



Validated Analytical Methods for PFAS Measurement in Environmental Samples (Aqueous)

Jim Voit

Center for Environmental Solutions and Emergency Response Office of
Research and Development

Executive Meeting | Board of Scientific Counselors
September 29-30, 2021

The views expressed in this presentation are those of the author(s) and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.



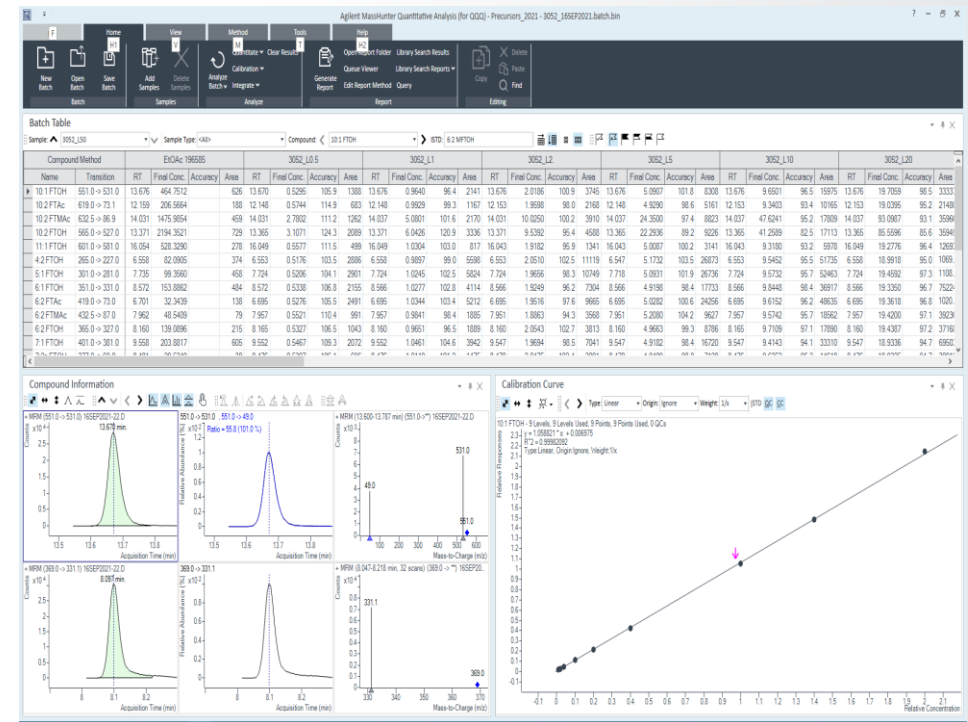
Goals

- Validated analytical methods provide the means to collect data for research and regulatory applications
- Demonstrated and validated method performance in specific sample matrix types to collect data of known quality that is reproducible and defensible
- EPA standard methods are recognized nationally and internationally as the “gold standard” for analytical methodology by industrial, academic and other governmental agencies

- Safe Drinking Water Act (SDWA) method developed by ORD for finished drinking water
- Revision 2 published March 2020
- 18 PFAS, including perfluorocarboxylic and sulfonic acids (chain length $\leq C14$), perfluoroethers (HFPO-DA), and sulfonamides
- Solid Phase Extraction, LC/MS/MS data acquisition, quantification by internal standard calibration technique
- Limit of Detection (LOD) capable of regulatory application to PFOA/PFOS advisory level



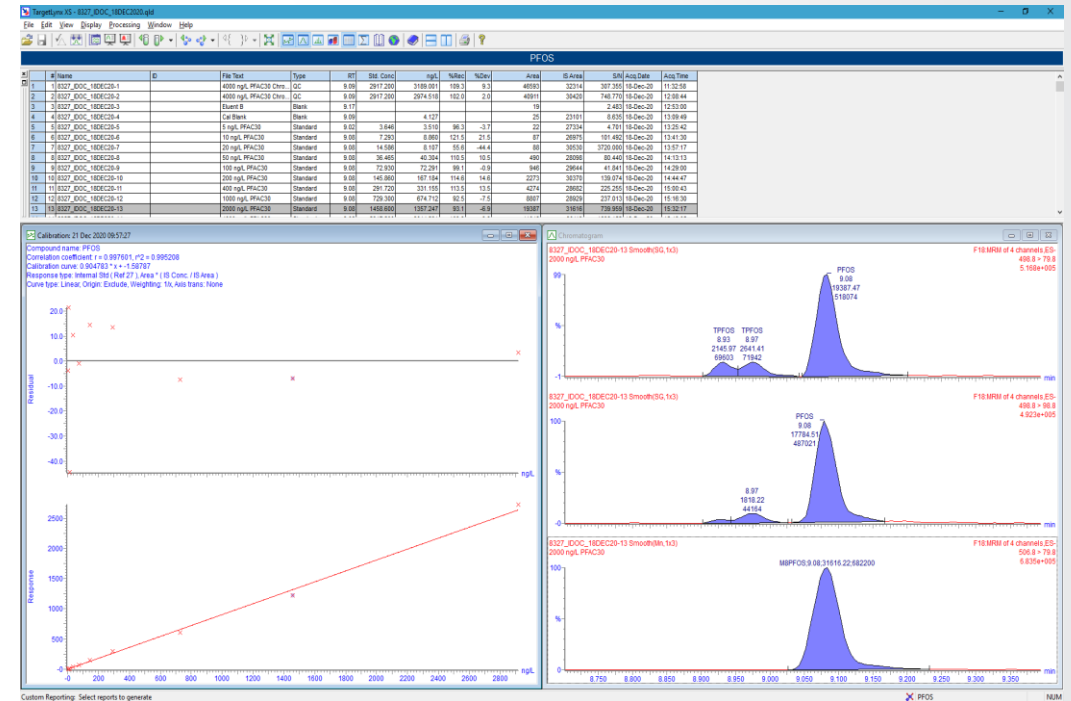
- Safe Drinking Water Act (SDWA) method developed by OW for drinking water, published November 2019
- 25 PFAS
 - C4 to C12 acids, perfluoroethers
 - Complements 537.1 to provide analytical capability for 29 PFAS in drinking waters
- Solid Phase Extraction, LC/MS/MS data acquisition, quantification by isotope dilution calibration.
- Limit of Detection (LOD) capable of regulatory application to PFOA/PFOS advisory level





SW846 Method 8327

- Methods 3512 (extraction) and 8327 (Analysis) published July 2021
- Method developed by R5/OLEM for 24 PFAS in non-potable water
- Direct Injection, LC/MS/MS data acquisition, quantification by external standard calibration technique
- A simple and robust high throughput analytical method for screening level characterization of surface water, groundwater, wastewater
- Limit of Detection (LOD) higher than the SDWA methods





Contributors

EPA 537.1: Office of Research and Development (ORD)

EPA 533: Office of Water lead, ORD contributor

SW846 Method 8327: Office of Land and Emergency Management, EPA Region 5, ORD contributor

Supported by Sustainable and Healthy Communities (SHC), Safe and Sustainable Water Resources (SSWR)