
**Information Collection Request
for the Final Unregulated Contaminant
Monitoring Rule (UCMR 4)**

November 2016

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ACRONYMS

µg/L	Microgram per liter
Adda	(2S, -3S, -8S, -9S, -4E, -6E)-3-amino-9-methoxy-2,6,8-trimethyl-10-phenyl-4, 6-decadienoic acid
ASDWA	Association of State Drinking Water Administrators
ASTM	American Society for Testing Materials
BLS	United States Bureau of Labor Statistics
CCL	Contaminant Candidate List
CCR	Consumer Confidence Report
CFR	Code of Federal Regulations
CWS	Community Water System
D/DBPRs	Disinfectants and Disinfection Byproducts Rule (including Stage 1 and Stage 2 D/DBPRs)
EPA	United States Environmental Protection Agency
ELISA	Enzyme-linked Immunosorbent Assay
EPTDS	Entry Point to the Distribution System
FR	Federal Register
FTE	Full-Time Equivalent
GC	Gas Chromatography
GC/ECD	Gas Chromatography/Electron Capture Detection
GC/MS	Gas Chromatography/Mass Spectrometry
GS	General Schedule
GW	Ground Water
GWUDI	Ground Water Under the Direct Influence of Surface Water
HAAs	Haloacetic Acids
HAA5	Dibromoacetic Acid, Dichloroacetic Acid, Monobromoacetic Acid, Monochloroacetic Acid, Trichloroacetic Acid
HAA6Br	Bromochloroacetic Acid, Bromodichloroacetic Acid, Dibromoacetic Acid, Dibromochloroacetic Acid, Monobromoacetic Acid, and Tribromoacetic Acid
HAA9	Bromochloroacetic Acid, Bromodichloroacetic Acid, Chlorodibromoacetic Acid, Dibromoacetic Acid, Dichloroacetic Acid, Monobromoacetic Acid, Monochloroacetic Acid, Tribromoacetic Acid, and Trichloroacetic Acid
IC-ESI-MS/MS	Ion Chromatography – Electrospray Ionization – Tandem Mass Spectrometry
ICP-MS	Inductively Coupled Plasma – Mass Spectrometry
ICR	Information Collection Request
LC/ESI-MS/MS	Liquid Chromatography/Electrospray Ionization – Tandem Mass Spectrometry
LC-MS/MS	Liquid Chromatography-Tandem Mass Spectrometry
M	Million
MRL	Minimum Reporting Level

NAICS	North American Industry Classification System
NCOD	National Drinking Water Contaminant Occurrence Database
NPDWR	National Primary Drinking Water Regulation
NTNCWS	Non-Transient Non-Community Water System
OES	Occupational Employment Statistics
OGWDW	Office of Ground Water and Drinking Water
OMB	Office of Management and Budget
OW	Office of Water
PA	Partnership Agreement
PT	Proficiency Testing
PWS	Public Water System
PWSID	Public Water System Identification
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RFA	Regulatory Flexibility Act
SBA	Small Business Administration
SDWA	Safe Drinking Water Act
SDWIS/FED	Safe Drinking Water Information System
SIC	Standard Industrial Classification
SM	Standard Methods
SMP	State Monitoring Plan
SPE	Solid Phase Extraction
SRF	State Revolving Fund
SW	Surface Water
SVOC	Semivolatile Organic Chemicals
TNCWS	Transient Non-Community Water System
TOC	Total Organic Carbon
UCMR	Unregulated Contaminant Monitoring Rule

– PART A OF THE SUPPORTING STATEMENT –

1 IDENTIFICATION OF THE INFORMATION COLLECTION**1(a) Title and Number of the Information Collection**

Title: Information Collection Request for UCMR 4

OMB Control Number: 2040-0270

EPA Tracking Number: 2192.08

1(b) Short Characterization

Section 1445(a)(2) of the Safe Drinking Water Act (SDWA) requires that once every five years, beginning in 1999, the United States Environmental Protection Agency (EPA) issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs). Information collected under the program supports the Agency decision making regarding whether or not to regulate particular contaminants in drinking water. SDWA requires that EPA vary the frequency and schedule for the monitoring program based on the number of persons served, the source of supply, and the contaminants likely to be found. EPA is required by SDWA to only include a representative sample of PWSs serving 10,000 or fewer people. SDWA also requires EPA to enter the monitoring data into the National Drinking Water Contaminant Occurrence Database (NCOD).

EPA published the first Unregulated Contaminant Monitoring Rule (UCMR 1) for PWSs in the *Federal Register* (FR) on September 17, 1999 (64 FR 50556). The second UCMR (UCMR 2) published in the FR on January 4, 2007 (72 FR 367), and the third UCMR (UCMR 3), published in the FR on May 2, 2012 (77 FR 26071), built on the established structure of the previous UCMRs, while making some changes to the rule design. EPA revised the contaminant list, analytical methods, cost assumptions and sampling design for the specific contaminants in UCMR 4.

The five-year UCMR 4 period spans 2017-2021. UCMR 4 monitoring begins in 2018 and continues through 2020. The applicable three-year period for this particular Information Collection Request (ICR) is 2017-2019. The applicable ICR period overlaps with the first three years of the five-year UCMR 4 period. Most of the burden is incurred in the second, third and fourth year (i.e. monitoring and sample analysis) of the UCMR 4 monitoring period. The first year (the planning year) involves a lesser burden, and the final fifth year involves the least

burden since the program is concluding. The UCMR 4 ICR renewal period (2020-2022) will overlap with the last two years of the five-year UCMR 4 period, and therefore will have substantially lower figures.

Estimates of implementation burden and cost over the entire five-year UCMR 4 period (including pre-monitoring activity and post-monitoring reporting) are attached as Appendix B to this ICR. Many of the exhibits throughout the body of this ICR (three-year figures) have corresponding exhibits in Appendix B of this ICR (five-year figures), as noted in the exhibit titles.

