

A 2025 report in association with:

INTERNATIONAL
MINING
MONTHLY

Minjng Magazine

Minjng Journal

The tailings reckoning

Why the mining sector must rethink tailings risk



Research partners



Endress+Hauser **EH**
People for Process Automation





Safe dams, straight talk: the Knight Piésold difference

Image: Lucas Martinez

Knight Piésold's approach to tailings management rests not only on technical depth but on honest dialogue, rigorous global systems and a commitment to long-term outcomes. Managing director, Australia, Dave Morgan explained how the company is helping reshape the culture and practice of tailings engineering across regions and clients.

From risk to responsibility

Over the last two decades, the perception of tailings facilities has undergone a fundamental shift. Once seen as a low-cost necessity tucked away at the back of a minesite, tailings are now firmly on the boardroom agenda. And for good reason. A serious failure can spell the end for even a major company.

Knight Piésold, a global consultancy working across mining, water, energy and infrastructure, has placed itself at the forefront of this transition. According to Dave Morgan, the change in mindset has been dramatic, but overdue. The industry's increasing focus on tailings safety, driven in part by high-profile failures in Brazil, has helped reinforce what Knight Piésold had been advocating for years: that proper stewardship must be embedded throughout the life of a project.

Engineering trust, not just structures

Central to Knight Piésold's approach is the belief that technical integrity must be underpinned by trust. For Morgan, strong client relationships are not about keeping things comfortable, they are built on honest conversations, particularly when it comes to risk. This has been a defining part of the company's culture: being able to say what needs to be said, even when it is difficult.

"We emphasise to our clients that it's all about relationship," Morgan said. "Like in marriage, it's based on trust and mutual respect." That trust, in turn, allows the company to push for higher standards and to challenge assumptions when necessary.

Knight Piésold was promoting the engineer of record model long before it became a global benchmark under the global industry standard on tailings management (GISTM). The company routinely discusses tailings governance with prospective clients before taking on new work, ensuring alignment on both expectations and ethical standards. "It's not in anyone's interest to begin a project where the commitment to safety isn't shared," Morgan noted.

Systems that scale globally

One of the key differentiators in Knight Piésold's work is its commitment to quality control through peer review. Every new project initiated through the company's global system triggers a third-party review from a senior engineer in another office. This ensures cross-border expertise is applied from the outset, not just to manage risk, but to embed best practice and promote internal learning.

These internal reviews, initiated five years ago, are now fully systematised. Monthly reports give regional managers visibility into how reviews are being conducted, by whom, and at what stage. This approach has not only added value to clients but strengthened organisational consistency across regions.

The company also embraces real-time monitoring and digital technologies. It uses drones for inspections and remote audits and helps clients interpret live data to improve responsiveness. During the COVID-19 pandemic, this capability proved vital, allowing engineers to remotely evaluate sites that could not be accessed in person.

Global standards, local knowledge

Knight Piésold's presence across emerging mining jurisdictions has led to a local-first model, where offices

