Case study

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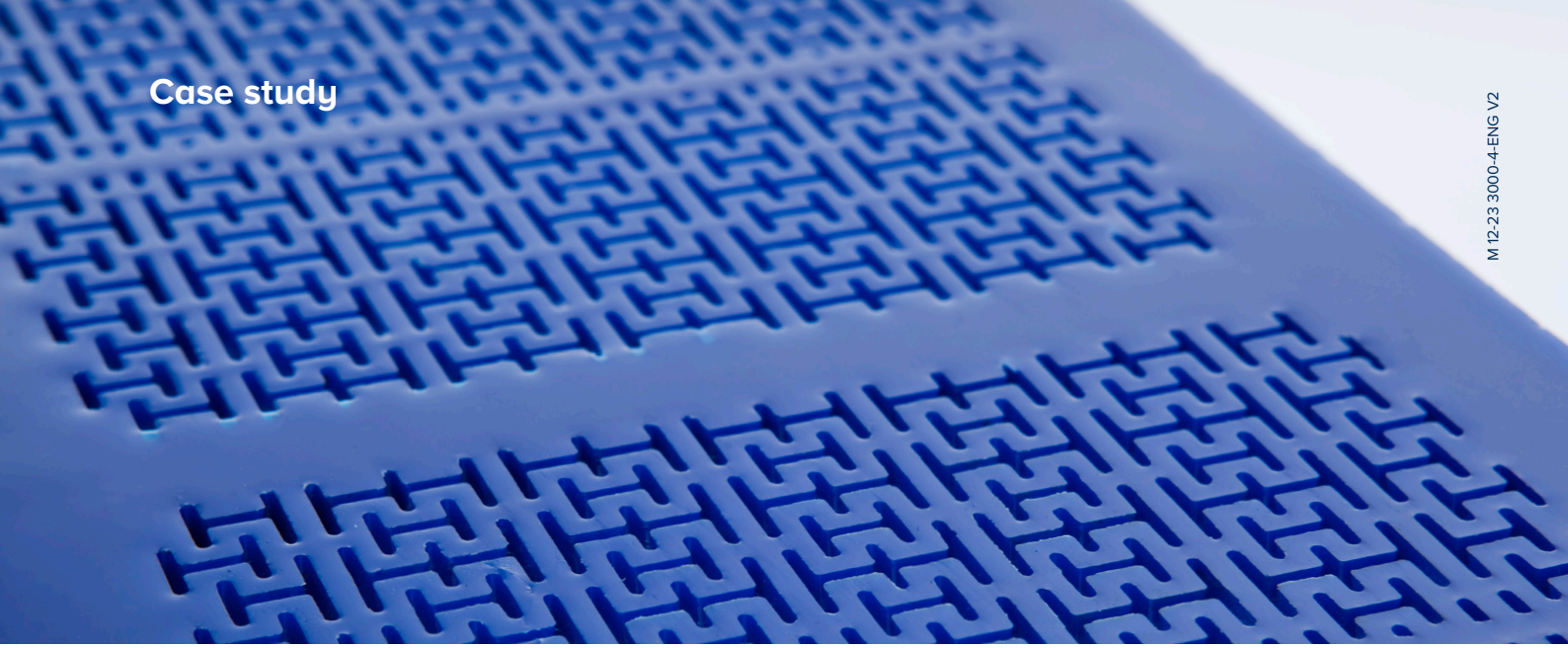


Screen aperture switch increases mine's capacity and efficiency

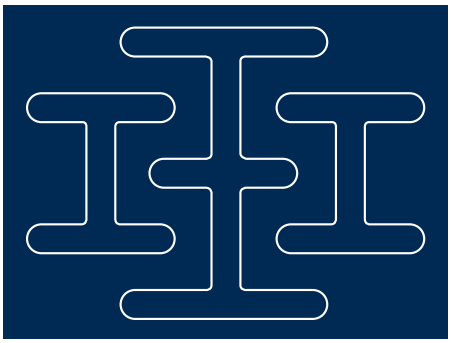
Faced with improving capacity and efficiency, as long-term customers of FLS, one of the world's largest gold mines knew they could rely on us to find the right screen media solution and support the mine to meet their goals.