This rule identifies eleven analytical methods to support water system monitoring for a total of 30 chemical contaminants, consisting of nine cyanotoxins and one cyanotoxin group; two metals; eight pesticides plus one pesticide manufacturing byproduct (hereinafter collectively referred to as “pesticides”); three brominated haloacetic acid (HAA) disinfection byproducts groups; three alcohols; and three semivolatile organic chemicals (SVOCs). PWSs not required to comply with the Disinfectants and Disinfection Byproducts Rules (D/DBPRs) do not monitor for the three UCMR 4 HAA groups.

A total of 1,600 PWSs serving 10,000 or fewer people (hereafter referred to as small PWSs), will conduct monitoring. 800 small PWSs served by surface water (SW) or ground water under the direct influence (GWUDI) sources will monitor for the 10 cyanotoxins. A different set of 800 small PWSs served by SW, GWUDI, and ground water (GW) will monitor for the 20 additional contaminants. EPA pays for all sample kit preparation, sample shipping fees and analysis costs for small PWSs.

All PWSs serving more than 10,000 people (hereafter referred to as large PWSs), will conduct monitoring. Large PWSs served by SW or GWUDI sources will monitor for 10 cyanotoxins. All large PWSs served by SW, GWUDI, and GW sources will monitor for the 20 additional contaminants.

UCMR 4 includes Assessment Monitoring for “List 1” contaminants for which standard analytical methods or techniques are available.¹ UCMR 4 does not include a Screening Survey (for “List 2” contaminants) or Pre-Screen Testing (for “List 3” contaminants).

For cyanotoxin monitoring, PWSs are required to collect samples from March to November (excluding December through February), during the sampling timeframe. SW and GWUDI PWSs will collect samples twice a month for four consecutive months (a total of eight sampling events). GW PWSs are excluded from cyanotoxin monitoring.

PWSs are required to collect samples for the 20 additional contaminants during a continuous 12-month period during the sampling timeframe. Sampling will take place quarterly for SW and

¹ Transient non-community water systems (TNCWSs) are excluded from Assessment Monitoring under UCMR 4.

GWUDI systems (a total of four sampling events), and at 6-month intervals for GW systems (a total of two sampling events).

EPA expects that approximately one-third of the PWSs will monitor during each of the three monitoring years (2018-2020); approximately two-thirds of the PWSs are expected to monitor between 2018-2019 (i.e., during this ICR period). Approximately one-third of the PWSs will monitor during the second (renewal) UCMR 4 ICR period of 2020-2021.

Respondents to UCMR 4 include 1,600 small PWSs (800 for cyanotoxin monitoring and 800 for monitoring of the 20 additional contaminants, although approximately 148 of the latter group of 800 small PWSs will not monitor for the UCMR 4 HAA groups since they are not subject to the D/DBPRs); 4,292 large and very large PWSs (although approximately 141 of these large systems will not monitor for the UCMR 4 HAA groups since they are not subject to the D/DBPRs); and 56 states and primacy agencies (referred to collectively as “states” for simplicity); for a total of 5,948 respondents. The frequency of response varies across respondents and years.

Small PWSs selected for UCMR 4 monitoring sample an average of 6.7 times per PWS (i.e., number of responses per PWS) across the three-year ICR period. The estimated burden per response for small PWSs is 2.8 hours. Large PWSs and very large PWSs sample and report an average of 11.4 and 14.1 times per PWS, respectively, across the three-year ICR period. The estimated burdens per response for large and very large PWSs, respectively, are 6.1 and 9.9 hours.

States incur only labor costs associated with UCMR 4 implementation. State activities are determined through individual Partnership Agreements (PAs) with EPA. EPA assumed that state participation levels will reflect the participation levels that occurred in UCMR 3. States incur 3.0 responses over the three-year ICR period related to coordination with EPA and PWSs, with an average burden per response of 244.3 hours. In aggregate, during the ICR period, the average response (i.e., responses from PWSs and states) is associated with a burden of 6.9 hours, with a labor plus non-labor cost of \$1,636 per response.

The annual average per respondent burden hours and costs for the ICR period are: small PWSs – 6.1 hours, or \$169, for labor; large PWSs – 23.2 hours, or \$684, for labor and \$5,756 for analytical costs; very large PWSs – 46.4 hours, or \$1,253, for labor and \$15,680 for analytical costs; and states – 244.3 hours, or \$11,789, for labor. Annual average burden and cost per respondent is 23.3 hours, with a labor plus non-labor cost of \$3,718 per respondent; the latter figure is computed by dividing the average annual cost (exclusive of EPA costs) by the 5,948 PWS and state respondents.

The annual burden to EPA for UCMR 4 program activities during the ICR years is 11,440 hours, with an annual labor cost of \$915,932. EPA's annual non-labor costs are \$4.1 million. EPA's non-labor costs are primarily attributed to the cost of sample analysis for small PWSs (sample analysis represents approximately 91% of non-labor cost).

2 NEED FOR AND USE OF THE COLLECTION

2(a) Need/Authority for the Collection

As part of its responsibilities under SDWA, EPA implements section 1445(a)(2), Monitoring Program for Unregulated Contaminants. This section, as amended in 1996, requires that once every five years, beginning in August 1999, EPA issue a list of no more than 30 unregulated contaminants to be monitored by PWSs. SDWA requires that EPA enter the monitoring data into the Agency's NCOD. EPA's UCMR program must ensure that only a nationally representative sample of PWSs serving 10,000 or fewer people are required to monitor. EPA must vary the frequency and schedule for monitoring based on the number of persons served, the source of supply and the contaminants likely to be found. EPA is using this authority as the basis for monitoring 29 of 30 contaminants under this rule.

Section 1445(a)(1)(A) of SDWA, as amended in 1996, requires that every person who is subject to any SDWA requirement establish and maintain such records, make such reports, conduct such monitoring and provide such information as the Administrator may reasonably require by regulation to assist the Administrator in establishing SDWA regulations. Pursuant to this provision, EPA can require the monitoring of contaminants already subject to EPA's drinking water standards. EPA is using this authority as the basis for monitoring one of the chemical groups (Haloacetic Acids 5 (HAA5)) under this rule.

The sections from SDWA, discussed in the previous paragraphs, are included as Appendix A of this document, in order by section number.

