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UCMR5: What to Expect

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What is a part per trillion (ng/l)?



- 1 postage stamp in the area of the city of Dallas
- 1 inch in 16 million miles (600 times around the Earth)
- 1 second in 520 centuries
- 1 flea on 360 million elephants
- 1 grain of sugar in an Olympic sized swimming pool

UCMR5 Timeline of Activities

2022	2023	2024	2025	2026
Pre-sampling Activity by EPA • Manage Lab Approval Program • Organize Partnership Agreements and State Monitoring Plans • Begin PWS SDWARS registration/ inventory • Review GWRMP submittal • Conduct outreach/trainings	**Sampling Period** **EPA Implementation Activities** • Provide compliance assistance • Implement small system monitoring • Post data quarterly to NCOD **PWS Sample Collection; Laboratory Analysis; Reporting** • All large systems serving more than 10,000 people; • All small systems serving between 3,300 and 10,000 people; • 800 small systems serving fewer than 3,300 people			**Post-sampling Activity** **PWSs, Laboratories** • Complete resampling, as needed • Conclude data reporting **EPA** • Complete upload of UCMR 5 data to NCOD

Courtesy to EPA UCMR5 shareholder meeting presentation, 04/06/2021.

UCMR5 Scope

Assessment Monitoring: 30 Contaminants & Methods	25 PFAS compounds by EPA Method 533 4 PFAS compounds by EPA Method 537.1 Lithium by EPA Method 200.7, SM 3120 B (2017), SM 3120 B-99 (1999), or ASTM D1976-20
Small Systems (25 – 3,299)	800 randomly selected surface water (SW), ground water under the direct influence of surface water (GWUDI), and ground water (GW) systems
Small Systems (3,300 – 10,000)	All SW, GWUDI, and GW systems (~5,100) ****WHO IS PAYING FOR THESE??????****
Large Systems (10,001 and over)	All SW, GWUDI, and GW systems (~4,400)

29 PFAS for Proposed UCMR5 (2023-2025)

533	PFBA	PFPeA	PFHxA	PFHpA	PFOA
	PFNA	PFDA	PFUnA	PPDoA	PFBS
	PFPeS	PFHxS	PFHpS	PFOS	PFEESA
	4:2 FTS	6:2 FTS	8:2 FTS	HFPO-DA	ADONA
	9Cl-PF3ONS	11Cl-PF3OUdS	PFMBA	PFMPA	NFDHA
537.1	MEtFOSAA	NMeFOSAA	PFTrDA	PFTeDA	

5

UCMR5 Sampling Highlights

- **Anticipating a total of ~10,300 systems; samples collected during 2023-2025, following the sampling schedules.**
- **All samples along with field reagent blanks (FRBs) are to be collected at entry points to the distribution system (EPTDS).**
- **SW and GU systems sample 4 times (~3 months apart) during their year of sampling.**
- **GW systems sample 2 times (5-7 months apart) during their year of sampling.**
- **Systems must assign the following Sample Event (SE) codes:**
  - **SE1 & SE2 represent the the 1st and 2nd sampling periods for all water types.**
  - **SE3 & SE4 represent the 3rd and 4th sampling periods for SW, GU, and MX sources only.**

6

UCMR5 Sampling Highlights (Cont'd)

- FRBs are to be extracted and analyzed only if associated samples have detects above the reporting limit.
- Within 90 days of sample collection: Laboratories must post monitoring results to EPA's electronic reporting system, SDWARS.
- Within 30 days of lab posting data: PWSs serving more than 10,000 people may review and approve data.

Conclusions

- EPA Methods 537.1 and 533 are the current methods commonly used for drinking water analyses. They may be also suitable for pristine non-potable water.
- Enhanced SPE elution may be needed for EPA Method 537.1 to improve recoveries of late eluting analytes and surrogates.
- FRB is less problematic. However, switching FS/FRB bottles should be avoided.
- UCMR5 PFAS MRLs are equal to or slightly higher than the current laboratory MRLs.

Drinking Water PFAS Regulations

- **USEPA**
  - 2013-2015 UCMR3 for 6 PFAS with MRLs of 10-90 ng/L by EPA Method 537
  - Health Advisories (2016): PFOA/PFOS or PFOA + PFOS = 70 ng/L
  - 2023-2025 UCMR5 for 29 PFAS with MRLs of 2-8 ng/L by EPA Methods 537.1 and 533
  - MCLs for PFOA & PFOS?
- **States with DW Regulations as December, 2021**
  - Established MCLs: NJ, NH, VT, MA, NY, WI, MI
  - Established NLs: CA (public health goals for PFOA & PFOS)
  - Proposed/Established HALs or Action Limits: MN, OH, RI, NC, OR, IL, WA
  - Promulgated MCL's: PA (PFOA, PFOS, PFBS)
- **Examples**
  - Individual PFAS — NJ MCLs: PFNA = 13 ng/L, PFOA = 14 ng/L, PFOS = 13 ng/L
  - Sum of PFAS — MA MCL: PFOA + PFHxS + PFOS + PFHpA + PFNA + PFDA = 20 ng/

PFAS Results

Analyte	Result	RL	Units
Perfluorooetanoic acid (PFOA)	2.5	1.8	ng/l
Perfluorohexanesulfonic acid (PFHxS)	<1.8	1.8	ng/l
Perfluorobutanesulfonic acid (PFBS)	<1.8	1.8	ng/l
Perfluorononanoic acid (PFNA)	<1.8	1.8	ng/l
Perfluorooctanesulfonic acid (PFOS)	<1.8	1.8	ng/l
Perfluoroheptanoic acid (PFHpA)	<1.8	1.8	ng/l

Since PFOA result was above the RL, then that triggers the FB analysis.

Our reporting limit is 2.0 ng/l (ppt). We measure the exact amount of sample in the container. If the sample volume is greater than 250 mls, we must adjust the reporting limit. (Sample vol over 250 mls will result in a RL <2.0)

Why don't we just use 250 mls of sample for the extraction? Answer: we run a container rinse before the testing.

Any Questions?

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