Background and objective

Indonesia's Martabe Mine, managed by PT Agincourt Resources, located in North Sumatra, is one of the largest gold mines in the world. Mine operations commenced in July 2012 with a resource base of 7.5 million ounces of gold and 67 million ounces of silver. With an operating capacity of 4.5 Mt per annum of processed ore, annual production is around 260,000 ounces of gold and 2.1 million ounces of silver.

Keen to ensure optimal performance was being achieved in every area of the mine, the mine's metallurgy team sought the assistance of FLS to solve a problem they faced with their trash (carbon recovery) screen. Extensive pegging was resulting in daily cleaning and time offline. This was impacting the process plant's capacity and its efficiency.

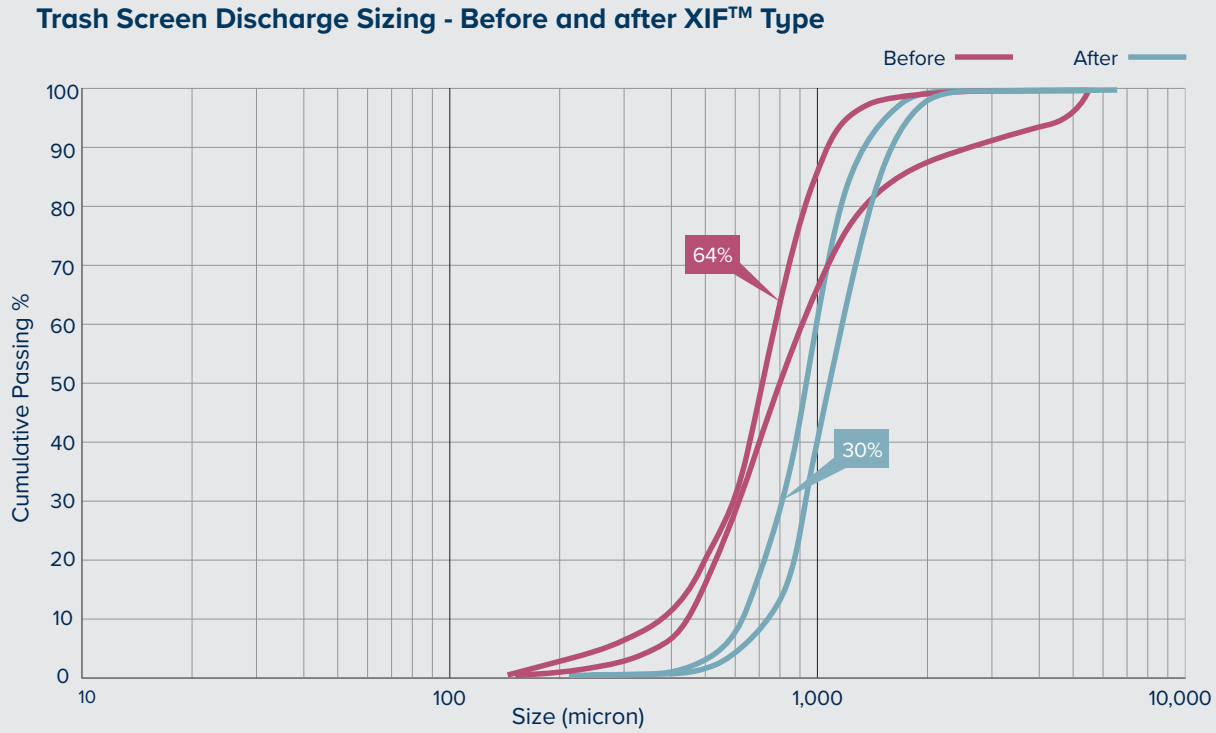
In addition, a considerable amount of fine ore, containing valuable metal which can be recovered, was being carried in the oversize material with the trash, losing gold and money.



"The mine's metallurgy team reported that, following installation of the Ludodeck® P2 system with XIFTM aperture, pegging was substantially reduced"

