

# PFAS REMEDIATION



## PFAS CONTAMINATION MANAGEMENT

The environmental industry has been working steadily on developing viable PFAS remediation solutions. Many of these solutions are designed to separate PFAS from an existing medium and concentrate it in another form. Once concentrated options are limited, the PFAS concentrate generally needs to be removed offsite for destruction at thermal treatment facilities, which is expensive and requires high energy requirements. Alternatively, if not taken offsite for destruction, this PFAS concentrate continues to accumulate onsite until a cost-effective destruction solution is identified, increasing liability and management requirements.

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**1.**

Extensive experience

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**2.**

We can accommodate various complex waste streams and their environments

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**3.**

Reliable Safe and Secure regulated waste disposal



## WHAT IS PFAS?

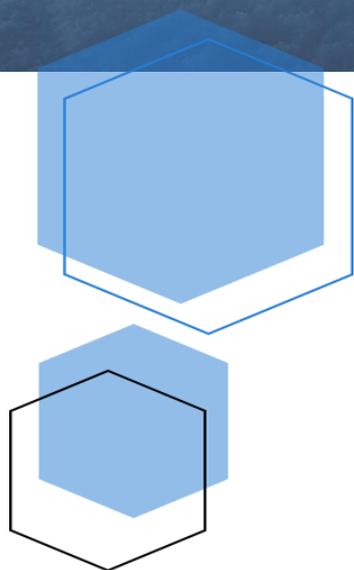
The chemicals within the PFAS compound require decontamination and treatment before they are disposed of. When used in firefighting, AFFF™ must be collected and treated as soon as safely possible, as it may otherwise seep into the surrounding ground or water.

Per- and poly-fluoroalkyl substances, also known as PFAS, are a group of man-made chemicals that are resistant to heat, water, and oil and historically used within AFFF.

Although manufacturers have since phased out the use of PFAS in many consumer products, they are still used in some industrial and speciality applications including:

- certain types of fire-fighting foams
- metal plating and plastics etching
- photo-imaging applications
- aviation hydraulic fluid
- in the manufacture of some non-stick cookware
- fabric, furniture and stain protection applications
- some food packaging

The historic use of PFAS-containing AFFF has resulted in areas within Defence bases and Airports around Australia becoming contaminated with PFOS and PFOA. Over the past five decades, these chemicals have worked their way through the soil to contaminate surface and ground water, and have also migrated into adjoining land areas.



# WHY IS PFAS A CONCERN?

Australia's Department of Health considers the release of PFAS into the environment as an emerging concern because PFAS:

- is highly persistent
- can move long distances in the environment
- have been shown to be toxic to fish and some animals

The biggest environmental concern about PFAS chains is that they do not breakdown in the environment and can travel long distances in water and air currents. They have been shown to be widespread global contaminants and many countries are now monitoring and restricting their use. PFAS has been reported to be toxic to some animals, and because they do not breakdown they can bioaccumulate and biomagnify in some wildlife, including fish. This means that fish and animals higher in the food chain may accumulate high concentrations of PFAS in their bodies. This also extends to humans.

More recently, PFAS compounds have been found in sites where fire-fighting foams have been used. These chemicals have since contaminated the soil, surface and ground water, and moved into adjoining land areas. To assist organisations and companies cleaning up and handling PFAS, the heads of all state and territory Environment Protection Authorities (EPA), alongside the Federal Government, released a National Environment Management Plan (NEMP).

The plan provides guidance on methods for safely destroying and handling PFAS and contaminated sites. It also has guidelines for what levels indicate the need for action, provides information on what action should occur, techniques for sampling and measuring PFAS concentrations, how to transport and handle the waste and future research to support the plan and any revisions.





# PFAS TREATMENT METHODS

Working with best industry practice partners, Austrans offers a range of PFAS treatment methods for decontaminating and destroying PFAS in water, soil, and foam including:

- Thermal treatment high temperature incineration or Oxidation
- Thermal Desorption
- PFAS Optimised Physio Chemical Water Treatment
- Chemical Immobilisation and Solidification

Austrans has the capability and know how to provide assistance with:

- Concentrate handling
- Concentrate treatment and disposal
- PFAS impacted soils and NDD slurry removal, transport and disposal
- Contaminated soil treatment
- Groundwater treatment
- Spill response

## EXCAVATION METHODOLOGY

PFAS contaminated soils/solids may be excavated and disposed of in landfill, however if in liquid form (eg slurry) waste is required to be treated and stabilized before disposal. For PFAS impacted Slurry the following process will apply;

- ✓ Waste Characterisation or Certificate of analysis indicating PFAS contamination concentration levels
- ✓ If no analysis available and PFAS presence is a known factor, Austrans will excavate material under ERA licenced and permitted Vehicles and cart to treatment facility.
- ✓ All waste tracking certification supplied either online or paper copy provided
- ✓ Material will be segregated and tested and then treated in accordance with PFAS ERA permitted processing
- ✓ PFAS material fully immobilized and disposed in accordance with state legislation
- ✓ Certificate of analysis provided showing PFAS concentration levels.
- ✓ Client to retain for environmental and auditing purposes.
- ✓ Full destruction certification supplied, if required.

# HOW CAN WE HELP YOUR BUSINESS?

## CASE STUDIES

Historically the Defence force had conducted fire safety drills on various bases using PFAS impacted AFFF™. The chemicals had slowly worked their way through the soil to the groundwater underneath the site. Surface water samples taken from nearby waterways were found to contain high levels of PFAS used in firefighting foams.

Where there were small scale and emergency works required, whereby waste would need to be removed from site, normal protocol would be long delays associated with sampling and testing of materials. Austrans however provided a detailed management plan to not only ensure waste was transported and treated in accordance with the most up to date legislation, but ensured that there were no disruptions and work could commence without impediment.

Our Brisbane team stepped in to facilitate the rapid containment, transport and treatment of the PFAS-impacted liquid waste through filtration and chemical fixation in accordance with Queensland's regulations.

## NEXT STEPS...

With proven and effective ability in remediating hundreds of sites on the east coast of Australia Austrans, whilst working with its treatment partners can accommodate any scenario born from the unintended release of PFAS chemicals in the environment and provide the following;

- Treatment effectiveness on a diverse range of real-world samples
- Suitability to operate and treat either onsite or offsite at a licenced and regulated facility
- Commercial viability and scalability of suitable process and technology based on the environmental due diligence assessment.

Austrans are committed to significantly reduce potential impacts on communities and limit land managers' PFAS related environmental liability. If you would like to understand more in relation to any PFAS impending project, or would like to consider remediation options, please do not hesitate to get in contact with us.