2(b) Practical Utility/Users of the Data

The UCMR 4 data support the Administrator's determination of whether to regulate a contaminant through the Regulatory Determination process and, as appropriate, regulation development. If the contaminant has significant occurrence and health effects, EPA uses the results to: support an exposure assessment; establish the baseline for health effects and economic analyses; analyze contaminant co-occurrence; and evaluate treatment technologies, including contaminant source management. The results can suggest that contaminant occurrence is significant enough to initiate research on health effects and treatment technologies. Finally, the data can guide future source water protection efforts.

Each PWS maintains records of the analytical results of this monitoring. EPA-approved laboratories report these results to EPA's electronic data reporting system. PWSs review the information posted by the laboratory and submit the approved data to the state and EPA, via the

electronic reporting system. The data collected through the UCMR program are stored in the NCOD to facilitate analysis and review of contaminant occurrence.

The primary user of the information collected under this ICR is EPA's Office of Water (OW). Other users of this information could include the following:

- Primacy agencies, which include state regulators, Indian tribes, and, in some instances, EPA regional administrators.
- PWS managers.
- Staff from other EPA programs (such as the Office of Superfund Remediation and Technology Innovation; the Office of Resource Conservation and Recovery; the Office of Enforcement and Compliance Assurance; the Office of Pesticide Programs; and the Office of Research and Development).
- Federal Emergency Management Administration.
- Centers for Disease Control and Prevention.
- Military bases.
- Rural Development Administration/Farmers Home Administration.
- Department of Interior.
- Department of Housing and Urban Development.
- United States Army Corps of Engineers.
- White House Task Forces.
- American Water Works Association.
- Association of Metropolitan Water Agencies.
- National Rural Water Association.
- National Association of Water Companies.
- Association of State Drinking Water Administrators (ASDWA).
- Natural Resources Defense Council.
- Consumers Federation of America.
- Small Business Administration (SBA).
- Other environmental and industry groups.
- News organizations.
- Private industries.
- Individuals.

3 NON-DUPLICATION, CONSULTATIONS AND OTHER COLLECTION CRITERIA

3(a) Non-duplication

The data required by UCMR are not available from any other source and are not duplicative of information otherwise accessible to EPA. Under the 1996 Amendments to SDWA, Congress established a risk-based approach for determining which contaminants would become subject to drinking water standards. There is a requirement for EPA to publish, every five years, a list of contaminants that are not yet regulated but which are known or anticipated to occur in PWSs; this is the Contaminant Candidate List (CCL). There is a requirement for EPA to monitor, every five years, up to 30 unregulated contaminants to determine their occurrence in drinking water systems; this is the UCMR program. There is a requirement for EPA to determine, every five years, and for at least five CCL contaminants whether or not to begin the process of developing a national primary drinking water regulation for each contaminant; this is known as a Regulatory Determination. And, SDWA requires EPA to issue national primary drinking water regulations (NPDWRs) for contaminants the Agency has determined should be regulated.

This statutory approach makes clear that Congress designed the CCL and UCMR as complementary programs. The CCL process identifies contaminants that may require regulation, while UCMR helps provide the data necessary for the Regulatory Determination process to determine if a contaminant occurs with a frequency and at levels of public health concern so that there is a meaningful opportunity for health risk reduction. The data collected through UCMR are stored in the NCOD to facilitate analysis and review of contaminant occurrence and support the Administrator's determination on whether to regulate a contaminant in the interest of protecting public health, as required under SDWA section 1412 (b)(1).

3(b) Public Notice Required Prior to ICR Submission to the Office of Management and Budget (OMB)

The first FR notice of this ICR action, published on December 11, 2015 (80 FR 76897) requested public comment on the proposed UCMR 4.

EPA received comments from numerous organizations and individuals. Substantive comments focused on the contaminants selected for monitoring, the sampling schedule, cyanotoxin sample locations and scope of cyanotoxin monitoring, and a few other minor issues. EPA reviewed each comment received and developed a work group to research and consider the implications of each change requested by commenters. Based on public comments, the following changes were made relative to the proposed rule:

1. Removed proposed monitoring requirements for measurement of temperature and pH in source water.
2. Limited the applicability of UCMR 4 HAA monitoring to only those PWSs that are subject to the D/DBPRs.
3. Removed the proposed requirement for source water monitoring for the 10 cyanotoxins. Instead, SW PWSs will collect samples from each entry point to the distribution system (EPTDS). All EPTDS samples will be analyzed using the Enzyme-linked Immunosorbent Assay (ELISA) method. Approximately two percent of those EPTDS samples will also be analyzed by EPA Method 544.
4. Removed the compressed monitoring schedule for the 20 additional contaminants. PWSs will monitor for those 20 contaminants during a continuous 12-month period during the sampling timeframe. The compressed schedule (which excludes December – February) will be used for the cyanotoxins.

To comply with the 1995 Amendments to the Paperwork Reduction Act, EPA is seeking public comment on this ICR. To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested approaches for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for UCMR 4, which includes this ICR, under Docket ID No. EPA-HQ-OW-2015-0218. The public can submit any comments related to the ICR for this action to EPA and the Office of Management and Budget (OMB).

3(c) Consultations

EPA's Office of Ground Water and Drinking Water (OGWDW) incorporated early stakeholder involvement in the regulatory development process. In the late 1990s, EPA held meetings for the design and development of both the CCL and UCMR programs. Stakeholders who provided comments concerning the development of the UCMR program included PWSs, states, industry, and other organizations. Seventeen meetings were held concerning UCMR program development. A description of public involvement activities related to UCMR are provided in the September 17, 1999, UCMR 1 Final Rule at 64 FR 50556. Stakeholder meeting feedback and public comment input were likewise considered for both UCMR 2 and UCMR 3.

