



Unregulated Contaminant Monitoring Rule (UCMR4)

South Carolina Department of Health and Environmental Control
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Why UCMR?

- Implemented after the 1996 amendments to the Safe Drinking Water Act (SDWA)
- Required the U.S. EPA monitor no more than 30 contaminants every five years
- Contaminants not currently regulated
- Therefore...it is required by the EPA

When is UCMR? Who is required to participate?

- Monitoring will begin in 2018 and end in 2020
- Large public water systems, serving more than 10,000 people, are required to monitor
- A representative number of small public water systems selected by EPA, serving 10,000 people or less
- SC = 75 large PWSs and 28 small PWSs

What is UCMR?

Three types of assessment monitoring:

- Assessment Monitoring 1 (Chemicals)
- Assessment Monitoring 2 (HAAs & Indicators)
- Assessment Monitoring 3 (Cyanotoxins)

What is UCMR?

UCMR4 Monitoring Plan			
Type of Water System (population)	AM1 Chemicals	AM2 HAAs & indicators	AM3 Cyanotoxins
Small Systems (25-10,000)	Selected by EPA [SC = 11 PWSs]	Selected by EPA [SC = 10 PWSs]	Selected SW [SC = 17 PWSs]
Large Systems (>10,000)	All [SC = 75 PWSs]	All [SC = 75 PWSs]	All SW (including systems that purchase surface water) [SC = 67 PWSs]

Assessment Monitoring 1 (Chemicals)

- **Metals:** germanium, manganese
- **Pesticides:** alpha-hexachlorocyclohexane, chlorpyrifos, dimethipin, ethoprop, oxyfluorfen, profenofos, tabuconazole, total permethrin (cis- & trans-), tribufos
- **Alcohols:** 1-butanol, 2-methoxyethanol, 2-propen-1-ol
- **Semivolatiles:** butylated hydroxyanisole, o-toluidine, quinoline

Assessment Monitoring 2 (HAAs & Indicators)

HAA Groups			
Dichloroacetic acid (DCAA)			HAA9
Monochloroacetic acid (MCAA)			
Trichloroacetic acid (TCAA)	HAA5		
Monobromoacetic acid (MBAA)			
Dibromoacetic acid (DBAA)			
Bromochloroacetic acid (BCAA)		HAA6Br	
Bromodichloroacetic acid (BDCAA)			
Chlorodibromoacetic acid (CDBAA)			
Tribromoacetic acid (TBAA)			

Indicators	
Total Organic Carbon	Bromide

Assessment Monitoring 3 (Cyanotoxins)

- Total microcystins
- Microcystin-LA
- Microcystin-LF
- Microcystin-LY
- Microcystin-RR
- Microcystin-YR
- Nodularin
- Anatoxin-a
- Cylindrospermopsin

Where are my UCMR sampling locations?

AM1

- at each entry point to distribution system
- if purchasing, at connection (or master meter location), and if more than one connection, at connection of highest volume
- large GW systems are eligible to submit ground water representative monitoring plan (GWRMP) for approval, deadline 10/31/17

GWRMP?

- Large GW systems or Large SW systems that have GW sources are eligible to submit ground water representative monitoring plan (GWRMP) for approval, deadline to submit required documentation to EPA is 10/31/17.
- DHEC DW Compliance, Richard Welch and engineers, will need approximately 2 weeks to review/approve; please contact if you need assistance

Where are my UCMR sampling locations?

AM2 HAAs = Stage 2 DBP Rule sites

AM2 Indicators

- Raw water before treatment
- Collected at the same time as AM2 HAA samples
- Surface water purchased – not required

Where are my UCMR sampling locations?

AM3 Cyanotoxins

- Entry point to distribution system
- Surface water purchased at master meter connection
- Highest volume if multiple meters

How often do I sample?

AM1 and AM2:

- Surface water systems – 4 sampling events, 4 consecutive quarters
- Groundwater systems – 2 sampling events, the 2nd sampling event occurring between 5-7 months following the 1st sampling event

AM3:

- Surface water systems and surface water purchasing systems – 8 sampling events, every other week, 4 consecutive months (excluding December-February)



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What does it cost?