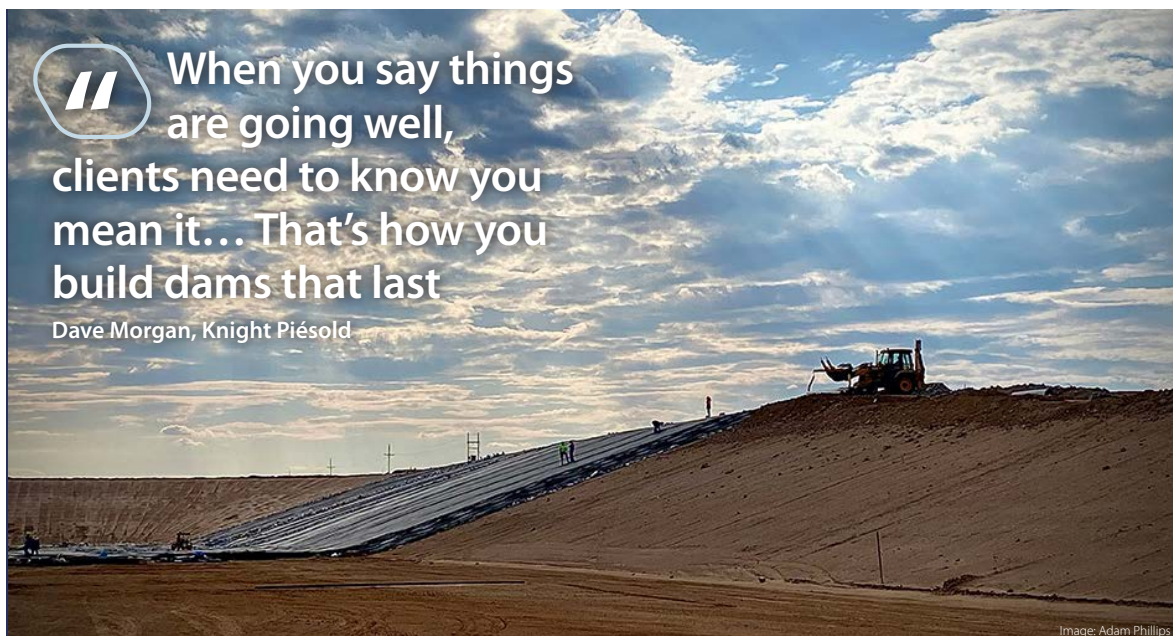
are staffed by personnel familiar with local regulations, site conditions and cultural context. This allows the company to deliver tailored solutions that still meet international standards.

Morgan pointed to the company's involvement in the Reko Diq copper-gold project in Pakistan as an example of its approach in action. Operating across 15 time zones with multiple stakeholders, the project demanded adaptability, technical depth and clear communication, especially in a region where environmental, logistical and social factors are complex.

Working with a major international miner, Knight Piésold has helped deliver a design that aligns with the Australian National Committee on Large Dams guidance, GISTM principles and the client's own high standards, often going beyond regulatory minimums. This blend of flexibility and rigour is what sets the company apart.

Preparing for climate, closure and complexity

Knight Piésold takes a long view on climate adaptation. Drawing on published climate models from sources such as the Intergovernmental Panel on Climate Change, the company assesses both current and future weather patterns when designing tailings facilities. It





is also reviewing and retrofitting older dams to ensure they remain resilient under changing conditions, increasing spillway capacity or freeboard where necessary.

Closure, too, is receiving greater attention. While few mines in regions like Western Australia have reached full relinquishment, Knight Piésold is helping shift the mindset from late-stage compliance to early-stage opportunity. The company supports clients in exploring closure concepts that deliver social value – from pumped storage hydropower, using existing infrastructure as grid-connected energy storage, to golf courses, boating lakes and even wildlife reserves.

“In Africa, we worked on a new copper mine where the closure plan involves a game park,” Morgan said. “It has all the ingredients, including elephant and buffalo, and we will be helping turn it into a tourist destination the local community can run.”

Scaling up without scaling back

The next decade will bring new pressures. With the energy transition driving demand for critical minerals, tailings volumes are set to grow significantly. Morgan warned that while automation and artificial intelligence will play a role, tailings engineering remains a human-intensive field. Supervision, investigation and judgement cannot be fully outsourced to machines.

He also highlighted a potential bottleneck in skills. As tailings move to the centre of mine planning and financing, the demand for expertise will rise sharply. Knight Piésold is investing heavily in training, retention and internal capacity building, while also encouraging cross-sector collaboration to share knowledge and elevate standards industry-wide.

Continuous improvement, not compliance box-ticking

For Knight Piésold, GISTM is not a finish line, but a foundation. Its principles encourage ongoing improvement and innovation, an ethos the company strongly supports. Morgan acknowledged that while the standard is a major step forward, further evolution is inevitable as mining projects become larger, more complex and more visible to regulators, investors and communities alike.

This forward-looking stance is helping to reframe tailings management not as a burden, but as an opportunity to do things properly, to build trust and to deliver infrastructure that outlasts the mines themselves.

As Morgan put it: “When you say things are going well, clients need to know you mean it. And when they aren’t, they need to know you’ll tell them. That’s how you build dams that last.”

In association with:

AUSTRALIAN'S
MINING
MONTHLY

Minjng Magazine

Minjng Journal

Research partners



Endress + Hauser 
People for Process Automation

