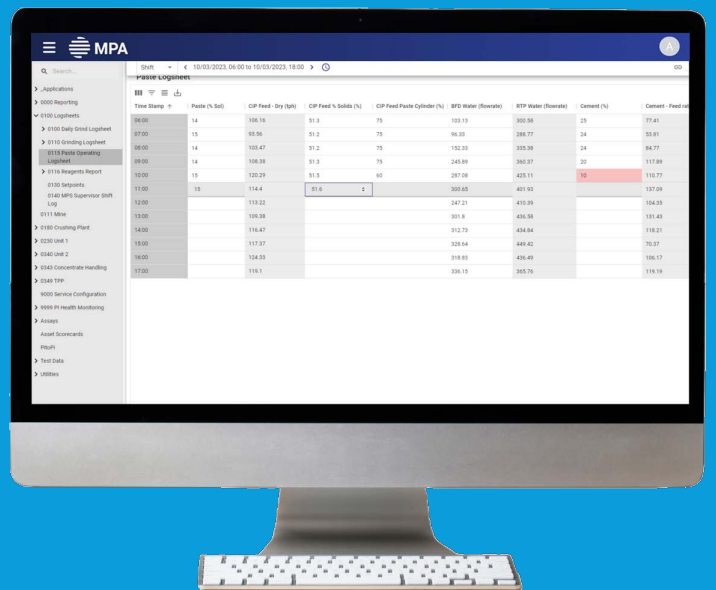
MPA

A case study with Ok Tedi Mining Limited

Papua New Guinea



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Case Study

OK TEDI MINING

In 2018, Ok Tedi's management was frustrated by low gold and copper recovery rates. Their plant was unstable, the equipment unreliable, and operators were running it in manual mode. The business knew there were many areas that could be upgraded, so it set up a Processing Improvement team to address the issues.

Today, the Papua New Guinean operation has completely transformed their processes, automated the plant, and introduced a software platform that has enabled the Met team to raise copper recovery by 2.4% and gold recovery by 7.4%. Here's how they did it.

Before: The illusion of manual control

The team at Ok Tedi was always looking for ways to increase reliability in their process plant. They wanted to safely reach production targets for mine's full lifespan.

However, in 2018, declining ore quality and other production challenges led to reduced gold and copper recovery rates. This decline caused the metallurgy team to lose trust in their automated control system and shift to manual plant operations.

"We see this situation with many minerals processing plants," says Glen Johnson, Product Manager at Mipac. "It's very common that the operator has put a control loop into a manual mode and they've set a fixed setpoint for it, so it's no longer running optimally."

"And, yes, it may appear stable, but if you suddenly get a disturbance, then that's when the process struggles to regain control."

Lyndah Brown, the Process Improvement Manager at the time for Ok Tedi, spoke at Austmine's Collaboration Showcase where she described the challenges of running a plant in manual: "As you can imagine, with different operators and varying operation styles, there was a lot of variability in the process."

The end result? Operations became reactive, and the Met team struggled to identify the root causes of underperformance. So, the board commissioned a team on-site to look into improving some of these processes.

Finding the best way forward

The Processing Improvement team reviewed the data network and control systems to identify the most impactful areas for improvement.

“At that time, we struggled with limited visibility and transparency around the reasons for our underperformance. To address this, we partnered with Mipac and used their MPA software to put many of our plant KPIs and dashboards online, which enhanced visibility, accountability, and enabled timely, data-driven decisions. This approach allowed us to hold people accountable for their actions, which, in turn, boosted overall performance,” explained Lyndah.

The partnership with Mipac was one of several activities on their three-year automation roadmap. They came up with a three-pronged approach to address the issues:

- Optimise instrumentation and controls
- Upgrade the AVEVA PI System
- Process control systems training

After: Using instrumentation and data for business intelligence

With the new MPA software dashboards, Operations teams now had more data visibility and accuracy. This enabled them to make faster, better-informed decisions based on plant data. This approach also allowed the business to hold people accountable for their actions, which, in turn, boosted overall performance.

The digital improvement project raised copper recovery by 2.4% and gold recovery by 7.4%.

“Of the initial strategies we implemented, 67% of the actions served as key enablers for the current improvements. These results reflect three and a half years of dedicated work,” shared Lyndah.

Lyndah added that in hindsight it was the right decision to choose a customised software product for their unique plant processes. “They listened to what we wanted and tailored the project within our boundaries and team capabilities. We utilised their expertise in project management and the project management portal, Confluence, to support us in any way we needed — whether for operational processes or simply managing the project.”

“I’m happy to say that the stable and automated operations leave us time now to actually concentrate on improvements, and that has been enhanced by the digital maturity that we’ve arrived at.”

Mipac’s MPA software also allows the Met team to track the value of various improvements they make and to capture any changes they make. It retains the knowledge that goes with those changes, so if any staff leave, knowledge isn’t lost and there’s continuity for the next person to carry on with the improvements.

Digital transformation continues

Ok Tedi's Met team have now seen first-hand the practical value of process plant software so they're now looking to gain visibility in other areas of the plant.

They recently added in two new apps to the MPA Suite — Digital TARP, which allows them to quickly identify and resolve production deviations, and Golden State, which gives them live dashboards of plant data and full visibility over what's happening in the plant right now.

"They see it as a longer-term approach and understand that there are lots of steps along the way," says Glen.

The digital maturity journey, while it still continues, has contributed not only to Ok Tedi's strategic goal of improving their process automation but has also made the plant more stable, reduced operating risk and significantly increased recovery rates. And that's all despite the challenges of increasing ore hardness, declining feed grades, and assets approaching end-of-life.

Why Mipac

Global leaders in operational technology, control systems and engineering services, Mipac is the perfect partner in driving operational performance.

Our team of trusted advisers includes knowledgeable senior engineers and creative, skilful innovators in technology.

We partner to provide early-stage consultation and continuous optimisation strategies to whole-of operations. From the solid foundations of control systems, software, and engineering, to the latest digital technology advancements, we're committed to pushing boundaries to create innovative, flexible solutions that consistently fulfill our clients' commitment.

We embrace complex challenges and solve problems in the areas of performance, productivity, and safety by enhancing existing infrastructure systems and technology and providing reporting and decision-making solutions.

We do this by drawing on our extensive onsite experience and unparralled knowledge of comparative solutions on the market to bring real value and insights to maximise the potential for success.

Solutions and Services

We work across various industries to realise the total value of your operation and recommend solutions and services that produce optimal outcomes and increased performance.

- Advanced Process Control
- Industrial Automation
- Data Analytics and Visualisation
- Cybersecurity
- Process Optimisation
- Industrial Software
- Electrical and Instrumentation
- Operations Support
- Mining 4.0 Consulting

Transforming the mining value chain

Over the past **3** decades

our team of **180** engineering professionals

have delivered over **730** projects

across **55** countries globally

for more than **110** customers

mipac

We believe in working together
with our clients and partners
to achieve their goals.

At Mipac, we go

beyond the solution.