

CASE STUDY

Science-led waterway remediation at Redbank and Myrtle Creeks

SUMMARY

Client

SIMEC

Location

Wollondilly Shire, New South Wales

Challenge

Historic mining subsidence was impacting critical New South Wales waterways, requiring a long-lasting solution to restore ecological function of the assets.

Sector

Mining & Geotech

Solution

Regulator-approved Corrective Management Action Plans (CMAPs); multi-agency collaboration with NSW Resources Regulator, DPI Fisheries, and Wollondilly Shire Council.

Outcome

Through the use of engineered grout-curtain systems and SPETEC® Stop H100, our team successfully re-established natural hydraulic barriers and restored stable water-holding performance across both catchments.

Products

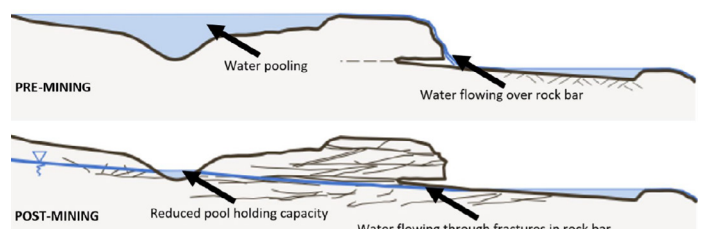
SPETEC® STOP H100

Hychem Infrastructure, in collaboration with SIMEC and Pointe Engineering, delivered a comprehensive geotechnical remediation program to reverse the impacts of historic mining subsidence on critical New South Wales waterways.

Utilising advanced Spetec injection technologies, we are proud to have successfully restored stable pool-holding capacity and ecological function to these sensitive environmental assets.

The challenge

We were brought in to address historic longwall mining subsidence that had created extensive, concealed fracture networks beneath the sandstone-lined corridors and natural rock bars of Redbank and Myrtle Creeks. These fractures led to a significant loss of perennial water-holding features, causing creek pools to drain rapidly and disrupting the natural surface flow connectivity required for ecological resilience.



Because the fractures varied in depth and geometry across these sandstone shelf formations, we deemed that the project required a targeted, non-invasive, and environmentally safe treatment solution to restore stable hydrology and support a sustainable, self-maintaining aquatic environment.

The engineered solution

Our remediation program was built upon a foundation of extensive technical investigation, including high-resolution terrain mapping, 3D modeling, and geotechnical core sampling to define precise treatment zones.

Hychem's engineering team established that SPETEC® Stop H100 was the optimal solution due to its high expansion characteristics, deep penetration capabilities, and proven environmental compatibility in sensitive waterway conditions.

At Redbank Creek, the team utilised a staged methodology, starting with shallow injections to seal fractures immediately beneath the creek bed, followed by the construction of grout curtains and pattern-grouting to reinstate natural hydraulic behavior.

Meanwhile, at Myrtle Creek, deeper fracture networks were addressed through characterisation drilling and deep injection, while additional upstream trials utilised colloidal silica to further enhance water retention and hydraulic connectivity.

The outcome

Through the use of engineered grout-curtain systems and SPETEC® Stop H100, our team successfully re-established natural hydraulic barriers and restored stable water-holding performance across both catchments.

Shallow works at Redbank Creek provided immediate improvements in water retention, while deep injections at Myrtle Creek reinstated natural water levels and returned normal flow responses after subsequent rainfall events.

These programs now serve as a leading science-led model for engineered waterway restoration within the Australian mining sector, delivering durable hydrological resilience under varied climatic conditions. Ongoing monitoring continues to verify the recovery and guide future management stages, ensuring the long-term environmental health of the catchments.

This project showcases the potential for successful long-term waterway remediation using Hychem Infrastructure's proven engineered solutions.



Pool 23 – May 2019



Pool 23 – March 2020