Specific to the development of UCMR 4, EPA held three public stakeholder meetings. EPA held the first meeting, focused on drinking water methods for CCL contaminants, on May 15, 2013, in Cincinnati, Ohio. Participants included representatives of state agencies, laboratories, PWSs, environmental organizations and drinking water associations. Meeting topics included an overview of the regulatory process (CCL, UCMR and Regulatory Determination) and drinking water methods under development, primarily for CCL contaminants. EPA held a second stakeholder meeting on June 25, 2014, in Washington, DC. Attendees representing state agencies, laboratories, PWSs, tribes, environmental organizations and drinking water associations participated in the meeting via webinar and in person. Meeting topics included the status of UCMR 3, UCMR 4 potential sampling design changes relative to UCMR 3; UCMR 4

candidate analytes and rationale; and the laboratory approval process. EPA held the third public stakeholder meeting (via webinar) on January 13, 2016. Participants included representatives of federal and state agencies, laboratories, PWSs, environmental and drinking water organizations, and other industry representatives. Topics included the proposed UCMR 4, including notable changes from UCMR 3; analyte selection and rationale; analytical methods; proposed sampling design; reporting; the laboratory approval process; and minimum reporting levels (MRLs). EPA took public comments and provided a question and answer session for all participants.

3(d) Effects of Less Frequent Collection

EPA considered a wide range of alternatives for frequency of collection that could still allow the Agency to meet its statutory requirements and overall objectives. Less frequent data collection would affect the integrity of the data and result in insufficient data to fulfill the needs envisioned by the 1996 SDWA Amendments, including the continued development of the CCL, support of the Administrator's regulatory determinations and drinking water regulation development.

Monitoring frequencies are determined based on statutory requirements, which specify that monitoring be varied based on the number of people served by a PWS, contaminants likely to be found and source of water supply. The monitoring frequency design also considers that the number of people served affects exposure to contaminants and considers resources available to undertake monitoring activity. The collection frequencies in this rule are discussed further in section 5(d), Part A of this ICR document. Monitoring frequencies have been carefully devised based on the following factors:

- Data quality needed for a representative sample;
- Precision and accuracy needed from the representative sample;
- Number of people served by the PWS;
- Source of the supply (e.g., SW or GW);
- Likelihood of finding contaminants; and
- Temporal variability in occurrence.

The general timing of monitoring and the number of PWSs required to monitor for each component of the UCMR can be found in section 1(b) Part A of this ICR document. More detailed information on monitoring schedules can be found in section 5(d) Part A of this ICR document.

EPA used the statistical design established under UCMR 1 to select its UCMR 4 national representative sample of small PWSs (800 PWSs for cyanotoxins, and 800 different PWSs for the 20 additional List 1 contaminants) and census of large PWSs for Assessment Monitoring. EPA determined that the combination of a nationally representative sample of small PWSs and a census of large PWSs provides a powerful tool for assessing contaminant occurrence in PWSs; this is the most effective and accurate survey approach.

The set of representative small PWSs are distributed among different size categories, but weighted by population served, to ensure that the sample can provide estimates of exposure. The sample size of 800 small PWSs assumes that:

1. The sample set of PWSs is a random sample of the population of systems;
2. The sample of PWSs approximates a normal distribution of the universe of PWSs; and,
3. The presence of a contaminant can be determined in each PWS with certainty.

Examination and analysis of current occurrence data show that many contaminants that are currently regulated, or being considered for regulation, occur in a fraction of PWSs on a *national* basis. For many contaminants, low occurrence nationally does not necessarily correlate to a low occurrence regionally. Even a small percentage of PWSs with detections can translate into a significant population affected.

3(e) General Guidelines

This ICR was completed in accordance with the October 2009 version of *EPA's Guide to Writing Information Collection Requests Under the Paperwork Reduction Act of 1995* (hereafter, the "ICR Handbook"). The ICR Handbook was prepared by EPA's Office of Environmental Information, Collection Strategies Division. The ICR Handbook provides the most current instructions for ICR preparation to ensure compliance with the 1995 Paperwork Reduction Act Amendments and OMB's implementing guidelines.

EPA took an approach to UCMR 4 that minimizes burden on the respondents. This collection complies with all OMB guidelines for information collection activities. Specifically, the respondents are not required to:

- Prepare a written response to a collection of information in fewer than 30 days after receipt of a request.
- Submit more than an original and two copies of any document.
- Retain records, other than health, medical, government contract, grant-in-aid or tax records, for more than three years.
- Participate in a statistical survey that is not designed to produce data that can be generalized to the universe of the study.
- Use a statistical data classification that has not been reviewed and approved by OMB.
- Receive a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use.
- Submit proprietary, trade secret, or other confidential information unless EPA can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.

3(f) Confidentiality

This information collection does not require respondents to disclose confidential information.

3(g) Sensitive Questions

No questions of a sensitive nature are included in any of the information collection requirements outlined in this ICR.

4 RESPONDENTS AND THE INFORMATION

4(a) Respondents and North American Industry Classification System (NAICS)/Standard Industrial Classification (SIC) Codes

Data associated with this ICR will be collected and maintained by PWSs, states, territories, and tribes with primacy to administer the regulatory program for PWSs under SDWA can choose to participate in UCMR 4 implementation through a PA with EPA. These primacy agencies will sometimes collect samples and maintain records. The North American Industry Classification System (NAICS) code for privately-owned PWSs is 221310. The NAICS code for municipal PWS operators and state agencies that include drinking water programs is 924110 (Administration of Air and Water Resources and Solid Waste Management Programs).

4(b) Information Requested

This ICR summarizes the data items and respondent activities associated with UCMR 4.

4(b)(i) Data Items, including record keeping requirements

A discussion of data and other information that are part of the reporting and record keeping requirements for PWSs is found in section 4(b)(i)(a), Part A of this ICR document. The requirements for states are discussed in section 4(b)(i)(b), Part A of this ICR document.

4(b)(i)(a) PWS Reporting and Record Keeping

40 Code of Federal Regulations (CFR) 141.35 requires PWSs that are subject to the UCMR requirements to report monitoring results for the 30 contaminants listed in 40 CFR 141.40 to EPA (see Exhibit 1 for the UCMR 4 contaminant list).

