

Performance Study

Ref. No.: 22-001L

Commodity
Copper and Gold

Technology
Customised E-DUC® Autodilution Mechanism and E-Volute™ Feedwell

Application
Tailings Thickener Feedwell Upgrade

Study type
Customer Story

Country
Australia

How a simple thickener maintenance request evolved into a productivity enhancement project

An Australian mining operation reduced water to tailings by 6% and flocculant consumption by 27% at one of its tailing thickeners thanks to a first-of-a-kind feedwell upgrade. Payback was achieved in just ten months. The project also supported the mine's water sustainability ambitions to minimise local raw water consumption by maximising the reuse of mine affected process water.

The thickener in question was operating a worn bifurcated feedwell design, which had been supplied in the late 1990s and was now corroded beyond repair. Thanks to an ongoing good relationship with the customer, we were asked to provide a replacement.

The mine initially requested a like-for-like replacement. But after initial discussions, we agreed to undertake some test work to compare the performance of the existing design with that of our E-Volute™ feedwell with E-DUC®

autodilution mechanism. This process determined that significant savings in flocculant consumption were possible with the newer design, while underflow density could also be increased for improved water recovery, more than justifying the higher capital cost. The mine therefore agreed to implement the new feedwell upgrade.

Due to space restrictions at the site, a bespoke feedwell design was needed whereby slurry is fed internally into the thickener. Feedwell entry is located tangential to the central column, instead of hung underneath the bridge as in standard layouts. In addition to the design and supply of all components, we also provided onsite technical resources to assist with installation of this first-of-a-kind design. The work took place in December 2022 and included replacement of the flocculant lines to increase the number of addition points from five to eight.

The new feedwell has overachieved expectations in terms of density due to the improved solids distribution in the tank, with more flocculant savings to come. Overall, the project has contributed to reducing the mine's operating costs, while helping to deliver on its water stewardship goals.



2% w/w
Increase in underflow density



6%
Reduction in water to tailings



27%
Reduction in flocculant



10 months
Payback on feedwell upgrade

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