



Varvarinskoye Cu/Au Project

Project Category: Optimisation

Client: Three K Exploration / JSCV

Location: Khazakhstan

Capacity: 4.5 Mtpa

Commodity: Copper / Gold



Scope of Work

OMC's scope of work was to facilitate the ramp up of the production rate to 4.5 Mtpa. This involved a desk top audit of the design, site audit and data collection, site commissioning / optimisation and training services, modelling of design improvements.

Flowsheet

The Varvarinskoye plant comprises a 1.25 Mtpa copper gold flotation concentrator and a 3.25 Mtpa gold CIP circuit. The plant has a common crusher for the Cu/Au and Au circuit stockpiles. Each circuit has a SAG Ball circuit. The Cu/Au circuit has 1.5 MW mills and the Au circuit 4.5 MW units.

Outcomes

The combined capacity of the plant was approximately 250 tph when OMC began work on the project. During a 6 month period the plant production was increased to 450tph through improved use of the crushing circuit, stockpile and blend management, reconfiguration of the cyclones, implementation of a control philosophy and process control.

Due to the ore characteristics the plant production was still shy of the target 540 tph at the end of 6 month period. Using survey data, modeling was undertaken to determine the best means to achieve the production target. Through the use of modeling techniques (Bruno, JKSimMet & HelpSAG) and consultation with the client, a partial secondary crushing was selected. Major equipment selection and mass balance data from the upgrade was packaged for use by an engineer in the design and implementation of the project.