Exhibit 1: UCMR 4 List 1 Analytes

Nine Cyanotoxins	
anatoxin-a	microcystin-LY
cylindrospermopsin	microcystin-RR
microcystin-LA	microcystin-YR
microcystin-LF	nodularin
microcystin-LR	

One Cyanotoxin Group	
total microcystins	
Two Metals	
germanium	manganese
Nine Pesticides	
alpha-hexachlorocyclohexane	profenofos
chlorpyrifos	tebuconazole
dimethipin	total permethrin (cis- & trans-)
ethoprop	tribufos
oxyfluorfen	
Three Brominated Haloacetic Acid (HAA) Groups	
HAA5	HAA9
HAA6Br	
Three Alcohols	
1-butanol	2-propen-1-ol
2-methoxyethanol	
Three Semivolatile Organic Chemicals (SVOCs)	
butylated hydroxyanisole	quinoline
o-toluidine	

The required data elements are listed in Exhibit 2. All PWSs must electronically report all 30 data elements with their Assessment Monitoring samples. All PWSs participating in UCMR monitoring must inform EPA of any changes to data elements 1 through 9, if applicable.

Exhibit 2: UCMR 4 Reporting Requirements

1. Public Water System Identification (PWSID) Code	16. Analytical Method Code
2. PWS Name	17. Extraction Batch Identification Code
3. PWS Facility Identification Code	18. Extraction Date
4. PWS Facility Name	19. Analysis Batch ID
5. PWS Facility Type	20. Analysis Date
6. Water Source Type	21. Sample Analysis Type
7. Sampling Point Identification Code	22. Analytical Results – Sign
8. Sampling Point Name	23. Analytical Result – Measured Value
9. Sampling Point Type Code	24. Additional Value
10. Disinfectant Type (primary disinfectants)	25. Laboratory Identification Code
11. Treatment Information (includes basic treatment information)	26. Sample Event Code
12. Disinfectant Residual Type (secondary disinfectant residual type added in distribution system)	27. Bloom Occurrence
13. Sample Collection Date	28. Cyanotoxin Occurrence
14. Sample Identification Code	29. Indicator of Possible Bloom - Treatment
15. Contaminant	30. Indicator of Possible Bloom – Source Water Quality Parameters

4(b)(i)(b) State Reporting and Record Keeping

UCMR 4 is a direct implementation rule; therefore states are not required to report to EPA. Implementation activities for each state are identified and determined through PAs with EPA. If participating in a PA, states voluntarily review and revise Initial State Monitoring Plans (SMPs), notify PWSs of their UCMR responsibilities, and provide EPA with a list of the PWSs notified. These state activities will be completed in 2017. Because states have no specified reporting cycle, this analysis assumes that states have 1.0 response per year during the ICR years, encompassing all communication and coordination activities with EPA and PWSs.

4(b)(ii) Respondent Activities

Respondents include both PWSs and states. PWS and state activities are discussed in sections 4(b)(ii)(a) and 4(b)(ii)(b), Part A of this ICR document, respectively.

4(b)(ii)(a) PWS Activities

To comply with the requirements in this regulation, PWSs conduct the following activities:

- Read regulations and/or letter from state or EPA that outline requirements;
- Monitor or provide monitoring assistance (e.g., sample collection and shipping);
- Report and maintain records; and
- Report monitoring results to the public.

Each of these activities is discussed in more detail below.

Read Regulations/State Letter: All PWSs participating in UCMR monitoring read the UCMR regulations and/or a state-issued guidance letter during the year in which their monitoring occurs. Small PWSs can rely on summarized information from the state or EPA for information pertaining to the regulation, rather than reading the regulation, because of the more limited scope of their responsibilities.

Monitoring or Monitoring Assistance: Monitoring activities that are considered in the PWS cost and burden estimates include receiving sampling kits from the laboratory, reading sampling instructions, traveling to the sampling location and collecting and shipping the sample.

As noted earlier, cyanotoxin monitoring occurs twice a month for four consecutive months (a total of eight sampling events) for SW and GWUDI systems. For the 20 additional contaminants, SW and GWUDI systems will sample quarterly (four sampling events), and GW systems will sample twice (at 6-month intervals). All monitoring will take place during a continuous 12-month period during the sampling timeframe. Cyanotoxin sampling will exclude the months of December-February.

Sample collection for the UCMR 4 contaminants takes place at the EPTDS, with the following exceptions/additions. HAA sampling takes place in the distribution system. Sampling for Total Organic Carbon (TOC) and bromide takes place at a source water intake (concurrent with HAA sampling in the distribution system).

Large GW PWSs with multiple EPTDSs are only required to sample at representative sampling locations for each GW source, as long as those sites have been approved by EPA or the state. PWSs that purchase water with multiple connections from the same wholesaler are permitted to monitor from one representative connection from that wholesaler. PWSs choose a sampling location from among the higher annual volume EPTDS connections. If the connection selected as the representative EPTDS is not available for sampling, an alternate representative connection will be sampled.

Reporting and Record Keeping: Activities related to these reporting requirements include:

- *Reporting Prior to Monitoring-*

Contact and zip code information: Large PWSs will be required to report contact information to EPA. This information includes the name, affiliation, mailing address, phone number and email address for the PWS Technical Contact and PWS Official (i.e., the official spokesperson for a PWS's UCMR activities). Information is submitted to EPA's electronic data reporting system within a specified timeframe after rule promulgation. Small PWSs provide this information in response to a specific written request that they receive from EPA. As a one-time reporting requirement under UCMR 4, PWSs will be required to report the U.S. Postal Service Zip Code(s) for all areas being served water by the PWS.

Sampling location and inventory information: PWSs will be required to provide sampling location(s) and to associate each source water location with its entry point location(s) prior to sampling. For each sampling location or each approved representative sampling location, PWSs will be required to submit: PWSID Code; PWS Name; PWS Facility Identification Code; PWS Facility Name; PWS Facility Type, Water Source Type; Sampling Point Identification Code; Sampling Point Name; and Sampling Point Type Code.

Representative sampling plan proposal: Some PWSs that use GW as a source and have multiple EPTDSs can monitor at representative sampling location(s), rather than at each EPTDS. To qualify, these GW PWSs must have either the same treatment, or no treatment, at all of their well sources, and they must have an EPTDS for each well within a well field (resulting in multiple EPTDSs from the same source, such as an aquifer). PWSs meeting these criteria will be allowed to submit a proposal to EPA or the state (if such a proposal has not been previously approved). The proposal must demonstrate that any EPTDS selected as representative of the GW supplied from multiple wells was associated with an individual well that draws from the same aquifer as the multiple wells (i.e., those being represented). The representative well must be one of the higher annual volume producing and more consistently active wells in the representative array. If that representative well is not in use at the scheduled sampling time, an alternative representative well must be sampled.

