

CASE STUDY

PFAS Treatment – AFFF

CUSTOMER: Undisclosed

LOCATION: Australia

Application

Treat Leaching PFAS from Fire Training Ground for Safe Environmental Discharge

FLOW RATE: Design: 16GPM

OBJECTIVE:

Treat stormwater and wastewater to remove PFAS in the presence of petroleum hydrocarbons and suspended solids. Inlet PFAS include:

PFOS: 3,800 ng/L	PFOA: 100 ng/L
PFHxA: 430 ng/L	PFPeA: 61 ng/L
8:2 FTS: 120 ng/L	PFBA: 46 ng/L

Sum PFAS: 5,500 ng/L

RESULTS:

PFOS: 3 ng/L	PFOA: 0.7 ng/L
PFHxA: 5.1 ng/L	PFPeA: <2 ng/L
8:2 FTS: <0.4 ng/L	PFBA: <2 ng/L

Sum PFAS: 14 ng/L



CHALLENGE

Fire training simulation grounds at a military base had previously used AFFF (PFAS-laden aqueous firefighting foam) on concrete grounds. Over time the PFAS constituents had saturated into the concrete training pads, resulting in PFAS contamination during any ongoing fire training simulations or during rainwater events. The owner required a low-waste solution to solve these legacy issues and to address future liability.

The wastewater generated at the site required treatment for compliant discharge. This wastewater treatment was complicated by the presence of petroleum hydrocarbons, fuels, organo-metals and suspended solids. Maintenance costs, waste volumes, and availability of space were also considered in the selection of the treatment system.

SOLUTION

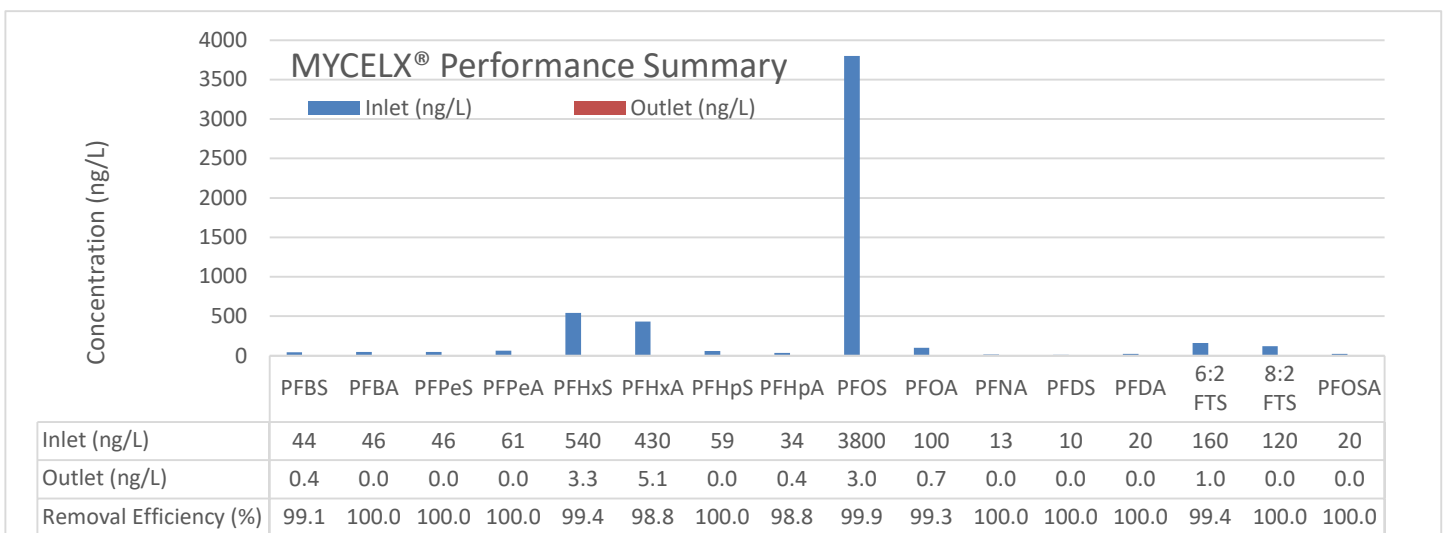
A containerized system was designed for quick mobilization and commissioning on site. The system included pre-filtration cartridges for the removal of suspended solids; specialty MYCELX® cartridges for the removal of petroleum hydrocarbons, fuels, and targeted PFAS species; and bulk *Performer™* media to achieve ultratrace polishing of all PFAS species.

Stormwater and wastewater from the training grounds were collected into a triple interceptor. A floating suction is used to draw water into the containerized MYCELX Multi-Stage PFAS Remediation System. Sequenced filter housings with varying filters remove the suspended solids, oils, fuels, and PFAS. These steps are key to waste reduction and extending the lifetime of the final polishing media. Ultimately, *Performer™* media is used to produce a compliant discharge and to prevent future liability.

RESULTS

After 16 months of operation the system had treated twice the initially proposed volume of combined stormwater and wastewater while staying under the maintenance budget. In this time of operation, only one-half pallet of dry filters had been generated as waste. This waste can be disposed of by landfill or incineration as per local guidance and regulation, at the time and volume of the operator's choosing. No liquid waste, sludge, or bulk media waste had been generated for disposal.

All precursors and analytes had been removed to well below regulatory levels, exceeding low level compliance for Safe Environmental Discharge. Total Petroleum Hydrocarbons were also reduced to 1 mg/L or less with no sheen. The small footprint and low power consumption (a single 1.5kW pump) contributed to very low operating costs and manpower requirements.



*Outlet of 0.0 Indicates Non-Detect