

PFAS & UCMR

Update for Public Water Systems

Paul R. Jackson
Program Manager, Specialty Services
Paul.Jackson@pacelabs.com
813-731-1595



Safety Moment



Don't be THAT guy.

Pace Locations

- Founded 1978
- Largest American owned environmental laboratory company
- 3 Divisions and nearly 2,600 employees nationwide



- Environmental Laboratory Locations
- Service Center Locations
- Scientific Professional Services Locations
- Life Sciences Locations
- Energy Services Locations
- *Multiple Locations
- Laboratory Also Serves As Service Center



Pace Locations

- 41 laboratory locations and 50 service centers

Specialty Analytical Services:

- PFAS - Per- and polyfluoroalkyl substances
- 1,4-Dioxane
- Low-level Hexavalent Chromium & Mercury
- Dioxins
- Radiochemistry
- Environmental Forensics
- Air
- Biota
- Microcystins
- Unregulated Contaminants
- Drinking & Bottled Water



Topics

PFAS

UCMR 4

- 💧 Background
- 💧 When is sampling required
- 💧 What must be sampled
- 💧 What must be tested
- 💧 Which contaminants are we seeing & how does that affect you



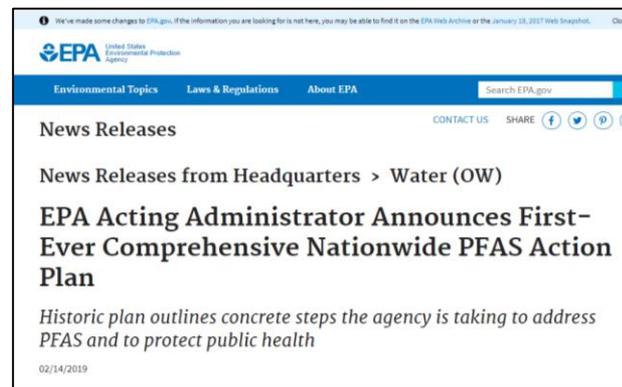
UCMR 5

PFAS

2013 - 2015 – PFAS included in UCMR 3, Pace analyzes over 3,000 samples. Since then Pace has analyzed over 10,000 samples.

May 2016 - EPA issues Health Advisory recommending a combined drinking water limit for PFOA and PFOS of 70 parts per trillion.

2016 to date – Numerous sites including DoD and industrial facilities are investigated and being investigated, and found to be contaminated. Many are impacting public and private water supplies.



PFAS

Late 2018 - Bottled and package water producers association (IBWA) directed its members to test all products in 2019 for PFAS.

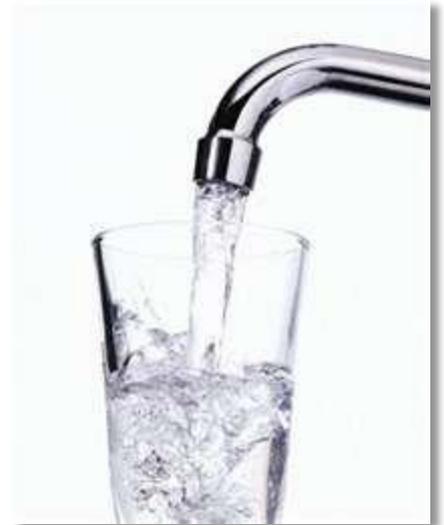
2/14/19 - EPA announced its intent to start the process to add PFOA & PFOS to the SDWA MCL and add them to the Hazardous Substance list.

EPA also announced that an extended list of PFAS will be added to the UCMR 5 program (2023-2025).



UCMR 4 - Background

- Every 5 years EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data on up to 30 contaminants that are under consideration for inclusion on the SDWA Maximum Contaminant List (MCL).
- UCMR 4 is not a compliance monitoring program, the data is studied to consider adding contaminants to the MCL.



B a c k g r o u n d

- As a result of UCMR 3 (2012-2015) EPA announced its intent to add strontium to the MCL.
- PFOA & PFOS Health Advisory issued – combined level of 70 PPT or 0.07 ug/L, and process to add to MCLs starts in 2019.



Background

- Applicable to every large Public Water System that serves >10,000 consumers, approximately 4,300 systems.
- Nearly half are systems that use surface water or Groundwater Under the Direct Influence (GWUDI) as their source water. The remainder are GW systems.
- Also applicable to 1600 small systems that serve 25-10,000 consumers.
- All systems must complete sampling 2018-2020.



W h e n ?

- Water systems that use ***surface water and/or groundwater under the direct influence of surface water as their source*** will monitor for Cyanotoxins/Microcystins during a 4 consecutive month period from March through November.
- Surface water/GWUDI systems are required to sample for the other chemical contaminants on a quarterly basis.
- Groundwater systems sample for the other chemical contaminants on a semi-annual basis.
- EPA has set the sampling schedules and allows systems to request changes to the schedule.



