

Case study

Fighting ‘Forever Chemicals’: How Montrose Restored Clean Water to Katherine

In the heart of Australia’s Northern Territory, the regional town of Katherine faced an invisible threat lurking in its water supply. For years, residents unknowingly consumed water contaminated with per- and polyfluoroalkyl substances (PFAS), the so-called “forever chemicals” that persist in the environment and pose serious health risks. The contamination originated from the historic use of firefighting foam at RAAF Base Tindal, with PFAS seeping into the Katherine River and surrounding groundwater – the lifeline of nearly 10,000 people.

When the contamination was discovered in 2017, the urgency was clear: the community’s drinking water was at risk, and immediate action was required. Without a solution, families, businesses, and essential services would continue to be exposed to these harmful chemicals. Katherine needed a lifeline, and our team was ready to deliver.

A RACE AGAINST TIME

With mounting public concern and no existing treatment infrastructure, the Australian Department of Defence committed to providing an emergency treatment system. But there was no time to waste – the town needed clean water, and they needed it fast. Montrose, recognized globally for its expertise in PFAS treatment, was called upon to design and deploy a solution that could run in record time.

The challenge was immense. Not only did the system need to be fabricated, shipped, and installed at lightning speed, but Katherine’s remote location added logistical hurdles. Undeterred, we leveraged our extensive global network, deploying an innovative, mobile treatment solution using proprietary SORBIX™ ion exchange resin technology. Unlike traditional treatment methods, this breakthrough approach allowed for on-site regeneration, minimizing waste and ensuring long-term sustainability.



DELIVERING UNDER PRESSURE

Our team worked around the clock to meet the challenge. Fabrication began immediately at our facility in Maine, USA, where the treatment system was built into modular shipping containers for rapid deployment. Even with streamlined manufacturing, the delivery timeline was still tight. To cut weeks off transportation time, the Australian Department of Defence took an unprecedented step — airlifting the system from the U.S. to Darwin, Australia aboard an Antonov An-124, one of the world's largest cargo planes. From there, it was trucked over 330 kilometers to Katherine, where we were ready to bring it online.

Just four months after PFAS contamination was made public, the interim treatment system was operational. Capable of processing 1 megalitre of water per day, it immediately began providing safer drinking water to the Katherine community. The system went online in Oct. 2017 and, by Mar. 2024 had treated more than 2.3 billion litres of water—ensuring that residents had access to clean, PFAS-free water while a long-term solution was developed.

A PERMANENT SOLUTION FOR FUTURE GENERATIONS

While the interim system was a success, Katherine's long-term water security required a larger, more robust treatment plant. The Northern Territory's Power and Water Corporation engaged our team once again to design a full-scale 10 megalitre per day (ML/d) system—ten times the capacity of the emergency plant.

This new facility, commissioned in November 2023, was engineered with resilience in mind. Built with three independent processing streams, it ensures uninterrupted operation even during maintenance or peak demand. Its state-of-the-art ion exchange resin system allows for continuous regeneration, significantly reducing waste and maximizing efficiency. Most importantly, it provides Katherine with a future-proof solution that exceeds Australian Drinking Water Guidelines and is adaptable to any future regulatory changes.

With the commissioning of the full-scale plant, the interim system was decommissioned in early 2024, having played a crucial role in protecting the town's water supply during the crisis. Today, Katherine's residents can turn on their taps with confidence, knowing that their drinking water is clean, safe, and secure for generations to come.

BEYOND KATHERINE: A MODEL FOR FUTURE WATER SECURITY

The success of the Katherine project is more than just a local victory—it's a testament to what's possible when expertise, innovation, and urgency align. Our team didn't just deliver a treatment system; they delivered peace of mind, proving that even in the face of complex contamination challenges, clean water solutions are within reach.

As PFAS contamination continues to emerge as a global concern, the Katherine project stands as a model for rapid, effective response. Governments and water utilities worldwide can look to this case as proof that with the right technology and the right team, safe drinking water is achievable—even in the most challenging circumstances.

For Katherine, what began as an environmental crisis has transformed into a story of resilience, innovation, and hope. And at the heart of it all, Montrose Environmental Group remains committed to ensuring that communities everywhere have access to the clean, safe water they deserve.

KEY FEATURES:

- **3B liters treated** providing clean, PFAS-free water since 2017
- **10x capacity boost** – expanded capacity from 1 ML/d to 10 ML/d, securing long-term water safety.
- **4-month response** – In record time, ECT2 designed, built, and deployed a PFAS treatment system, airlifted by the Australian government to ensure rapid clean water access.