Monitoring Plan/Method(s)	Est Cost per Sample
AM1-Metals/EPA 200.8, ASTM D5673-10, SM 3125 ³	\$80
AM1-Pesticides/EPA 525.3	\$415
AM1-Alcohols/EPA 541	\$337
AM1-Semivolatiles/EPA 530	\$384
AM2-HAAs/EPA 552.3 or 557	\$194
AM2-Indicator-TOC/SM5310B, SM5310C, SM5310D, EPA 415.3	\$61
AM2-Indicator-Bromide/EPA 300.0, 300.1, 317.0, 326.0, ASTM D6581-12	\$55
AM3-Cyanotoxin "total microcystins"/EPA 546 Adda ELISA	\$163
AM3-Cyanotoxin "specific microcystins"/EPA 544	\$445
AM3-Cylindrospermopsin and anatoxin-a/EPA 545	\$428



Example: Blue Water System, SC1234567, is a large surface water system with an additional ground water source and two DBP sampling locations. They have confirmed their inventory in their CDX/SDWARS account as:

Facility ID	Facility Name	Facility Type	Water Type	Sample Point ID	Sample Point Name
12345	Blue Water SW TP	TP	SW	A12345	Blue Water SW TP
12678	Running River	IN	SW	S12678	Running River Intake
12543	Plant 1	TP	GW	B12543	Plant 1-well 1
12876	Well 1	WL	GW	G12876	Well 1
99001	Distribution	DS	MX	DBP20	654 Water Way
99001	Distribution	DS	MX	DBP21	321 Water Ave



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Sample Point ID	Sample Point Name	Monitoring Requirement	SE1	SE2	SE3	SE4	SE5	SE6	SE7	SE8	Est Cost
A12345	Blue Water SW TP	AM1	Jun 2019	Sep 2019	Dec 2019	Mar 2020					\$4864
B12543	Plant 1-well 1	AM1	Jun 2019	Dec 2019							\$2432
DBP20	654 Water Way	AM2	Jun 2019	Sep 2019	Dec 2019	Mar 2020					\$776
DBP21	321 Water Ave	AM2	Jun 2019	Sep 2019	Dec 2019	Mar 2020					\$776
S12678	Running River Intake	AM2-TOC/Br	Jun 2019	Sep 2019	Dec 2019	Mar 2020					\$464
G12876	Well 1	AM2-TOC/Br	Jun 2019	Dec 2019							\$232
A12345	Blue Water SW TP	AM3* *all results for 546 < 0.3 µg/L	Jun 2020-wk 1	Jun 2020-wk 3	Jul 2020-wk 1	Jul 2020-wk 3	Aug 2020-wk 1	Aug 2020-wk 3	Sep 2020-wk 1	Sep 2020-wk 3	\$4728
Total Cost (estimated)											\$14,272

AM3-Cyanotoxins

- Three samples collected at EPTDS, one for each method (546, 544, 545)
- If 546 result for “total microcystins” is less than 0.3 $\mu\text{g/L}$, then the sample for 544 will not be analyzed and only the total microcystin result will be reported
- If 546 result is greater than or equal to 0.3 $\mu\text{g/L}$, the 546 result is reported and the sample for 544 is analyzed and reported (EPA estimates 2% of samples will trigger)
- Method 545 will be collected, analyzed and reported

AM3-Cyanotoxins

- For each sampling event, the water system will be required to answer 4 questions through their Central Data Exchange (CDX)/Safe Drinking Water Accession and Review System (SDWARS). The questions are designed to help the EPA understand the quality of the source water at the time of the sampling event.

BLOOM OCCURRENCE

CYANOTOXIN
OCCURRENCE

INDICATOR OF POSSIBLE
BLOOM-TREATMENT

INDICATOR OF POSSIBLE
BLOOM-SOURCE WATER
QUALITY PARAMETERS

Who analyzes?

- Samples must be analyzed by an EPA UCMR approved lab using EPA UCMR approved methods. Detailed information regarding methods can be found on EPA's UCMR home page, www.epa.gov/dwucmr .

Who analyzes?

- Water system laboratories that wish to exclusively analyze TOC and/or bromide samples must email UCMR_Sampling_Coordinator@epa.gov by December 1, 2017 to register for the Lab Approval Program.
- Next, the water system laboratory must complete the registration and submit documentation that they are authorized by their primacy state to analyze TOC and/or bromide samples by December 15, 2017.

What do I do now?

- Water systems update contact information, zip code(s), sampling location(s), inventory information and monitoring schedules in their CDX/SDWARS account. **Deadline 12/31/17.**

What do I do now?

- Select an EPA UCMR approved lab using EPA UCMR approved methods. Details regarding labs and methods will be found at www.epa.gov/dwucmr .

What do I do now?

- Once sampling begins, labs will post data to SDWARS within 120 days of sample collection.
- PWS Administrative Contact and/or Technical Contact should review/approve data via CDX within 60 days of lab posting.
- If PWS does not review/approve within 60 days, data automatically approved and ready for state and EPA review.
- All data publically available in EPA National Contaminant Occurrence Database.

What do I do with results?

- Water systems are required to notify persons served of the availability of results no later than twelve months after results are known.
- Water Systems may notify the public within their Consumer Confidence Reports (CCRs).
- The CCR Rule requires the water systems to report monitoring results for unregulated contaminants.



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