W h a t ?

Surface Water or Groundwater Under the Direct Influence

- Cyanotoxins/Microcystins at each Entry Point to The Distribution System (EPTDS) – every 2 weeks for 4 consecutive months, March-November:
 - Total Microcystins EPA 546
 - If Total Microcystins result is ≥ 0.3 ug/L – Cyanotoxin Microcystins Congeners EPA 544 is required (EPA estimates 2% of samples will be required to tested)
 - Anatoxin-a & Cylindrospermopsin EPA 545



W h a t ?

Surface Water or Groundwater Under the Direct Influence

💧 4 groups of chemical contaminants at each Entry Point to The Distribution System (EPTDS) – quarterly for 12 consecutive months, January-December:

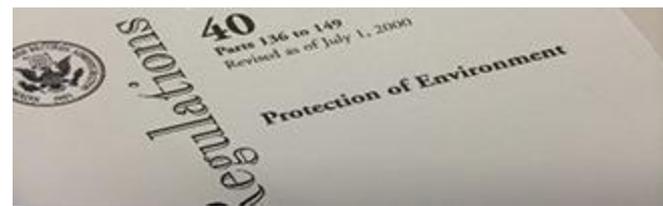
- Metals - Germanium & Manganese
EPA 200.8
- Pesticides and Pesticide Byproducts
EPA 525.3
- Alcohols EPA 541
- Semivolatile Organics EPA 530



W h a t ?

Surface Water or Groundwater Under the Direct Influence

- Haloacetic Acids at each Stage 2 Disinfectants and Disinfection Byproducts Rule Sampling Locations – quarterly for 12 consecutive months, January-December:
 - HAA5, HAA6 & HAA9 compounds
EPA 552.3



What?

Surface Water or Groundwater Under the Direct Influence

- 💧 2 indicator parameters at each uncombined Source Water Intake Location – quarterly for 12 consecutive months, January-December:
 - Total Organic Carbon SM 5310B
 - Bromide EPA 300.1



W h a t ?

Groundwater

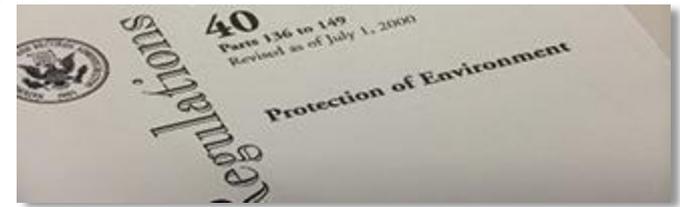
- 4 groups of chemical contaminants at each Entry Point to The Distribution System (EPTDS) – twice during 12 consecutive months, January-December:
 - Metals - Germanium & Manganese EPA 200.8
 - Pesticides and Pesticide Byproducts EPA 525.3
 - Alcohols EPA 541
 - Semivolatile Organics EPA 530



What?

Groundwater

- Haloacetic Acids at each Stage 2 Disinfectants and Disinfection Byproducts Rule Sampling Locations – twice during 12 consecutive months, January-December:
 - All HAA5, HAA6 & HAA9 compounds EPA 552.3



What? *Groundwater*

- 2 indicator parameters at each uncombined Source Water Intake Location – twice during 12 consecutive months, January-December:
 - Total Organic Carbon SM 5310B
 - Bromide EPA 300.1



Data Above Reporting Limits

- What parameters have been analyzed and found to be above reporting limits?
- Since UCMR isn't for compliance reporting and enforcement why care?
- Consumer Confidence Reports – see <https://www.epa.gov/sites/production/files/2018-05/documents/ucmr4-refconc-180514.pdf>



Data Above Reporting Limits

Consumer Confidence Reports:

- Community water systems must inform their consumers of UCMR monitoring results (including the average and range of detections). See 40 CFR 141.153(d)(7) for Consumer Confidence Report (CCR) regulatory requirements and Section IV of EPA's guidance, "Preparing Your Drinking Water Consumer Confidence Report" for details on the contents of the report.
- Non-transient, non-community water systems required to monitor for UCMR must inform their consumers of the availability of monitoring results. See 40 CFR 141.207 for Tier 3 Public Notice (PN) regulatory requirements and EPA's web page for PN guidance.