Representative intakes from wholesaler: PWSs that purchase water with multiple connections from the same wholesaler will be permitted to monitor from one representative connection from that wholesaler. PWSs must choose a sampling location from among the higher annual volume EPTDS connections. If the

connection selected as the representative EPTDS is not available for sampling, an alternate representative connection will be sampled.

- *Reporting Monitoring Results*

Small PWSs: Small PWSs will only be required to record PWS and sample location information on the sampling forms and bottles that are sent to them by the UCMR Sampling Coordinator. The schedule for submitting this information is specified in the instructions sent to the PWS.

Large PWSs: Laboratories will post the analytical results and associated data elements to EPA's electronic data reporting system within 120 days of sample collection. Large PWSs must ensure that their laboratory meets this requirement, and those PWSs must review, approve, and submit the data to the state and EPA via the electronic reporting system within 60 days from when the laboratory posts the data. After 60 days from the laboratory's posting, if the PWS has not taken action, the data are considered approved and final for EPA review.

- *Record Keeping*

40 CFR 141.33 requires PWSs to maintain records of chemical monitoring data for 10 years. No changes were made to those record keeping requirements.

Reporting to the Public: SDWA section 1445(a)(2)(E) requires notification of the results of the UCMR program to be made available to those served by the PWS. Community water systems (CWSs) are required to notify their users of the detection of any contaminants (including unregulated contaminants) in their Consumer Confidence Reports (CCRs), pursuant to 40 CFR §141.153(d)(1)(ii), published in 63 FR 44512 on August 19, 1998. UCMR monitoring and reporting violations for all PWSs (including CWSs and non-transient non-community water systems (NTNCWSs)) are reportable under the Public Notification Rule (65 FR 25982, May 4, 2000). No changes were made to these reporting requirements.

4(b)(ii)(b) State Activities

For UCMR 1, EPA estimated state burdens and costs using the 1993 State Resource Model (documented in the "Resource Analysis Computer Program for State Drinking Water Agencies"). That model was designed by EPA in coordination with Association of State Drinking Water Administrators (ASDWA) and required specific input for a list of activities and variables related to state operation of the UCMR drinking water program (e.g., number of PWSs affected, estimates of violation rates, etc.). Since that time, ASDWA updated and improved the previous version of the resource model. EPA used the updated resource model as documented in: "Insufficient Resources for State Drinking Water Programs Threaten Public Health: an Analysis of State Drinking Water Programs' Resources and Needs" (December 2013), to estimate

resources that states may need for the oversight and implementation of UCMR 4. Assumptions that were applied in using this resource assessment tool are described in section 6(b), Part A of this ICR document. EPA assumed that state participation will closely reflect that which occurred during UCMR 3. Therefore, model estimates were adjusted to account for actual levels of prior state participation.

Since UCMR is a direct implementation rule, specifics of each state's role are delineated in PAs between the states and EPA. Voluntary state activities include coordination, data management and support, program implementation and training/overhead. Though some states may choose to conduct sampling for their PWSs, this activity is not part of the PA agreement and is optional. Burden for sampling is currently attributed to PWSs. If states choose to conduct monitoring for PWSs, burden would be similar to that estimated for PWSs (and shifted from the PWS to the state) and would not impact the overall burden estimate.

State Coordination with EPA: State activities that involve coordination with EPA include coordination and development of a PA, review of and response to EPA's proposed SMP, review of PWS proposals for representative GW sampling locations, and general ongoing coordination.

Review of SMPs is one of the first UCMR activities to take place at the state level. Each state receives a proposed initial SMP from EPA, which lists all PWSs that will be required to conduct Assessment Monitoring, including small PWSs that were statistically selected as a sample, and all large PWSs subject to the rule by meeting applicability criteria. For PWSs that are part of the sample, EPA will also generate a list to provide similar replacement PWSs for states to select from, for those PWSs that may not have been correctly specified in the initial plan. If a state identifies PWSs on the original proposed SMP that it determines are not appropriate for the representative GW sampling locations (e.g., if PWSs are inactive, or sell all of their water and do not have their own retail customers), the state can propose an alternative plan by selecting other PWSs from EPA's alternate list to replace the ineligible PWSs. The SMPs will also specify the year and months during which PWSs will monitor. States are given the option to modify these schedules.

EPA assumes that some PWSs that use GW as a source of water will submit a proposal for monitoring at representative sample location(s), rather than monitoring at every EPTDS. State involvement in the review of these proposals will be determined in the PA process.

EPA also recognizes that it will be necessary for states to maintain ongoing communications with EPA regarding UCMR requirements. For example, states may need clarification and guidance on a specific requirement of the regulation. These ongoing communication activities are included in estimated burdens across the entire UCMR 4 period of 2017-2021.

Data Management and Support: Though there are no state data management and support activities included in UCMR, EPA recognizes that many states update their databases to

accommodate the revised UCMR data elements. Activities likely include data entry/downloading of data and general record keeping.

Program Implementation: Program implementation activities for each state can include developing and sending notification and guidance letters to PWSs, data review, ongoing PWS support and enforcement.

Following review and finalization of SMPs, participating states will prepare a notification letter that describes PWS monitoring schedules and requirements under the regulation. These states will send notification to each applicable PWS and send the list of these notified PWSs to EPA. EPA assumes that PWSs will periodically call states asking for clarification and guidance about UCMR requirements. States can elect to review monitoring results, in part, to determine whether a PWS has met its monitoring and reporting requirements.

State Staff Training and Overhead: EPA assumes that technical staff members will participate in training to assist them in understanding the regulation, their roles and responsibilities, and to allow the state to better provide technical assistance to PWSs. General overhead costs, such as clerical and managerial needs, are allocated to the UCMR staff requirements in ASDWA's estimates of state resource needs, which allocates support staff needs as a percentage of professional staff needs. See section 6(b), Part A of this ICR document, for further discussion of model assumptions.

