

PerfluorAd – Reference site near Danub River/D

Background

In August 2007, there had been a big fire on a site where shredders had been in operation as part of a recycling process. Shredding of wood and metal had been the main business of that company.

During the process of unloading metal waste from a railway carriage a fire had started on the metal pile which covered an area of about 30000 m². Due to the structure of that pile it was very difficult to get that fire under control. It took more than four days and it had involved about 700 members of action forces to get that fire blown out.

As water wasn't successful at the early stage it was decided that the fire-fighting brigades use about 120 m³ of fire-fighting foam.

Years later, PFC had been detectable in the drinking water wells some kilometres downgradient of that site. Further investigations have shown that the use of fire-fighting foams had caused the contamination in the groundwater on site.



Fig. 1: Fire on that site

An extended field test was performed on site in 2016. During that field test, contaminated groundwater was pumped through a treatment plant at a flow rate of about 540 L/hr. The sketch below shows the configuration of that plant. Samples were taken behind the filtration and the carbon units. Three different carbon qualities got used in both lines.

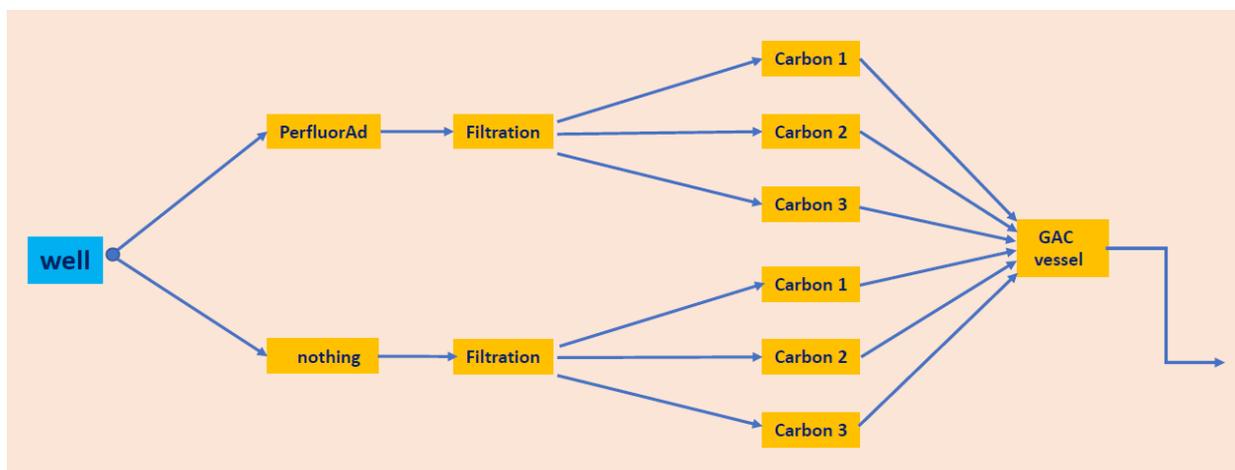


Fig. 2: Technical configuration of the plant for performing the field test



Fig. 3: Container with the carbon columns

Key Facts

- Duration:** July until Dec 2016
- Flow rate:** 540 L/hr
- PFCs:** 20 compounds
- Conc. PFC:** about 7 ppb (start)
about 2 ppb (end)
- Main PFCs:** PFOS & H4PFOS
- PFOS in %:** start 60% & end 80%
- H4PFOS %:** start 10.5 & end 5.3%

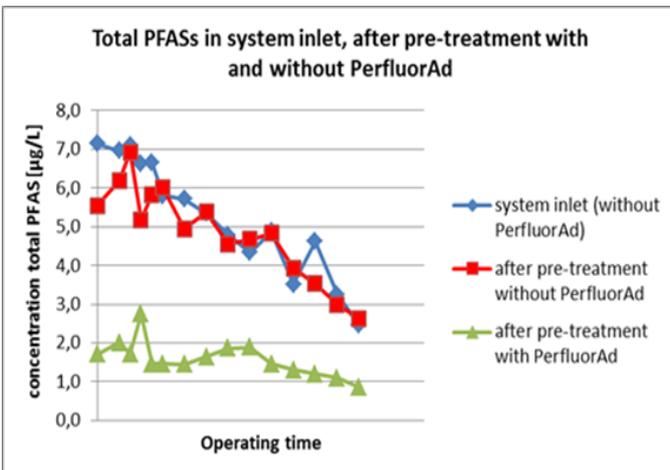


Fig. 4: PFC concentrations (inlet & filtration out)

Results:

- Decreasing concentrations of PFC (PFAS) at the inlet during the test
- In both lines carbon 2 shows better performance than carbon 1 and 3
- PerfluorAd has removed between 75% and about 65% of the PFC
- Great performance of PerfluorAd at low concentrations of PFC
- Much lower PFC concentrations at the effluent of the carbon columns in the PerfluorAd line

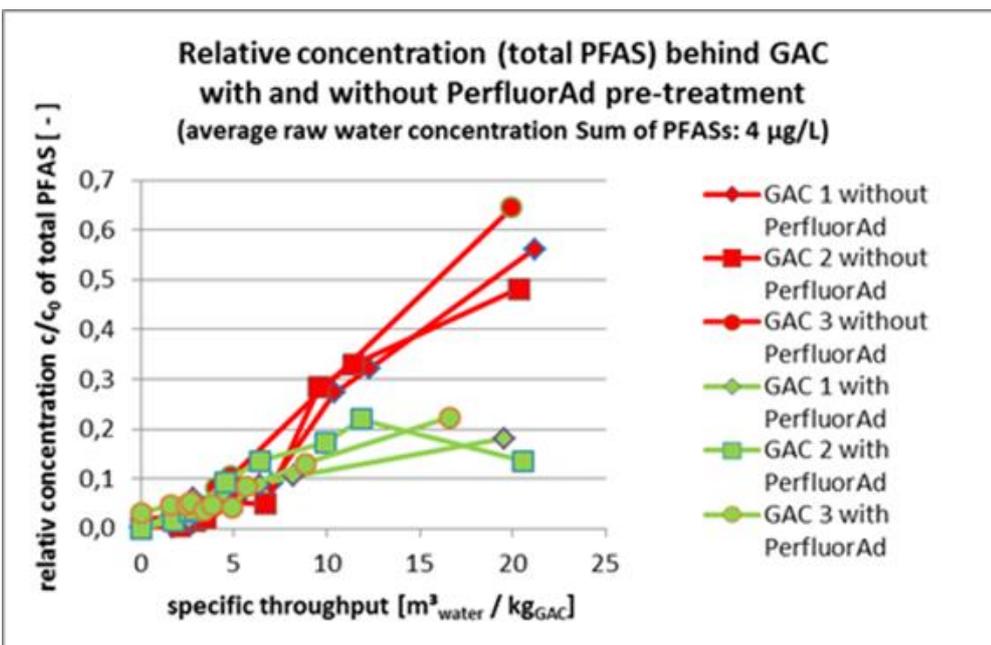


Fig. 5: PFC ratio