Data Above Reporting Limits

Cyanotoxins/Microcystins:

<i>Contaminant</i>	<i>Method</i>	<i>Minimum Reporting Level, $\mu\text{g/L}$</i>	<i>% Above Reporting Limit</i>	<i>High, $\mu\text{g/L}$</i>
Total Microcystin	EPA 546	0.3	0.13%	0.79
Microcystin-LA	EPA 544	0.008	0%	
Microcystin-LF	EPA 544	0.006	0%	
Microcystin-LR	EPA 544	0.02	0%	
Microcystin-LY	EPA 544	0.009	0%	
Microcystin-RR	EPA 544	0.006	0%	
Microcystin-YR	EPA 544	0.02	0%	
Nodularin	EPA 544	0.005	0%	
Anatoxin-a	EPA 545	0.03	2%	0.12
Cylindrospermopsin	EPA 545	0.09	0%	

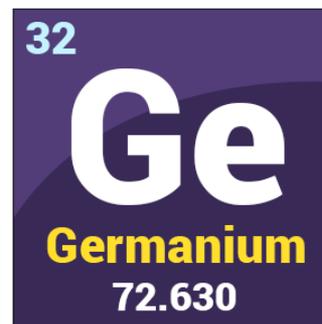


Data Above Reporting Limits

Metals:

<i>Contaminant</i>	<i>Method</i>	<i>Minimum Reporting Level, $\mu\text{g/L}$</i>	<i>% Above Reporting Limit</i>	<i>High, $\mu\text{g/L}$</i>
Germanium	EPA 200.8	0.3	6%	3.7
Manganese	EPA 200.8	0.4	70%	626

Manganese Secondary MCL: 50 $\mu\text{g/L}$



Data Above Reporting Limits

Pesticides and Pesticide Byproducts:

<i>Contaminant</i>	<i>Method</i>	<i>Minimum Reporting Level, µg/L</i>	<i>% Above Reporting Limit</i>	<i>High, µg/L</i>
Alpha-hexachlorocyclohexane	EPA 525.3	0.01	0.42%	0.039
Chlorpyrifos - <i>production banned 8/19/18</i>	EPA 525.3	0.03	0%	
Dimethipin	EPA 525.3	0.2	0%	
Ethoprop	EPA 525.3	0.03	0%	
Oxyfluorfen	EPA 525.3	0.05	0%	
Profenofos	EPA 525.3	0.3	0%	
Tebuconazole	EPA 525.3	0.2	0%	
Total Permethrin	EPA 525.3	0.04	0%	
Tribufos	EPA 525.3	0.07	0%	



Data Above Reporting Limits

Alcohols:

<i>Contaminant</i>	<i>Method</i>	<i>Minimum Reporting Level, $\mu\text{g/L}$</i>	<i>% Above Reporting Limit</i>	<i>High, $\mu\text{g/L}$</i>
1-Butanol	EPA 541	2	0.59%	7.7
2-Methoxyethanol	EPA 541	0.4	0.46%	0.68
2-Propen-1-ol	EPA 541	0.5	0.92%	1.5



Data Above Reporting Limits

Semivolatile Organics:

<i>Contaminant</i>	<i>Method</i>	<i>Minimum Reporting Level, µg/L</i>	<i>% Above Reporting Limit</i>	<i>High, µg/L</i>
Butylated Hydroxyanisole	EPA 530	0.03	0.17%	22.2
o-Toluidine	EPA 530	0.007	0.42%	0.094
Quinoline+26:2616:476:33:47	EPA 530	0.02	0.83%	3.8



Data Above Reporting Limits

Haloacetic Acids:

<i>Contaminant</i>	<i>Method</i>	<i>Minimum Reporting Level, $\mu\text{g/L}$</i>	<i>% Above Reporting Limit</i>	<i>High, $\mu\text{g/L}$</i>
Monobromoacetic acid (MBAA) (5)	EPA 552.3	0.3	25%	11.7
Dibromoacetic acid (DBAA) (5)	EPA 552.3	0.3	64%	15.6
Dichloroacetic acid (DCAA) (5)	EPA 552.3	0.2	94%	29.9
Monochloroacetic acid (MCAA) (5)	EPA 552.3	2	12%	18.1
Trichloroacetic acid (TCAA) (5)	EPA 552.3	0.5	82%	59.5
Bromochloroacetic acid (BCAA)	EPA 552.3	0.3	92%	22.2
Bromodichloroacetic acid (BDCAA)	EPA 552.3	0.5	81%	18.5
Chlorodibromoacetic acid (CDBAA)	EPA 552.3	0.3	71%	11.9
Tribromoacetic acid (TBAA)	EPA 552.3	2	7%	15.1



HAA5 MCL: 60 $\mu\text{g/L}$

UCMR 5

- Sampling to take place 2023-2025
- Proposed by EPA to include systems that serve 3,330-10,000 consumers
- Current list of 69 contaminants must be reduced to 30
- Contaminant list includes Lithium, Semi-VOCs, Pesticides & Flame Retardants, Carbamates, PPCPs, DBPs, Carbonyls, Industrial Solvents, Alkylphenols, Legionella & Mycobacterium, PFAS



Questions & Answers

- Paul.Jackson@pacelabs.com
813-731-1595
- Heather.Dennison@pacelabs.com
251-275-5019
- RElkins@pacenational.com
256-214-3119

