Characterization of Groundwater

The demonstration site was impacted by historical use of AFFF and has been investigated for vertical and horizontal extent of PFASs. A full-scale GAC treatment system comprising two 20,000-gal GAC vessels is currently under operation to remove PFOS/PFOA in the groundwater extracted from a fire training area.

The pilot study system was installed in November 2016 next to the full-scale GAC treatment system (Figure 2) and was fed with groundwater from the full-scale GAC tank.

The extracted groundwater has been monitored on a weekly basis for 53 PFAS compounds and 18 of 53 PFASs were frequently detected in the extracted groundwater (Figure 3).

The presence and extent of total observable precursors in the influent was also estimated through a total observable precursor assay (TOPA) (Figure 4).

The average TOC concentration in groundwater is ~1.9 mg/L.

The study was conducted in a 30-gallon batch reactor containing 1.135-kg RemBind Plus. Groundwater used for the study was obtained from EQ tank of a scale EQ tank.

Analyte

Total PFOA PFOS PFCAs PFSAs Precursors

PFOA

PFOS

PFCAs

PFSAs

Precursors

Before treatment

After treatment

The study is still ongoing:

To verify the RemBind Plus sorption/stabilization capacity

To optimize RemBind Plus dosage to meet USEPA Health Advisory Level of 70 ppt for PFOA, PFOA and in combination

To monitor and evaluate treatability effectiveness on short chain PFASs and PAA precursors

To conduct remediation trials using different proprietary wash solutions

Future applications

Treatment of on-site wastewater before discharge or disposal

In situ blending or injection for source reduction

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