements.

# Future growth prospects

Over the last three years regional inferred resources have grown significantly in the Tintaya area, providing the potential for the creation of a significant copper producing district.

BHP Minerals is undertaking several evaluation activities in the area to analyse the commercial viability of mining these additional resources.

The largest resource, Antapaccay, which lies ten kilometers south west of the existing Tintaya pit, is currently undergoing resource assessment and pre-feasibility study. Antapaccay has an estimated resource significantly larger than the original Tintaya resource.

If development continues existing infrastructure at Tintaya would be utilised to produce copper contained in concentrate from FY05.

BHP is also conducting scoping activities on the Coroccohuayco resource nine kilometers south east of Tintaya.



The information in this report relating to Mineral Resources and Ore Reserves is based on information compiled by Mr. Richard W. Hasler who is a member of the Australasian Institute of Mining and Metallurgy. Mr Hasler is a full time employee of BHP or related entities, and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activityhe is undertaking to qualify as a competent person as defined in the 1999 edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Hasler consenst to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## For clarification please contact:

#### **Investor Relations**

Dr Robert Porter (Melbourne) Vice President Investor Relations Ph: (61 3) 9609 3540 Email: Porter.Robert.R@bhp.com

Mr Francis McAllister (Houston) Vice President Investor Relations (North America) Ph: (1 713) 961 8625 Email: McAllister.Francis.FR@bhp.com

This document contains certain forecasts and forward-looking information. Such forecasts and information are not a guarantee of future performance and involve unknown risks and uncertainties, as well as other factors, many of which are beyond the control of BHP. Actual results may differ materially from those expressed in this document.