**Navigating the operational challenges at Campo Morado – a success story**

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# ABSTRACT

The Campo Morado Mine in Guerrero State, Mexico, was initially commissioned in 2009 and operated by Farallon Resources. Over the years, the mine has exchanged owners to address the poor metallurgical performance and plant-related design issues. In 2017, Campo Morado was acquired and restarted by Altaley Mining Corporation (now Luca Mining) after the mine was put under care and maintenance by Nyrstar due to the downturn in the mining industry in 2015.

Campo Morado is an underground multi-metal mine with an original processing capacity of 1,500 tons of ore per day. Mineralisation at Campo Morado occurs in complex volcanogenic-style massive sulfide (VMS) deposits. The Campo Morado deposit consists of several massive sulfide-horizons, hosting polymetallic (base metal and precious metal) mineralisation within a complex, layered felsic to intermediate volcanic sequence. The metals of interest include zinc, copper, silver, gold, and lead.

The operational challenges at Campo Morado are multiple; from lack of ore supply, poor ore blending, maintaining consistent metal grade feeding the process plant, leading to operational complexities due to staged polymetallic processing at the ultrafine grind, and persistent maintenance issues culminating in poor overall performance.

Since 2022, Ausenco has been involved in various optimisation activities supporting the Campo Morado team. Continual performance improvements have been achieved by a systematic approach of project identification, evaluation, and implementation, leading to a progressive improvement in flotation performance.

The paper discusses the process of continual metallurgical improvements at the Campo Morado concentrator, such as developing a mine-to-mill program to maintain consistent metal grades feeding the plant, a geometallurgy program to characterise the deposit, the modernisation of the flotation circuit, development of a more robust flotation circuit flowsheet, and operational training to navigate the processing complexities at Campo Morado.