



PFAS REMOVAL AS A SERVICE

A GUARANTEED SOLUTION



A PROVEN TRACK RECORD

40 years
in Environmental
Services Industry

>\$30 billion
of environmental
projects executed
including site
remediation

**+3 billion
gallons**
of heavily
contaminated water
treated

**Financially
stable**
company

Treating PFAS
since 2001

ALTRA has been treating PFAS from contaminated soils and wastewater since 2001. We have created the ALTRA PFAS Removal Solution that has been proven to cost-effectively remove PFAS from wastewater (AFFF-contaminated groundwater, industrial wastewater, landfill leachate and even RO Reject from RO treatment of wastewater).

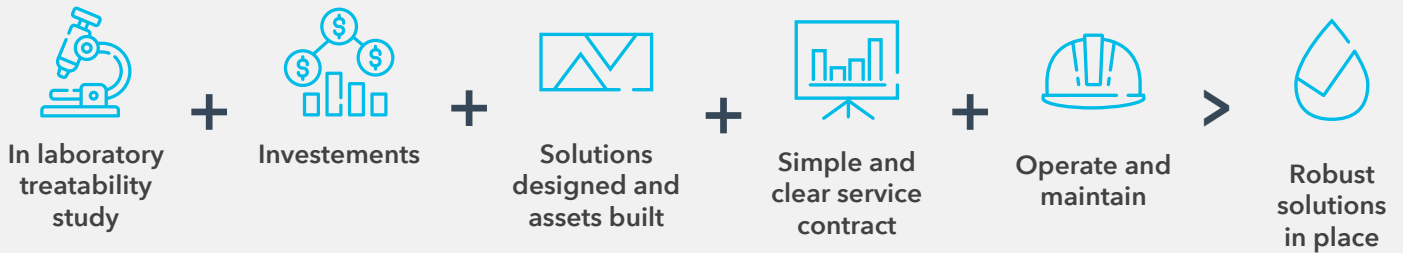
The ALTRA PFAS Removal Solution follows a three-step approach as shown in Figure 3: (1) **separation** removes PFAS from the solution; (2) **concentration** accumulates and

concentrates the removed PFAS as “foamate;” and (3) **elimination** either breaks down the foamate into innocuous end products for safe discharge or to permitted incinerator, secure landfill, or underground injection well.

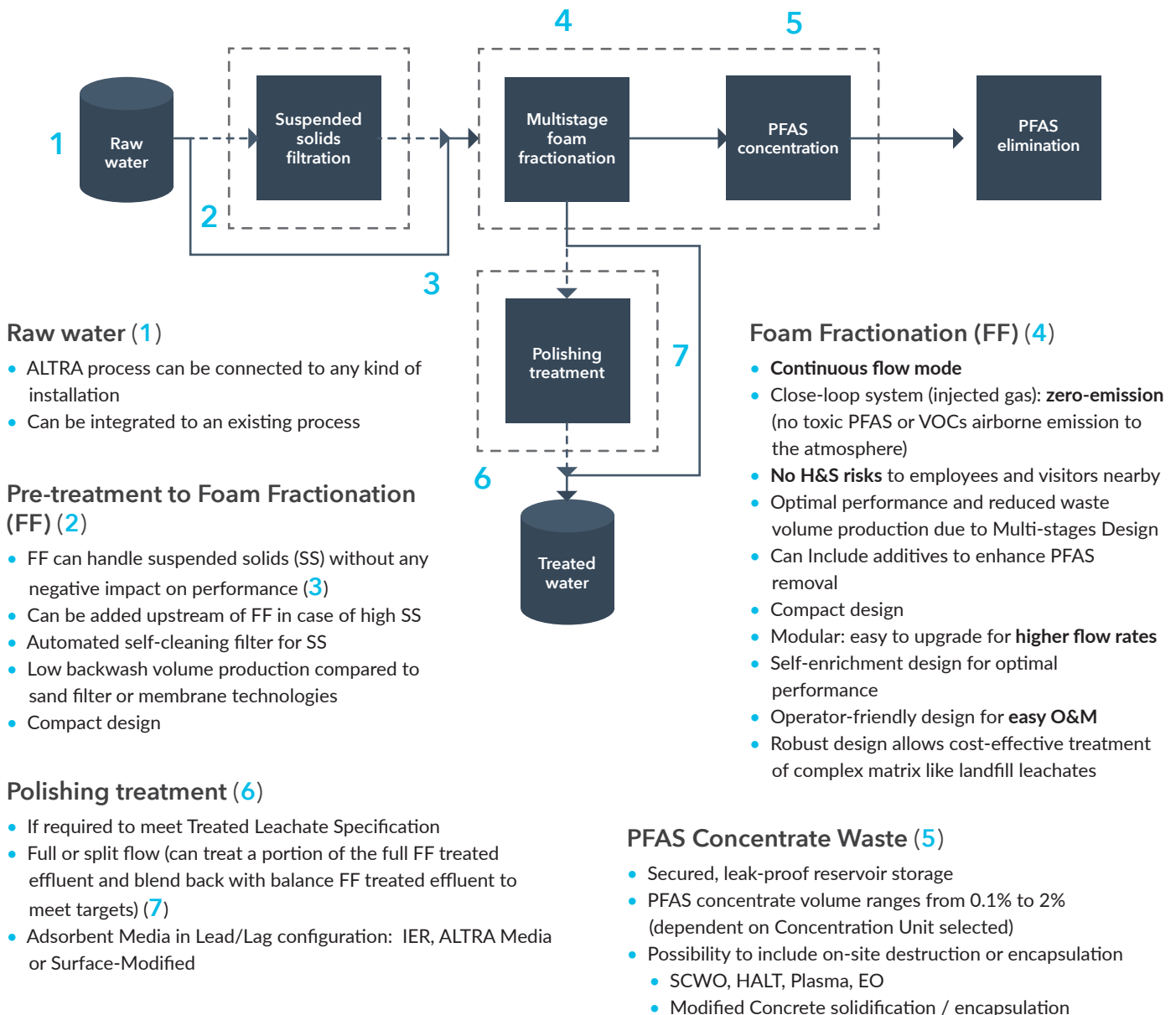
ALTRA offers its PFAS Removal Solution as a service (“PFAS Removal as a Service”). ALTRA designs, builds, installs, and commissions the solution. Once commissioned, ALTRA operates, and maintains the on-site solution in accordance with PFAS removal performance guarantee.