5 INFORMATION COLLECTED—AGENCY ACTIVITIES, COLLECTION METHODOLOGY AND INFORMATION MANAGEMENT

5(a) Agency Activities

EPA Headquarters and Regional offices are responsible for oversight of state PWS programs and processing and analysis of UCMR data. EPA implementation activities are categorized into three major categories: regulatory support activities; program oversight and data analysis; and small PWS testing program, which are described in 5(a)(i)-(iii).

5(a)(i) Regulatory Support Activities

Regulatory support activities include: laboratory approval and quality assurance/quality control (QA/QC); and technical support to PWSs, such as guidance documents.

Laboratory Approval and QA/QC Activities: EPA incurs various costs related to laboratory approval and laboratory QA/QC, including the following activities:

- *Laboratory approval/Proficiency Testing (PT) program* - EPA will assess whether laboratories meet the required equipment, laboratory performance and data reporting criteria. EPA will register and evaluate laboratories based on the applications. Selected laboratories will then participate in the UCMR 4 PT program. EPA expects to conduct these laboratory assessments during 2017.
- *QC audits of contract laboratories* - EPA conducts Quality Control (QC) audits at each of the approved laboratories not more than annually during each UCMR 4 monitoring year (January 2017 through December 2019).
- *Analytical standards provision and coordination* - EPA coordinates and distributes specialized analytical standards to participating laboratories.

Technical Support/Guidance Document Development: EPA expects to develop and distribute technical guidance for laboratories supporting UCMR 4. EPA expects to provide technical support on an ongoing basis during 2018 and 2019.

5(a)(ii) National and Regional Oversight/Data Analysis

EPA’s UCMR program activities include data analysis, management oversight and implementation assistance to states. These are key management and oversight activities that must be conducted by EPA Headquarters or its Regional offices. Exhibit 3 illustrates the timeline for UCMR implementation activities. EPA expects to develop its PAs with states and the SMPs prior to 2018, when monitoring will begin.

Exhibit 3: Timeline of UCMR 4 Activities

2017	2018	2019	2020	2021
<p><i>After final rule publication:</i> EPA/state primacy authorities (1) develop SMPs (including the nationally representative sample); (2) inform PWSs/ establish monitoring plans; and (3) continue laboratory approval</p>	<p style="text-align: center;">Assessment Monitoring</p> <p style="text-align: center;">← List 1 Contaminants →</p> <p style="text-align: center;"><i>All large systems serving more than 10,000 people</i></p> <p style="text-align: center;"><i>800 small systems serving 10,000 or fewer people for cyanotoxins;</i></p> <p style="text-align: center;"><i>800 small systems serving 10,000 or fewer people for the 20 additional contaminants</i></p> <p style="text-align: center;">Reporting and analysis of data</p>			<p>Complete reporting and analysis of data</p>

5(a)(iii) Costs for Small System Testing Program

Implementation of the small PWS testing program is the largest portion of Agency costs for the UCMR program. Prior to monitoring, EPA activities for logistical support of the small PWS testing program include coordination of small PWS testing and provision of testing supplies.

During the ICR period, EPA pays for the sample kit preparation, sample shipping fees and analysis costs.

5(b) Information Collection Methodology and Management

Laboratories report analytical results and associated data elements to EPA’s electronic data reporting system. Large PWSs are expected to ensure that their laboratory posts the data in EPA’s electronic data reporting system; the PWS then has the opportunity to review, approve, and submit the data to the state and EPA via the EPA electronic reporting system. Laboratories have 120 days from sample collection to report analytical results and required data elements. PWSs have 60 days from the laboratory’s posting to review and approve the reported results. After this, if the PWS has not taken action, the data will be considered approved and final for EPA review. Electronic reporting provides significant collection efficiencies, and reduces the possibility of data input error. This approach has worked well in prior UCMRs.

The UCMR data are maintained and analyzed through NCOD. The data collected under UCMR are used to support regulation development, to analyze the significance of occurrence and health effects, and to support the critical Agency function of program oversight. The public receives information regarding UCMR monitoring results through the CCRs, and will be able to access data through the NCOD. PWSs that fail to monitor for unregulated contaminants must notify the public of their failure to monitor.

EPA conducts ongoing data analysis, which includes checks for anomalies in the data that may be related to data entry or laboratory errors. Data quality review and analysis includes: continuous analysis of laboratory results, review of all program data, and NCOD review.

5(c) Small Entity Flexibility

Note: The text below (all of section 5(c)) is the same Small Business Regulatory Enforcement Fairness Act analysis summary that is provided in the preamble to the rule. The Regulatory Flexibility Act (RFA) analysis is based on the entire five-year UCMR implementation period of 2017-2021, rather than the three-year ICR period of 2017-2019.

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule.

For purposes of assessing the impacts of this rule on small entities, EPA considers small entities to be PWSs serving 10,000 or fewer people, because this is the system size specified in SDWA as requiring special consideration with respect to small system flexibility. As required by the RFA, EPA proposed using this alternative definition in the FR, (63 FR 7606, February 13, 1998), requested public comment, consulted with the Small Business Administration, and finalized the

alternative definition in the CCR rulemaking, (63 FR 44512, August 19, 1998). As stated in that Final Rule, the alternative definition would be applied to future drinking water rules, including this rule.

The evaluation of the overall impact on small systems, summarized in the preceding discussion, is further described as follows. EPA analyzes the impacts for privately-owned and publicly-owned water systems separately, due to the different economic characteristics of these ownership types, such as different rate structures and profit goals. However, for both publicly- and privately-owned systems, EPA uses the "revenue test," which compares annual system costs attributed to the rule to the system's annual revenues. EPA used median revenue data from the 2006 CWS Survey for public and private water systems. The revenue figures were updated to 2016 dollars and escalated by three percent to account for inflation. EPA assumes that the distribution of the sample of participating small systems will reflect the proportions of publicly- and privately-owned systems in the national inventory. The estimated distribution of the representative sample, categorized by ownership type, source water and system size, is presented in Exhibit 4.

