United States Environmental Protection Agency

The Fourth Unregulated Contaminant Monitoring Rule (UCMR 4)

Cyanotoxins – Fact Sheet for Assessment Monitoring

Overview

EPA published the "Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 4) for Public Water Systems and Announcement of Public Meeting" on December 20, 2016 (81 FR 92666). UCMR 4 includes Assessment Monitoring for a total of 30 chemical contaminants including nine cyanotoxins and one cyanotoxin group. UCMR 4 also requires Assessment Monitoring for:

- Three brominated haloacetic acid (HAA) disinfection byproducts groups and two associated indicators (TOC and bromide).
- Seventeen additional contaminants including two metals, eight pesticides plus one pesticide manufacturing byproduct, three alcohols and three semivolatile organic chemicals.

Monitoring under UCMR 4 will occur from 2018-2020. For more information on these contaminants, please refer to the respective UCMR 4 Fact Sheets.

Assessment Monitoring (Cyanotoxins)

Freshwater cyanobacterial blooms may be composed of a single-species or variety of toxic and non-toxic strains. Cyanotoxins are produced and contained within the actively growing cyanobacterial cells, and can be released into the surrounding water.

Contaminant	CASRN[1]	MRL[2] (µg/L)	Method
"total microcystins"	N/A	0.3	EPA 546
microcystin-LA	96180-79-9	0.008	EPA 544
microcystin-LF	154037-70-4	0.006	EPA 544
microcystin-LR	101043-37-2	0.02	EPA 544
microcystin-LY	123304-10-9	0.009	EPA 544
microcystin-RR	111755-37-4	0.006	EPA 544
microcystin-YR	101064-48-6	0.02	EPA 544
nodularin	118399-22-7	0.005	EPA 544
anatoxin-a	64285-06-9	0.03	EPA 545
cylindrospermopsin	143545-90-8	0.09	EPA 545

1. CASRN - Chemical Abstracts Service Registry Number
2. MRL - Minimum Reporting Level

- **Applicable Water Systems**: Community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) serving more than 10,000 retail customers (i.e., large systems) and a representative sample of 800 CWSs and NTNCWSs serving 10,000 or fewer retail customers (i.e., small systems). Systems using surface water or ground water under the direct influence of surface water are required to sample; **ground water systems are excluded from cyanotoxin monitoring**.
- **Timeframe and Frequency:** Systems will take samples twice a month for four consecutive months (total of eight sampling events), during the monitoring timeframe of March through November (excludes December, January and February).
- **Monitoring Locations:** Three samples for cyanotoxin analysis will be collected at the entry point to the distribution system (EPTDS). One sample will be collected for total microcystins analysis by EPA Method 546 (Adda specific enzyme linked

immunosorbent assay (ELISA)), the second for identification of specific microcystins by analysis using EPA Method 544, and the third for cylindrospermopsin and anatoxin-a by EPA Method 545.

- If the Adda ELISA result is less than 0.3 micrograms per liter (µg/L) (i.e., the reporting limit for total microcystins), then the sample collected for Method 544 will not be analyzed for that sample event, and only the Adda ELISA result will be reported to EPA through the Safe Drinking Water Accession and Review System (SDWARS).
- If the Adda ELISA result is greater than or equal to 0.3 µg/L, the result will be reported to EPA and the EPA Method 544 sample will be analyzed to identify and quantify the six specific microcystin congeners and nodularin.
- Cylindrospermopsin and anatoxin-a will be analyzed by EPA Method 545.

- **Laboratories:** Samples must be analyzed by EPA UCMR approved laboratories.
- **Occurrence Data:** The analytical results from UCMR 4 are stored in the National Contaminant Occurrence Database (NCOD). For a summary of the NCOD results, tips for querying NCOD, and health effects information (including reference concentrations, where available), please refer to the UCMR 4 Data Summary document.

Critical Deadlines and Requirements

Following Rule Publication

Due Date	Requirement	Report through SDWARS[1]	Contact Sampling Coordinator[2]
December 31, 2017	**Large systems** must update contact information, zip code(s), sampling location(s), inventory information and monitoring schedule. With the exception of monitoring schedule changes, any subsequent changes must be submitted within 30 days of the change occurring. EPA will coordinate with the small systems to collect the contact information, zip code(s) and inventory information. After December 31, 2017, systems must provide an explanation for any requested schedule change and obtain EPA approval of the change.	X	X (after December 31, 2017)
February 21, 2017	**Laboratories** seeking approval must submit a registration form to participate in the laboratory approval process.		X
April 19, 2017	**Laboratories** must complete and submit the necessary laboratory approval application materials.		X

Following Sample Collection

Due Date	Requirement	Report through SDWARS[1]	Contact Sampling Coordinator[2]
Within 120 days of sample collection	**Laboratories** post data to SDWARS.	X	
Within 60 days of lab posting data	**PWSs** review and approve the data. If the PWS has not taken action after 60 days, the data are considered approved and ready for state and EPA review.	X	

1. Safe Drinking Water Accession and Review System.
2. Contact via email at UCMR_Sampling_Coordinator@epa.gov.

Data Elements

EPA will collect the data elements described in the table below via SDWARS 4, an updated version of the data reporting system used in previous UCMR actions. The final four data elements bolded in the table below are exclusively cyanotoxin data elements, and will include "yes" or "no" questions with a corresponding drop down menu of options. These elements were added to understand source water quality at the time the EPTDS samples are collected.

Public Water System Identification (PWSID) Code	Sampling Point Identification Code	Sample Collection Date	Analysis Batch Identification Code	Laboratory Identification Code
Public Water System Name	Sampling Point Name	Sample Identification Code	Analysis Date	Sample Event Code
Public Water System Facility Identification Code	Sampling Point Type Code	Contaminant	Sample Analysis Type	**Bloom Occurrence**
Public Water System Facility Name	Disinfectant Type	Analytical Method Code	Analytical Results–Sign	**Cyanotoxin Occurrence**
Public Water System Facility Type	Treatment Information	Extraction Batch Identification Code	Analytical Result-Measured Value	**Indicator of Possible Bloom – Treatment**
Water Source Type	Disinfectant Residual Type	Extraction Date	Additional Value	**Indicator of Possible Bloom – Source Water Quality Parameters**

Additional Information

The **Public Notification Rule** (40 CFR 141.207) requires PWSs to notify the persons served of the availability of the results no later than 12-months after monitoring results are known. CWSs may include their public notice within their Consumer Confidence Reports (CCRs).

Under the **Consumer Confidence Report (CCR) Rule** (40 CFR 141.153(d)) requires CWSs to report the monitoring results whenever unregulated contaminants are detected. CCRs are to be sent to all billing customers each year by July 1. (The CCR Rule does not apply to non-community water systems). To obtain a copy of your CCR, you should contact your water supplier or you may find information for how to obtain a copy of the CCR in your water bill. Additional information about the CCR including detains on reporting requirements can be found on the CCR Homepage.

For More Information

- Safe Drinking Water Hotline: 1-800-426-4791
- CDX/SDWARS Help Desk: 1-888-890-1995
- UCMR Homepage
- Cyanotoxins in Drinking Water Homepage