



SIKA AT WORK

NEVES CORVO MINE, PORTUGAL

RAMPING UP FOR INCREASED AND EFFICIENT PRODUCTION

BUILDING TRUST



RAMPING UP FOR INCREASED AND EFFICIENT PRODUCTION

PROJECT DESCRIPTION

Lundin Mining Corporation is a base metals mining company with operations in Portugal, Chile, US and Sweden. The Company currently has four mines in operation producing copper, nickel, lead and zinc. The Neves-Corvo mine is operated by Sociedade Mineira de Neves-Corvo SA (Somincor) a 100% subsidiary of Lundin Mining.

The Neves-Corvo polymetallic base metal mine is located approximately 220 km southeast of Lisbon within the western part of the world-class Iberian Pyrite Belt which runs through southern Spain and Portugal. Neves Corvo comprises of 5 distinct Vulcanogenic Massive Sulphide bodies (VMS).

The mine has been developed as an underground operation with a milling capacity of approximately 3.5 Mt of ore per year. Ore is hoisted via a 5 m diameter shaft from the 700 m level. Further access is provided by a decline. Ore from the deeper levels is transported to the 700 m level via an inclined conveyor. At the present time, drift and fill as well as bench and fill mining methods are utilised with the fill comprising either hydraulic or paste fill. Current reserves underpin a 13-year remaining mine life (to 2030).

RAPID MINE DEVELOPMENT

There is currently a Euro 260 million expansion project underway to increase the zinc output of the mine. On completion, the zinc circuit will have a 2.5 million ton nameplate through-

put capacity – doubling average annual zinc production to 150 kt per year. In order to increase the mill feed, the development of the lower Lombador deposit is critical for the zinc expansion project of Neves Corvo. Sika is a long standing partner of Lundin Mining in several of their mines and assisted the Neves Corvo team in order to prepare and execute rapid mine development and decline construction implementing in cycle, fast setting shotcrete primary liners and efficient shotcrete mix designs. A strong focus was given to the required open time for transport and handling, final strength as well as to counter acid mine drainage from the sulphur rich ore bodies protecting the underground infrastructure from corrosion. The project also included the transition from steel-fiber reinforced shotcrete to the use of high performing polypropylene fibers. By doing so, the shotcrete mix could be improved in terms of the cost and yielding properties.

PROJECT REQUIREMENTS

- Rapid early strength development
- High final strength
- Dense matrix to counter acid mine waters
- A minimum dosage of accelerator
- Excellent yielding properties
- Open time > 4 h
- High Energy absorption according to ASTM 1550-05
- Trouble free transport through the installed slick line



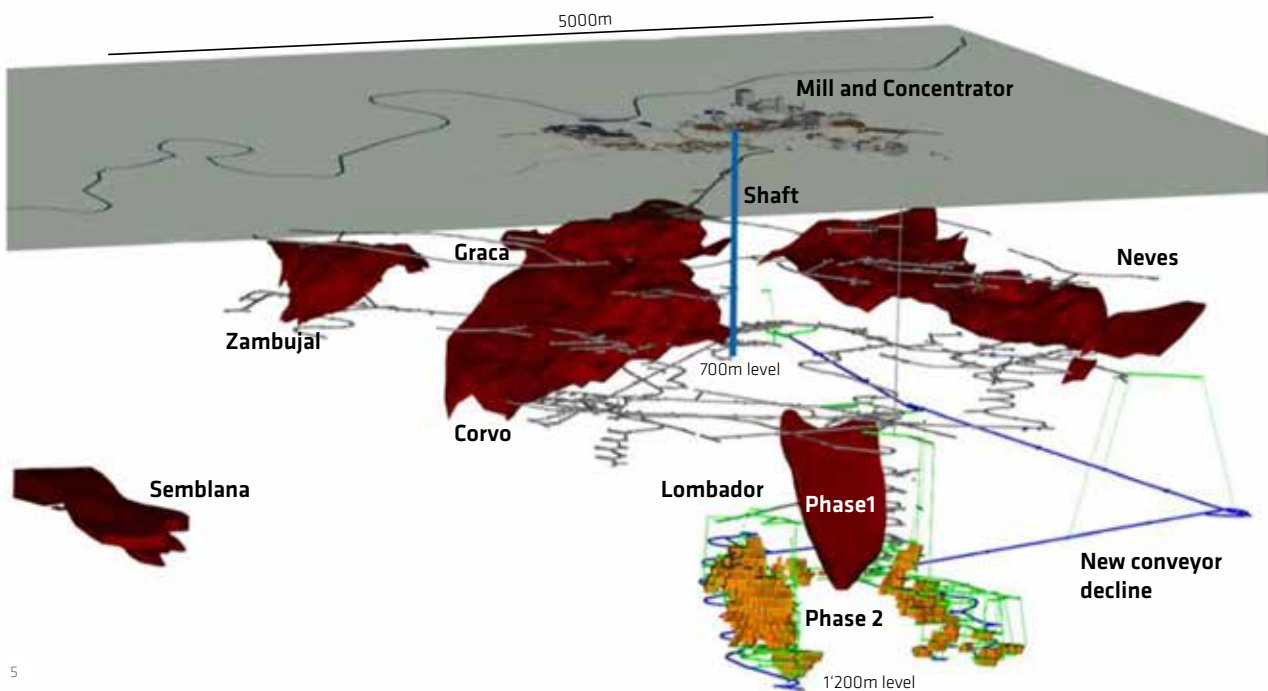
SIKA SOLUTION

Sika's world leading Sigunit® and ViscoCrete® technology is among the key elements for the shotcrete and concrete works at Neves Corvo. For the shotcrete, the mine relies on the proven SikaFiber® technology with excellent load bearing capacity at a low fiber dosage. The fiber has been selected after a challenging selection and tender process. Sika Portugal is not only supplying mine consumables but is also present on site to give ongoing support with everything related to underground construction. Together with the dedicated Lundin Somincor team, many challenges have been tackled.

SELECTION OF SIKA PRODUCTS

- Sika ViscoFlow® 30 Superplasticizer
- SikaTard®-930 Consistency stabilizer
- Sigunit® TM Alkali-free, high performance shotcrete accelerator
- SikaFiber® Polypropylene Macro-fiber
- Sika NeatCrete Concrete remover and Slick-line de-blocker
- Sika PM 4210/500 Wet shotcrete spray units
- Sika® Separol® Demolding agent
- Sikaflex® Sealing and bonding cartridges
- Many other Sika construction products

- 1 Front: Headframe of the Neves Corvo Mine
- 2 Quality control of the produced shotcrete mix
- 3 In cycle shotcreting
- 4 Concrete batch-plant loading truck mixers or direct feed of underground slick-line
- 5 Overview of the Neves Corvo ore bodies and the new Lombador development project
- 6 Shotcrete spraying underground



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Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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