MOBILE PFAS IMPACTED WATER TREATMENT 2018 - 2020

Remediation Services, Australia

| The opportunity

The client operates infrastructure where AFFF was previously used for fire fighting training purposes. The use of this material has resulted in PFAS impacted stormwater and large contaminated dam. Veolia was approached in 2017 to develop a remediation solution to treat and manage this large body of contaminated water.

The objectives of this project were:

- Protection of the significant ecological area surrounding the dam which had the potential to overflow during rain events.
- To develop a mobile technical solution to treat a significant volume of water and have the capability to re-use that water to improve flora and fauna in the local area.

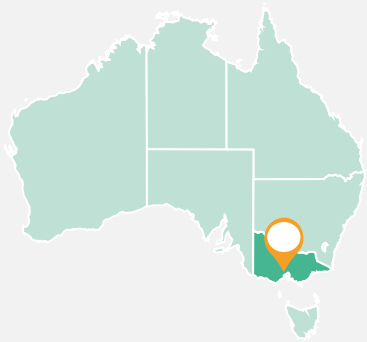
| Environmental challenge

Located on the Mornington Peninsula in Victoria, Australia, this site had a large body of contaminated water that experienced potential overflow for 9 months of the year due to high rainfall. The client required a solution to mitigate risk of the onsite dam overflowing, potentially causing environmental, financial and reputational impact. Whilst environmental regulations regarding PFAS were still being developed in 2017, Veolia's benchmark practice was to treat the contaminated water to non-detectable levels.

| Veolia's solution

Veolia obtained representative sampling and conducted laboratory trials of PFAS impacted water to determine optimal adsorption media and contact times. From the data collected, a detailed design followed by the construction of a tailored mobile treatment facility was deployed onsite. The solution included:

- Technical resources and project management
- Environmental and quality plans
- Pipework, tanks, pumps and instrumentation
- Commissioning and ongoing sampling and real time data reporting



Mornington Peninsula, Victoria, AU

***Contract Facts*:**

Site: Confidential

Scope: On-site PFAS Impacted Water Treatment

Duration: 3 years

0
recordable injuries

0
environmental incidents

0
quality incidents

5,000,000
litres of PFAS contaminated water treated

| The advantages

The advantages of Veolia's solution include:

- The mobile treatment plant was designed and built via collaboration with our global technical and performance department.
- Multi barrier treatment approach ensures safety and minimises risk of accidental release of non-compliant water.
- A batch treatment model (treat, test, release) has been developed with a full monitoring plan ensuring quality control and compliance (with the option for continuous treatment and release).
- The mobile plant was deployed and fully commissioned in a week.
- Treatment criteria below Limit of Reporting (<0.01 ug/L) for release to local environment.
- Since Veolia commencing management of this site, over 5 million litres of PFAS contaminated water has been treated successfully.

Table 1: PFAS Treated Water Criteria and Results

Constituent	Raw Water	Discharge Criteria	Achieved
PFHxS	2 to 3.5 µ	<0.01 µ	<0.01 µ
PFOS	26 to 40 µ	<0.01 µ	<0.01 µ
PFOA	0.45 to 0.64 µ	<0.01 µ	<0.01 µ
sum PFAS	37 to 50 µ		<0.05 µ

| The benefits

The benefits of the mobile treatment plant include:

- Treated water is released to the local storm water, returning water to its natural environment
- Treating on-site provides our client with a significant cost saving compared to off-site transportation and treatment
- The on-site treatment plant is readily accessible to treat contaminated water in times of emergency, such as unforeseen heavy rain events when tanks are nearing full capacity or on-site training and activities
- On-site treatment of the PFAS contaminated water reduces risks linked to pumping, transport off-site and associated CO_2 footprint

> ***We are delighted to work in partnership with the Federal Government to combat pollution and accelerate ecological transformation.***
>
> ***John Baranauskas**, General Manager, Industrial Services*

SOCIETY

Support regional development through responsible means.

PLANET

Combat pollution and accelerate the ecological transformation

EMPLOYEES

Give meaning to our employees' work and help them with career development and engagement