

SIKA AT WORK YOUNG DAVIDSON MINE

UNDERGROUND AT ONE OF CANADA'S LARGEST MINES





BUILDING TRUST

YOUNG DAVIDSON MINE, CANADA

PROJECT DESCRIPTION

The Young-Davidson mine is among Canada's largest underground Gold mining operations, located in Northern Ontario, Canada. The project is situated within the south-western section of the Abitibi Greenstone Belt, a major gold producing geological province globally.

Jake Davidson identified the Young-Davidson prospect around 1910 which led to Gold production between 1934 and 1956 of close to a million ounces from two past producing mines. The Young-Davidson open pit mine achieved commercial production on September 1, 2012 by Aurico Gold which merged with Alamos Gold in 2015. A much larger underground project subsequently broke ground to mine the large, relatively low grade but continuous, Young Davidson ore body through bulk tonnage, low cost mining methods. On October 31, 2013, the Company declared commercial production at the Young-Davidson underground mine following the commissioning of the shaft hoisting system. Open pit mining ceased in June 2014 upon depletion of the pit reserve. Today, the Young Davidson mine has a reserve base of over 3 million ounces of Gold, grading at around 2-3g of gold per ton of ore and a life of mine in the order of 13 years.

EFFICIENT MINE DEVELOPMENT

The Young Davidson underground mine has been designed for low operating costs through the use of large, modern equipment. Extensive gravity movement of ore and waste through raises, ore and waste passes and shaft hoisting, results in minimal ore and waste re-handling. High productivity bulk mining methods and paste backfill have been implemented in the mine and the main mining method today is transvers longhole stoping with 30 meter sub levels. The mine operates scooptrams to load, haul and transfer stope production to the ore pass system from where it is hoisted to the surface via 18 ton skips. Roughly 7.000 tons of ore being processed daily at the Young Davidson mill and processing plant. Sika King has been strongly involved with this project and provides solutions to reinforce the extensive ore and waste handling system of the mine, including ore and waste passes, ore bins and silos, chutes and vent raises as well as general ground support works using King shotcrete solutions. Alamos Gold and the Young Davidson team decided to use a highly specialized King shotcrete system for the lining of these critical mine infrastructure components. A successful lining and fortification of these structures is critical to ensure a long service life of these components to provide an undisrupted operation.



PROJECT REQUIREMENTS

- Rapid early strength development of shotcrete
- High final strength
- High abrasion- and impact resistance of the sprayed concrete
- Efficient, flexible and reliable shotcrete equipment that can be handled easily even if access is limited and confined
- Packaging that allows efficient handling and transport underground to the point of use
- Fast responding support team and site support whenever needed

SIKA-KING SOLUTION

The use of RS-D2 ArmourGuard was an integral part in the development of the ore and waste pass system at Young Davidson. It was chosen due to its durability for impact and abrasion. This, along with Rapid Set (RS) technology utilized, enabled the rapid development and enhanced work schedule. 20 Mpa was gained at two hours. This rapid strength gain enabled the cross shift to continue application.





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Dumas contracting applied the RS ArmourGuard using an air driven Sika-Aliva AL-262 shotcrete unit with a 16 Litre rotor, a reliable, dry-mix shotcrete pump that allows manual spray application of the shotcrete. The hand held application was performed off an Alimak platform that was constructed to fit the bin/ore pass sizing. Technical support was provided by King Technical King representatives for both product application and equipment throughout the project.

SELECTION OF SIKA PRODUCTS

- King RS-D2 ArmourGuard[®] Dry-mix shotcrete with special,
- RS-D2 STB
- PC-S6 UG35
- Sika-Aliva AL-262

Dry-mix shotcrete with special, abrasion and impact resistant properties for the lining of ore passes, ore bins and chutes Dry-mix, fibre reinforced shotcrete Pre-bagged concrete mix Air driven shotcrete pump



Construction of new Lower Mine loading pocket



Alimak installed on top of one of the ore bins with the Sika-Aliva AL262 in the foreground

Front: View over the Young Davidson MCM Shaft, source: Alamos Gold
View looking up at one of the ore bins at the Northgate shaft with applied
Sika-King RS-D2 ArmourGuard®

2 Long section showing the extensive Young Davidson ore body and existing, as well as planned infrastructure (modified from Alamos Gold)

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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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