

Case Study April 2024

# How simple maintenance and operational changes grew Jameson Cell yield by \$50m

The team at a coal operation reached out to Glencore Technology to optimise their flotation performance. The operation had changed hands and the new operators were going through the process of improving plant performance.

The concentrate quality was excellent, with flotation product ash sitting within the 6–8% target, but they believed they could be achieving better flotation yield than the current 55–65% which meant losses of coal product to flotation circuit tailings.

## THE HUNT FOR MORE YIELD

All mineral processing assets drop in performance over time and require periodic optimisation efforts. The operation's Jameson Cells, commissioned in the early 2000s, were no different.

Glencore Technology was engaged to complete operational and mechanical audits. Initial inspection of the Jameson Cells indicated that general wear and tear and mechanical condition were contributing to the decline in cell performance.

The inspection highlighted some standard, auxiliary equipment required replacement and key components were identified as needing inspection. All low-cost issues.



## HOW THEY ACHIEVED IT

The operation completed the maintenance activities and ensured proper condition and operation of each cell:

- blocked downcomers were cleared without taking the cells offline,
- solid build-up was removed from air lines,
- Air Isolating Slurry Eliminating (AISE) valves that were no longer effective were replaced,
- the air distributor was checked and cleared,

- diffusers were replaced or realigned, and
- the team received training.

Given the high turnover in the industry, training was important. It helped create a quick and solid understanding of some operating principals and troubleshooting steps.

The team discussed specific operating strategies that could improve performance and developed an implementation plan.

The operation implemented a range of short-and long-term maintenance



and operational recommendations. The results were fast and impressive.

## GREAT RESULTS

They earned themselves a 15% increase in flotation yield while keeping ash within the 6–8% target range. Based on an average coking coal price of 262 USD/tonne, this corresponds to a revenue increase of \$144,000 per day.

**‘Over an entire year this increase could deliver an extra \$50 million of coal product.’**

The cost of the site visit, replacement parts, and labour came to less than \$40,000 – less than a single day’s increased revenue generated by the Jameson Cells operating effectively.

|                                  | BEFORE VISIT       | AFTER VISIT   |
|----------------------------------|--------------------|---------------|
| Average Flotation Yield          | 56%                | <b>72%</b>    |
| Average Flotation Production Ash | 5.3%               | <b>6.2%</b>   |
| Flotation Tailings*              | 72 tph             | <b>47 tph</b> |
| <b>Revenue increase per day</b>  | <b>+ \$144,000</b> |               |

\* Calculated on 15% plant feed reporting to flotation, 1,100 tph plant feed, 90% availability

These improvements highlight the value that can be obtained by completing regular preventative maintenance on Jameson Cells.

An operation can avoid high-capital and high-risk alterations or replacements of Jameson Cells and instead invest a small sum to secure better performance and a good understanding of how to operate them.

**A huge win and a great saving.**



## ONLINE CALCULATOR FOR JAMESON CELL

Try our online calculator for Jameson Cell. It’s a handy estimate.

And while it does not serve as a firm predictor of Jameson Cell performance in your flowsheet, it CAN give the start of valuable

feedback you can explore further.

The actual process, data-gathering and calculations used by Glencore Technology in a project are more involved.

Try it here: <https://www.glencoretechnology.com/en/knowledge/calculators/jameson-cell-calculator>



## JAMESON CELL FLOTATION GIVES YOU MORE CONCENTRATE PER DOLLAR, PER METRE AND PER YEAR

Jameson Cell is a fast, small-footprint flotation technology for every duty within a flotation circuit. It improves both grades and recoveries.

Jameson Cell processes a high volume of feed through a small-footprint asset. This means a small circuit can deliver large volumes of concentrate. It has no moving parts and routine maintenance can be performed without turning the cell off. This means it has very high availability and very low downtime.

**‘Jameson Cell is proven in more than 450 installations around the world. It processes base metals, precious metals, coal, potash and more.’**

It delivers the best combination of more concentrate from less footprint and with the maximum availability.