

### TAILING DISCHARGE CANAL

THE BOZYMCHAK FIELD, ZHALALABADSKYA AREA, KYRGYZSTAN

#### TAILING DISCHARGE CANAL

**Product: Reno Mattress®**

##### The problem

The Bozymchak gold mine in Zhalalabadskeya is operated by Kazakhmys Gold Kyrgyzstan Ltd. Kazakhmys core business is actually the production of copper and this mine provides copper concentrate to their smelters in neighbouring Kazakhstan. Gold is present within the ore as a by-product and is also extracted for sale.

A series of construction works were being undertaken at the open pit mine in support of mining operations. One such structure was a tailings dam for the safe storage of waste. A discharge channel was needed to contain and convey the fluid waste materials to the treatment facilities.

Difficult geological conditions and a lack of access roads in the surrounding mountainous terrain required a solution which would be impervious to such harsh conditions whilst being robust from an engineering standpoint.

Without the channel, the waste could flow in an uncontrolled manner eroding the surrounding ground and potentially pollute it.

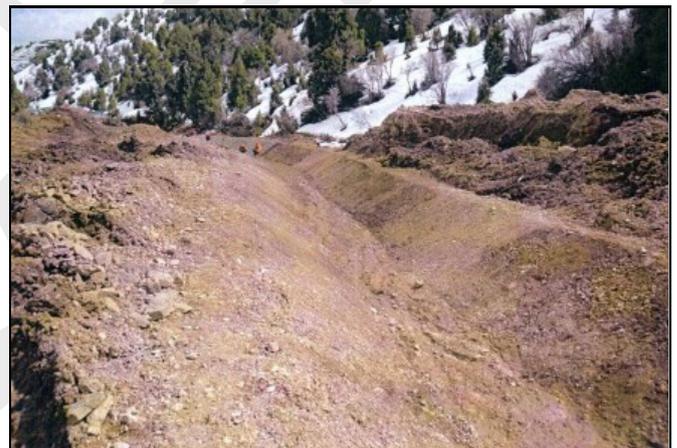
##### The solution

The technical solution accepted include a canal in a trapezoidal shape, the length of which was 1 kilometre. Reno Mattresses were used to face the bottom of the channel and to protect the side slopes.

Ease of use of the Reno mattress with local rocky material allowed for construction works to be completed quickly, on time and to the customer's satisfaction.



Beginning of the works: excavation phase



Planning the slope and the bottom of the canal



During construction: rock fill placement

Client:

KAZAKHMYS GOLD KYRGYZSTAN

Contractor:

LLC "IZHENERNYA ZASCHITA"

Designer:

KAZAKHMYS GOLD KYRGYZSTAN

Consultant:

MACCAFERRI CENTRAL ASIA

Products used:

Reno Mattresses: 3x2x0,17; 2x1x0,17; 6x2x0,3;  
3x2x0.3

Volume of production

135 Tonnes

Date of construction

JANUARY 2012—JANUARY 2013



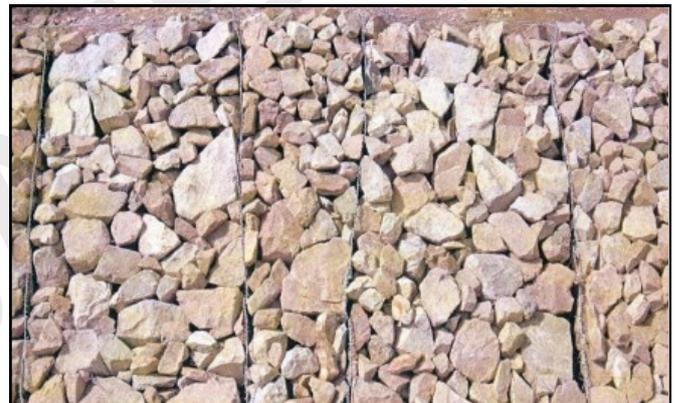
Completed construction

Reno Mattresses are double-twist hexagonal steel wire mesh baskets, filled with rock to form flexible, permeable, monolithic structures for river bank and scour protection, channel linings for erosion control. The steel wire used is heavily galvanised and coated with an additional polymer coating to provide added protection for use in aggressive environments. The base, diaphragms, front, end and sides are manufactured from one continuous panel of mesh.

Maccaferri's design software, MAC.R.A. 1 and MAC.R.A. 2 are used to design channels, longitudinal and transverse structures.

These enable the designer to rapidly perform preliminary hydraulic studies to evaluate the bank protection (Mac.R.A. 1) or the transverse weir (Mac.R.A. 2) required. An open library of products enables a combination of man-made and natural solutions to be considered.

Maccaferri's first hydraulic erosion control intervention was on the River Reno, near Bologna, Italy, over 130 years ago. It is there that the term Reno Mattress™ was invented, a term used generically for these applications, yet is actually a trade mark of Maccaferri. As proven by experience and testing, a Reno Mattress™ has the same protection effect as a loose stone layer up to three times thicker.



Construction process Reno mattresses



Finishing of the construction process

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