

Unregulated Contaminant Monitoring Regulation (UCMR 3) for Public Water Systems

The 1996 amendments to the Safe Drinking Water Act (SDWA) requires that the United States Environmental Protection Agency (US EPA) establish a monitoring program for unregulated contaminants and publish a list of up to 30 contaminants to be monitored every 5 years. UCMR 3, effective June 1, 2012, is the latest revision and provides a list of 28 chemical contaminants and 2 viruses. This data will provide information on contaminant occurrence in drinking water, an estimate on the number of people exposed, and the levels of exposure.

Contaminants

The US EPA divided the 30 contaminants into three types of monitoring groups, or “lists” as follows:

List 1 – Assessment Monitoring: 20 contaminants plus Total Chromium;

List 2 – Screening Survey: 7 contaminants; and

List 3 – Pre-Screen Testing: 2 viruses.

List 1 contaminants have analytical methods well established, while List 2 and 3 have been more recently developed, employ less available technologies, or use specialized analytical methods. Contaminants in each list are as follows:

List 1

1,4-dioxane
molybdenum
cobalt
vanadium
strontium
total chromium
1,2,3-trichloropropane
1,3-butadiene
chloromethane (methyl chloride)
1,1-dichloroethane
bromochloromethane (Halon 1011)

bromomethane (methyl bromide)
chlorodifluoromethane (HCFC-22)
chlorate
perfluorooctanesulfonic acid (PFOS)
perfluorooctanoic acid (PFOA)
perfluorononanoic acid (PFNA)
perfluorohexanesulfonic acid (PFHxS)
perfluoroheptanoic acid (PFHpA)
perfluorobutanesulfonic acid (PFBS)
chromium-6 (hexavalent chromium)

List 2

17 β -estradiol
17 α -ethynylestradiol (ethinyl estradiol)
estrone
4-androstene-3,17-dione
estriol (16 α -hydroxy-17 β -estradiol)
equilin
testosterone

List 3

enteroviruses
noroviruses

Water System Applicability

UCMR 3 requires that all water systems serving more than 10,000 people (Large Systems) conduct sampling for List 1 parameters. All Large Systems serving more than 100,000 people must also conduct sampling of List 2 contaminants. List 3 viruses must be sampled by a select set of 800 systems that do not disinfect, serving fewer than 1,000 people. List 1 and 2 parameters must also be sampled by additional systems randomly selected by EPA. All samples must be collected at the entry points to the distribution system (EPTDS, while metals must also be sampled at the location of the distribution system maximum residence time (DSMRT).

Schedule and Cost

All samples must be collected during a 12-month period between 2013 and 2015. Large Systems must require laboratories to post data to the Safe Drinking Water Accession and Review System (SDWARS) within 120 days of sample collection, and Large Systems must review, approve and submit data to the State and EPA within 60 days of when the laboratory posts data. Systems serving more than 10,000 people must pay for sample shipping and laboratory testing from Lists 1 and 2, while EPA will pay for sampling performed by systems serving less than 10,000 people.

A summary table outlining sampling requirements is provided below.

UCMR 3 Summary Table

Who Must Sample	Contaminant	Laboratory Analytical Methods	Min. Reporting Level	Sampling Location(s)
LIST 1: ASSESSMENT MONITORING				
All systems serving more than 10,000 people; select systems serving fewer than 100,000 people	1,2,3-trichloropropane	EPA Method 524.3	0.03 µg/L	EPTDS
	1,3-butadiene	EPA Method 524.3	0.1 µg/L	EPTDS
	chloromethane (methyl chloride)	EPA Method 524.3	0.2 µg/L	EPTDS
	1,1-dichloroethane	EPA Method 524.3	0.03 µg/L	EPTDS
	bromomethane (methyl bromide)	EPA Method 524.3	0.2 µg/L	EPTDS
	bromochloromethane (Halon 1011)	EPA Method 524.3	0.06 µg/L	EPTDS
	chlorodifluoromethane (HCFC-22)	EPA Method 524.3	0.08 µg/L	EPTDS
	1,4-dioxane	EPA Method 522	0.07 µg/L	EPTDS
	cobalt	EPA 200.8, ASTM D5673-10, SM 3125	1 µg/L	EPTDS & DSMRT
	molybdenum	EPA 200.8, ASTM D5673-10, SM 3125	1 µg/L	EPTDS & DSMRT
	strontium	EPA 200.8, ASTM D5673-10, SM 3125	0.3 µg/L	EPTDS & DSMRT
	vanadium	EPA 200.8, ASTM D5673-10, SM 3125	0.2 µg/L	EPTDS & DSMRT
	chlorate	EPA 300.1, ASTM D6581-08, SM 4110D	20 µg/L	EPTDS & DSMRT
	perfluorooctanesulfonic acid (PFOS)	EPA 537	0.04 µg/L	EPTDS
	perfluorooctanoic acid (PFOA)	EPA 537	0.02 µg/L	EPTDS
	perfluorononanoic acid (PFNA)	EPA 537	0.02 µg/L	EPTDS
	perfluorohexanesulfonic acid (PFHxS)	EPA 537	0.03 µg/L	EPTDS
	perfluoroheptanoic acid (PFHpA)	EPA 537	0.01 µg/L	EPTDS
	perfluorobutanesulfonic acid (PFBS)	EPA 537	0.09 µg/L	EPTDS
	chromium-6 (hexavalent chromium)	EPA 218.7	0.03 µg/L	EPTDS & DSMRT
total chromium	EPA 200.8, ASTM D5673-10, SM 3125	0.2 µg/L	EPTDS & DSMRT	
LIST 2: SCREENING SURVEY				
All systems serving more than 100,000 people; select systems serving fewer than 100,000 people	17-b-estradiol	EPA 539	0.0004 µg/L	EPTDS
	17-a-ethynylestradiol (ethinyl estradiol)	EPA 539	0.0009 µg/L	EPTDS
	estriol (16-a-hydroxy-17-b-estradiol)	EPA 539	0.0008 µg/L	EPTDS
	equilin	EPA 539	0.004 µg/L	EPTDS
	estrone	EPA 539	0.002 µg/L	EPTDS
	testosterone	EPA 539	0.0001 µg/L	EPTDS
	4-androstene-3,17-dione	EPA 539	0.0003 µg/L	EPTDS
LIST 3: PRE-SCREENING SURVEY				
Select systems <1,000 people	enteroviruses	N/A	N/A	EPTDS
	noroviruses	N/A	N/A	EPTDS
Notes:				
1. Sampling must be completed during a 12-month period between 2013 and 2015.				
2. All samples must be collected at the entry points to the distribution system (EPTDS). Metals must also be sampled at the location of the distribution system maximum residence time (DSMRT).				