# ALGA Excellence Awards Submission

## Award 1: Best Remedial Project (>$1M)

### Evidence of significant environmental, economic & social obstacles & benefits

Management of per- and poly- fluoroalkyl substance (PFAS) contamination is one of the most significant environmental challenges faced by this generation. Although impacts to human health from PFAS contamination remain uncertain, the impacts to communities around the world as a result of PFAS in drinking water and in recreational waters can be significant.

The Katherine township, located 320km south east of Darwin is the Northern Territory's (NT) third largest town. Famous for the Nitmiluk Gorge, ancient aboriginal culture Katherine is home to 10,000 people. Territorians have a unique identity and enjoy a lifestyle and environment characterised by easy access to healthy waterways and oceans. The quality of life is supported by safe and secure drinking water. The Katherine township is supplied with a blend of surface water from the Katherine River and groundwater from the Tindall aquifer.

As a critical component of the town's water supply, when the groundwater was identified as being contaminated with PFAS chemicals, the impacts on the community were realised. Katherine became the first NT community to be subject to water restrictions as a result of PFAS contamination. These restrictions included drinking water; limitations on using water for a variety of recreational purposes such as washing cars and sprinkler play; access to the local public swimming pool; and watering livestock and produce. As a result, stress and worry due to the uncertainty in relation to possible health impacts ensued as did financial stress as a result of not being able to sell or rent properties as readily as was previously experienced. Livelihoods that for several generations have relied upon water from the environment were also impacted.

A quick and proven solution was required to provide the Katherine township with secure and safe drinking water.

At the time, ECT2 had recently been engaged by the Department of Defence (Defence) to provide water treatment systems at two east coast properties with confirmed PFAS contamination in groundwater. Defence redirected one of the 12.5 litre per second (L/sec) modular treatment systems to the Katherine water supply site.

ECT2, Defence and Power and Water Corporation (PWC) worked closely together to finalise design, fabrication, transport, installation and commissioning of the treatment system within four months of PFAS being identified in the drinking water supply.

The emerging nature of PFAS resulted in community members and some regulators expressing concerns regarding the effectiveness of the water treatment system and whether the treatment process would simply solve the issue of low levels of PFAS in the water supply by concentrating PFAS on media which then had to stored due to limitations on disposal or destruction options, particularly in the NT. These concerns were managed though ongoing and close communication with all stakeholders and working with PWC, and Defence where relevant, to provide information to stakeholders, including the community, as well as opportunities to view the treatment system

Stakeholder apprehension was mitigated and by mid-August 2019, approximately 640 million litres of water had been treated to below the specified treatment criteria.

## Evidence of practical application of regulatory requirements (Incl WHS)

In early 2017, the Food Standards Australia New Zealand endorsed a new Health Based Guidance Value (HBGV) for PFAS chemicals in drinking water of 0.07µg/L for ΣPFHxS+PFOS and 0.56µg/L for PFOA. This was subsequently confirmed in the Australian Drinking Water Guideline (ADWG) in August 2018. The treated water from the treatment system has complied with the ADWG since commissioning in late 2017.

ECT2 worked closely with the environmental regulator, Department of Environment and Natural Resources to transport expended SORBIX from the Katherine PWC site to RAAF Base Tindal for regeneration and subsequent reuse. Any future waste removed from the PWC site will also be conducted in accordance with NT regulatory requirements for waste transportation and disposal.

Several site management plans were developed for the installation and commissioning of the treatment system with additional management plans put in place to guide the ongoing operations. ECT2 and PWC maintain a Zero Harm safety culture on all its projects and a workplace health and safety plan specific to the activities conducted at the Katherine PWC site was developed in accordance with all relevant regulatory requirements.

Site operations are subject to audits and reviews by our Work, Health and Safety Officers with recommended actions and improvements being acted on promptly.

## Evidence of productive engagement with all project stakeholders

ECT2 and PWC have undertaken extensive and productive engagement beyond that often encountered in remediation projects. This engagement includes interaction with regulators and other stakeholders as well as conducting media tours of the water treatment system; public open day events; and an extensive range of collateral and information to inform and educate the community.

An irrigation regime was implemented by PWC with community engagement completed through the extension of the Living Water Smart demand management program for Katherine. The aim was to target a reduction in water use in a very short time in lieu of longer term behavioural change approaches. Further, a targeted education campaign was rolled out to Katherine schools.

## Evidence of effective communication of new knowledge to the industry

Both ECT2 and PWC are committed to communicating their knowledge and understanding of emerging contaminant management across industry. Both organisations present at key industry forums such where case studies and research and development findings or advancements are presented at conferences, workshops and other industry forums. Examples of this include poster and platform and panel speakers at Ecoforum and Clean Up 2019. In addition, ECT2 also present research into contemporary aqueous film forming foam products; and evaluation of C6 PFAS.

ECT2 and PWC participate in a range of Australian, New Zealand and overseas working groups, committees and councils.

ECT2 and PWC take every opportunity to learn from the experiences of our colleagues, competitors, clients, stakeholders and our own personnel and communicate knowledge to our extensive network across industry.