

# Protecting Australia from environmental contamination



The Cooperative Research Centre for Contamination Assessment and Remediation of the Environment – CRC CARE – brings together industry, government, science and engineering to prevent, assess and clean up environmental contamination.

## The scale of the challenge:



Billions of \$ of unusable real estate



**300+ million tons** of 100,000+ chemical compounds manufactured each year



**\$3 billion+**

per year to clean up a mere fraction of our contaminated sites

## Collaborating on research that has real-world impact

**29**  
research, industry and  
government partners



Collaboration with  
**80+**  
organisations  
globally



**289**  
research  
projects



**80** research  
partnerships



**136** Phd Students



**1100+**  
scientific papers in  
peer-reviewed journals

**40+**  
Technical Reports  
providing guidance  
for industry

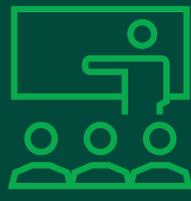


## End-user engagement

**3000+**  
attendees at  
CleanUp  
Conferences



**4000+**  
participants trained  
at workshops



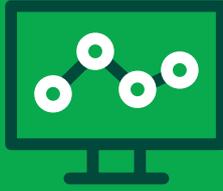
**3500+**  
social  
media  
followers



**2000+**  
subscribers to Remediation  
Australasia magazine



**125,000+**  
visitors to cccare.com with  
700,000+ pages viewed



**8700+**  
YouTube video views  
for more than 200  
hours collectively



**5000+**  
CRC CARE Technical  
Reports downloaded



# A better way to clean up

*Saving industry and government millions, if not billions, of dollars each year.*



## Risk-based approach

CRC CARE has helped lead the move to a risk-based approach to managing contaminated sites. Sometimes the mere presence of contamination results in costly remediation attempts or the complete disuse of land. By demonstrating that contaminants only pose a risk if they can be taken up by humans, animals and plants, we have contributed to a more rational, effective and affordable approach to contamination science and clean-up. Risk-based remediation allows limited resources to be directed to where they are needed most.



## Dumping dig-and-dump

CRC CARE has helped lead a shift to more cost-effective in-situ remediation – cleaning up contamination where it lies, rather than the traditional ‘dig and dump’ approach that has led to an unsustainable growth in landfills in Australia and worldwide.

## Research that industry needs

CRC CARE’s four research programs have been developed in close consultation with industry partners and environmental regulators to take into account the future needs of the environmental industry. The following table includes examples of each program’s achievements, all of which are being commercialised and/or playing a role in Australia’s approach to managing contaminated sites.

## CRC CARE research programs

### Best Practice Policy

More effective, efficient and certain national policy for managing contamination

Shaping a national approach to assessing contamination by contributing to the National Environment Protection Measure

Health screening levels for petroleum hydrocarbons adopted nationally

Harmonising a Australia's clean-up approach via the National Remediation Framework

More effectively engaging with communities affected by contamination

### Minimising Uncertainty in Risk Assessment

New technology, methods and knowledge for assessing risks to humans and the environment

Better assessment of risk to human health and the environment from mixed contamination

Improved environmental risk assessment of nanomaterials for remediation of polluted soil and groundwater

A comprehensive risk assessment database of more than 1000 priority and emerging contaminants

### Better Measurement

More accurate, rapid, reliable and cost-effective measurement and assessment

Australia's first per- and poly-fluoroalkyl substances (PFAS) proficiency testing program ensures the quality and comparability of PFAS measurements, supports national environmental policy, and improves PFAS analysis

Better ways of analysing trace metals and metalloids in saline waters, which will help remediate disused mine sites

astkCARE™ – a safe, sensitive and reliable method for detecting and measuring the concentration of highly toxic surfactants in the environment

### Cleaning Up

Innovative clean-up technologies and a wider range of effective management options

matCARE™ modified natural clay technology to remediate PFAS-contaminated soil and water – more than 2 million litres of water treated at multiple sites nationally

Improved technology for cleaning up shooting range soils contaminated with lead and other toxic metals

World-first microbial fuel cell-based remediation technology for cleaning up diesel-contaminated water while simultaneously producing electricity

Research	→ Innovation	→ Application
Identified ability of natural clay products to adsorb pollutants including PFAS	Modified clay to enhance adsorption capability (matCARE)	Designed transportable remediation facility that has been used at multiple PFAS-contaminated sites nationwide
Developed a reagent capable of detecting highly toxic surfactants in the environment (astkCARE)	Designed a smartphone app that uses camera lens to measure the concentration of contaminants	Engaging with state governments and European businesses to commercialise astkCARE contamination analysis kits
Optimised the capability of anaerobic digestion to manage piggery waste (collaboration with Chinese researchers)	Developed an underground unit that operates year-round, even in cold temperatures (pooCARE™)	Working with pig farmers in China to convert waste products into fertiliser and fuel