THE ONLY VIABLE COMMERCIAL OFFERING IS 'PFAS REMOVAL AS A SERVICE'

ALTRA provides PFAS removal as a service commercial model whereby we design, build, own and operate the treatment system with an agreed level of PFAS removal including encapsulation and destruction.



OUR TECHNOLOGY



TREATMENT EFFICIENCY

Foam Fractionation

Typical PFAS removal of **99%** long chain* and **>80%** short chain*

**according to ITRC definition (see table below)*

Media filtration of FF Effluent (if required)

Typically PFAS removal of **85%** to **99%** of Total PFAS

Total PFAS Removal Performance of **75%** (mass basis) using FF ONLY is GUARANTEED if Leachate Composition complies to following definition:

Performance reaches < 10 ng/L for individual PFAS compounds and even non-detect levels, following US EPA1633.

	PFAS (EPA 1633)	REMOVAL RATE
Short Chain PFAS (55-65% of all PFAS)	PFBA	30-40%*
	PFBS	>90%
	PFHxA	>90%*
	PFHxS	>90%*
	PFPeS	>80%*
	ALL SC PFAS EPA1633	>80%
Long Chain PFAS	PFHpA	>95%*
	5-3 FTCA	>99%*
	PFOA	>98%*
	PFNA	>94%*
	PFHpS	>90%*
	PFOS	>91%*
	ALL LC PFAS EPA1633	>99%
		* < LOQ

ALTRA PFAS CENTER OF EXCELLENCE

To support our water and wastewater treatment services, ALTRA has established a fully equipped and staffed analytical and treatability studies laboratory in Montreal, Quebec.

- 14,000 PFAS tests completed in the last 18 months in our laboratory in Montreal, the highest number of tests performed by a single treatment company in North America
- Small-scale versions of systems used to test client's water and determine feasibility of treatment
- In-house PFAS analysis with US EPA Methods EPA 533 (modified) and EPA 8327 (modified) on Agilent LC-MS/MS, and EPA 1633



KEY DIFFERENTIATORS

01

LOW COST OF CAPITAL

“PFAS Removal as a Service”, pay-for-use with no upfront capital investment

03

SAFE AND ENVIRONMENTALLY FRIENDLY

Close-loop system with zero-emissions to the atmosphere

05

RELIABLE AND SIMPLE OPERATIONS

Continuous 24/7 operation, portable, 40' plug-and-play container units

02

ADAPTABLE TO CLIENT REQUIREMENTS

Unique solution per site, contaminated water, treatment, objectives

04

PROVEN AND COMMERCIALY READY

Versatile and robust, proven to work with simple and complex matrices

06

GUARANTEED RESULTS

Operate and maintain the system to an agreed upon level of PFAS removal

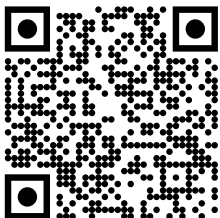


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ALTRA
PFAS REMOVAL SOLUTIONS