Noel Eather
Technical advisor, Screen Media

FLS



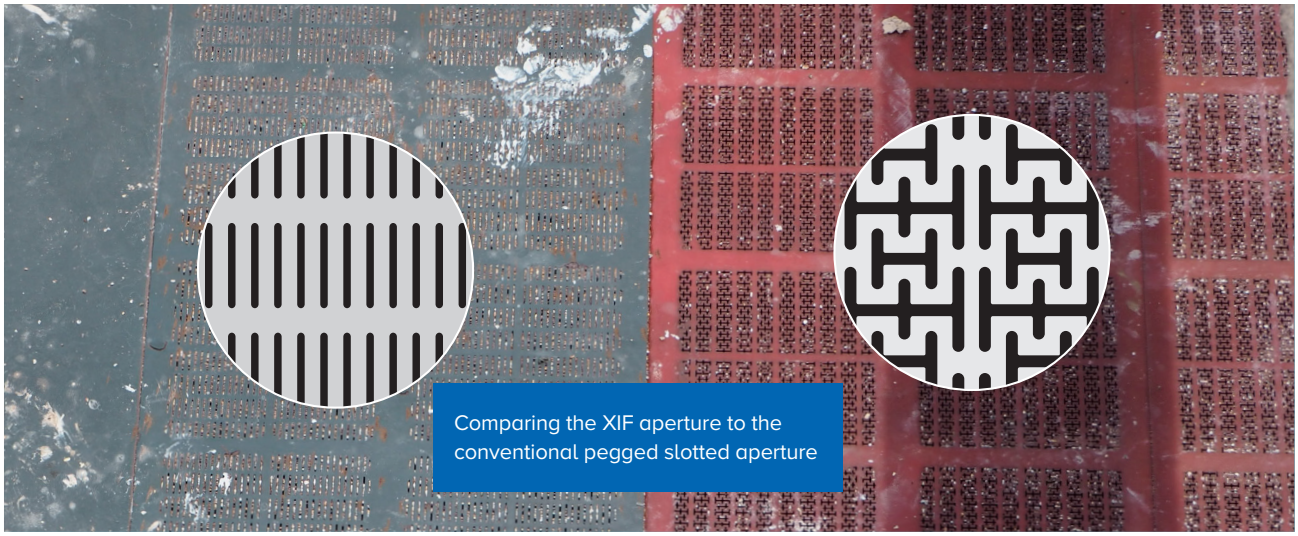
Defining the project

The square aperture of the screen media installed at the mine was causing the pegging. The mine's metallurgy team had trialled conventional slotted apertures but they eventually caused pegging too.

As long-term customers of FLS, and having experienced the simply installed, convenient and high performance capabilities of the FLS Ludodeck P2 screen panel, as well as the screens' high quality and longevity, the mine's team was confident a solution could be found in the Ludodeck P2 aperture library. In addition, the mine team had confidence in the product support and communication they would receive from our experts.

FLS assessed the problem and recommended the Ludodeck P2 system with XIF™ apertures. The Ludodeck P2 screen's ability to be clipped into any already-installed modular system meant it was easy for a trial to occur.

The FLS Ludodeck P2 system with XIF™ apertures has increased throughput capacity by 10 tonnes per hour (1.3%) at the Martabe Mine. With potential to introduce more new screens, capacity will increase even further. More importantly, the XIF aperture has increased the screen's efficiency, resulting in an overall efficiency increase from approximately 72% to approximately 94%.



Comparing the XIF aperture to the conventional pegged slotted aperture

Screen deck installation

The solution

The FLS Ludodeck P2 system with XIF aperture is an advanced design modular polyurethane panel and aperture combination. The aperture, with its unique inflow and across-flow slots, reduces the likelihood of material becoming pegged, therefore increasing the operational screen deck open area. The design also allows for closer placement of the apertures and delivers one of the highest relative open areas (>15% more) on a standard slot modular panel available, when compared to screens of similar size and material.

The deck layout was staged in three sections, utilising three different aperture configurations. This optimisation technique allows the material to naturally drain, clean and screen. We are able to employ this technique as it has a vast aperture library available to suit a myriad of applications and material properties. Years of process knowledge, combined with collaboration with global product teams, ensures the optimal arrangement is selected.

The results

The mine's metallurgy team reported that, following installation of the Ludodeck P2 system with XIF aperture, pegging was substantially reduced. In addition, a large reduction was seen in fines carryover; this increased throughput capacity by 10 tonnes per hour (1.3%). Screen media life has not changed but screen availability has, due to the offline cleaning not being required. Calculated drainage rates have increased from 42 $m^3/hr/m^2$ to approximately 68 $m^3/hr/m^2$.

The metallurgy team advised that worn rails, in places, have limited their ability to replace some of their old screens. This means the mine stands to achieve further capacity and efficiency gains once this issue has been resolved and further Ludodeck P2 screens with XIF are installed.

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