



In partnership with



## Landfill Leachate PFAS Treatment LEEF System® Technology

### PFAS – A Global Concern

Per- and poly-fluoroalkyl substances (PFAS) represent a significant concern and are present in many types of wastewater. In the solid waste industry, PFAS is inevitably present in most leachate streams and based on regulatory trends, disposal to wastewater treatment plants will be cut off unless treatment of PFAS is effectively achieved.

**Such an event would put landfills in a very difficult situation with unmanageable costs.**

PFAS removal from leachate is particularly difficult due to complex chemistry and varying flow rates. Current options are limited and typically require extensive and expensive pretreatment.

#### LEEF System® Benefits

- Direct PFAS Removal Without Pre-treatment
- Removal to Limit of Detection
- Flow Rates 7,500 gpd to >250,000 gpd
- Below 1% Waste Stream
- Multiple Treatment Capacities
- Multiple Project Delivery Methods
- Low Energy & Operational Requirements
- Easily Scalable & Modular

### Our Solution

The Water and Carbon Group (WCG) has developed a low-energy PFAS extraction and volume reduction system – the LEEF System®, to treat highly contaminated wastewater such as landfill leachate or brine streams from industrial or mining activities. A key feature is that **pre-treatment is typically not required for direct PFAS removal to low ppt levels.**

The technology combines a proprietary, multiple step foam fractionation process that removes PFAS to limits of laboratory detection (LoR), combined with an enclosed solar distilling process that further minimizes the volume of the concentrated waste stream. This process delivers a unique and proven PFAS extraction and waste reduction outcome.

The LEEF System® has been engineered to sharply reduce high energy consumption and large waste streams that plague existing systems while utilizing renewable and naturally occurring resources. The technology is also designed to minimize operational costs by eliminating the need for chemical additives, consumables or excessive waste transport.



## LEEF System®

The treatment of contaminated drinking water has long been the center of focus for innovation within the field of PFAS removal. However, methods developed for PFAS extraction in drinking water are often uneconomic and ineffective when treating wastewater.

In response, our proprietary LEEF System® was developed to **remove PFAS** from contaminated landfill leachate and wastewater, typically **without pre-treatment**.

## Performance

The proprietary LEEF System® removes greater than 99% of regulated PFAS contaminants within 15 minutes, treating wastewater to within regulatory discharge limits with results as low as ~10 ppt to 200 ppt. The final extracted waste stream is reduced passively to below 1% of the initial treated volume.

The modular system uses minimal energy and can be assembled to treat any volume from 7,500 gpd to 250,000 gpd. Throughout the process, zero chemicals or consumables are used, resulting in a simple to operate, low maintenance system.

## Trial a LEEF System®

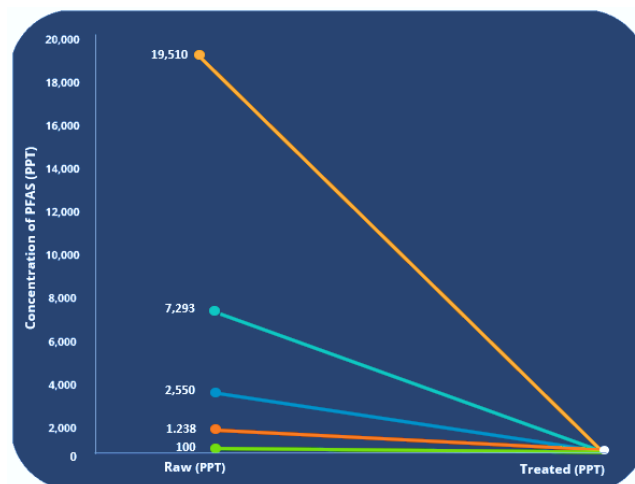
We are offering pilot trials at client nominated sites of interest throughout the United States through our leachate partners, Leachate Management Specialists (LMS).

If you are interested in discussing, please contact **LMS President, Brad Granley, P.E.** at:

**P: 720.556.4801**

**E: [info@leachate.us](mailto:info@leachate.us)**

### LEEF System - PFAS Removal (PFOA/PFOS/PFHxS)



	Raw (PPT)	Treated (PPT)
Site 1	2,250	<7
Site 2	7,293	<200
Site 3	1,238	<5
Site 4	19,510	<78
LoR	100	<10

**Note:** Where the number in the graph above has been reported by a laboratory as LoR, it is assumed the combined sum is the LoR.

## About Us

The Water and Carbon Group is a unique environmental engineering firm that specializes in the design, building and operation of low-energy wastewater treatment solutions.

Our experienced team of process and ecological engineering specialists provide us with a unique ability to approach solutions from an integrated engineering and ecological perspective.

We have partnered with leachate experts, LMS, to deliver our solutions in the most effective way to the American leachate market.

the WATER & CARBON  
group

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