First Evaluation of PFOA and PFOS Flux Measurement
Using Passive Flux Meters

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Background/Objectives. Passive flux meters (PFMs) have been commonly used to measure the cumulative water and contaminant mass flux of VOCs. The PFM is a monitoring well deployed unit containing specific sorbents which intercept and retain contaminant mass, while at the same time release tracers at a rate proportional to groundwater flow. By quantifying the fraction of resident tracer lost and the mass of contaminant sorbed, groundwater flow and contaminant flux can be calculated. Recently, PFMs were deployed to evaluate PFOA and PFOS mass flux at the former Wurtsmith AFB, Fire Training Area-02 site in Oscoda, Michigan.

Approach/Activities. Twelve PFMs were deployed in August 2017 throughout an array of four nested well sets installed along a line, with three wells installed at different depths at each of the four locations. This well array provides a multi-depth plume transect down gradient of a known VOC and PFOA and PFOS source area. Each of the twelve PFMs contained two sorbents, granular activated carbon (GAC) and non-ionic resin, which were evaluated for their ability to retain PFOA and PFOS for mass flux estimates.

Results/Lessons Learned. The PFOA and PFOS multi-well transect results will allow estimation of PFOA and PFOS mass flux and will be correlated to mass flux of the VOCs present and the known PFOA and PFOS mass captured by a downgradient groundwater extraction system. GAC and resin samples from the PFMs were used to evaluate PFOA and PFOS extraction efficiency using different solvents. Improvements to the site conceptual model for PFOA and PFOS migration will provide additional insight into the PFOA and PFOS source behavior, an evaluation of source strength history, and can be used for future source area remedial design and ongoing pump and treat system performance assessments.