Exhibit 4: Number of Publicly- and Privately-Owned Small Systems Subject to UCMR 4

System Size (# of people served)	Publicly-Owned	Privately-Owned	Total ¹
<i>Ground Water</i>			
500 and under	21	64	85
501 to 3,300	161	62	223
3,301 to 10,000	179	41	220
Subtotal GW	361	167	528
<i>Surface Water (and GWUDI)</i>			
500 and under	18	21	39
501 to 3,300	241	86	327
3,301 to 10,000	548	158	706
Subtotal SW	807	265	1,072
Total of Small Water Systems	1,168	432	1,600

¹ PWS counts were adjusted to display whole numbers in each size category.

The basis for the UCMR 4 RFA certification is as follows: for the 1,600 small water systems that will be affected, the average annual cost for complying with this rule ranges from 0.01% to 0.7%

of system revenues (the highest estimated percentage is for privately-owned GW systems serving 500 or fewer people, at 0.7% of its median revenue). Exhibit 5 presents the yearly costs to small systems, and to EPA for the small system sampling program, along with an illustration of system participation for each year of UCMR 4.

Exhibit 5: Implementation of UCMR 4 at Small Systems

Cost Description	2017	2018	2019	2020	2021	Total ¹
Costs to EPA for Small System Program (Assessment Monitoring)						
	\$0	\$5,635,113	\$5,635,113	\$5,635,113	\$0	\$16,905,340
Costs to Small Systems (Assessment Monitoring)						
	\$0	\$270,848	\$270,848	\$270,848	\$0	\$812,545
Total Costs to EPA and Small Systems for UCMR 4						
	\$0	\$5,905,962	\$5,905,962	\$5,905,962	\$0	\$17,717,886
System Monitoring Activity Timeline²						
Assessment Monitoring: Cyanotoxins		1/3 PWSs Sample	1/3 PWSs Sample	1/3 PWSs Sample		800
Assessment Monitoring: 20 Additional Contaminants ³		1/3 PWSs Sample	1/3 PWSs Sample	1/3 PWSs Sample		800

¹Totals may not equal the sum of components due to rounding.

²Total number of systems is 1,600. No small system conducts Assessment Monitoring for both cyanotoxins and the 20 additional contaminants.

³PWSs not required to comply with the D/DBPRs do not monitor for the HAA group.

PWS costs are attributed to the labor required for reading about UCMR 4 requirements, monitoring, reporting, and record keeping. The estimated average annual burden across the five-year UCMR 4 implementation period of 2017-2021 is estimated to be 2.8 hours, or \$102, per small system. By assuming all costs for laboratory analyses, shipping, and QC for small entities, EPA incurs the entirety of the non-labor costs associated with UCMR 4 small system monitoring, or 95% of total small system testing costs. Exhibits 6 and 7 present the estimated economic impacts in the form of a revenue test for publicly- and privately-owned systems.

Exhibit 6: UCMR 4 Relative Cost Analysis for Small Publicly-Owned Systems (2017-2021)

System Size (# of people served)	Annual Number of Systems Impacted ¹	Average Annual Hours per System (2017-2021)	Average Annual Cost per System (2017-2021)	Revenue Test ²
Ground Water Systems				
500 and under	4	1.5	\$55	0.14%
501 to 3,300	32	1.6	\$59	0.04%
3,301 to 10,000	36	1.7	\$63	0.01%
Surface Water (and GWUDI) Systems				
500 and under	4	3.3	\$119	0.16%
501 to 3,300	48	3.3	\$119	0.04%
3,301 to 10,000	110	3.4	\$124	0.01%

¹ PWS counts were adjusted to display as whole numbers in each size category.

² The Revenue Test was used to evaluate the economic impact of an information collection on small government entities (e.g., publicly-owned systems); costs are presented as a percentage of median annual revenue in each size category.

Exhibit 7: UCMR 4 Relative Cost Analysis for Small Privately-Owned Systems (2017-2021)

System Size (# of people served)	Annual Number of Systems Impacted ¹	Average Annual Hours per System (2017-2021)	Average Annual Cost per System (2017-2021)	Revenue Test ²
Ground Water Systems				
500 and under	13	1.5	\$55	0.74%
501 to 3,300	12	1.6	\$59	0.04%
3,301 to 10,000	8	1.7	\$63	0.01%
Surface Water (and GWUDI) Systems				
500 and under	4	3.3	\$119	0.28%
501 to 3,300	17	3.3	\$119	0.04%
3,301 to 10,000	32	3.4	\$124	0.01%

¹ PWS counts were adjusted to display as whole numbers in each size category.

² The Revenue Test was used to evaluate the economic impact of an information collection on small government entities (e.g., publicly-owned systems); costs are presented as a percentage of median annual revenue in each size category.

The Agency has estimated the burden for the 1,600 small PWSs (approximately 4.2% of all small systems) participating in UCMR 4; the remainder of small systems will not be impacted.

Although this rule will not have a significant economic impact on a substantial number of small entities, EPA attempts to reduce the impact of this rule on them. EPA assumes all costs for analyses of the samples and for shipping the samples from small systems to laboratories contracted by EPA to analyze UCMR 4 samples (the cost of shipping is now included in the cost of each analytical method). EPA has set aside \$2.0 million each year from the Drinking Water State Revolving Fund (SRF) with its authority to use SRF monies for the purposes of implementing this provision of SDWA. Thus, the costs to these small systems is limited to the labor hours associated with collecting a sample and preparing it for shipping.

We have therefore concluded that this action will have no significant net regulatory burden for all directly regulated small entities.

5(d) Collection Schedule

With the exception of cyanotoxin monitoring, PWSs will be required to collect samples during a continuous 12-month period during the sampling timeframe. Sampling for SW and GWUDI systems will take place quarterly (for a total of four sampling events), and for GW systems sampling occurs at 6-month intervals (five to seven months apart for a total of two sampling events). For cyanotoxin monitoring, SW and GWUDI systems will collect samples twice a month for four consecutive months (for total of eight sampling events). GW systems are excluded from cyanotoxin monitoring.

Sample collection for the UCMR 4 contaminants will take place at the EPTDS, with the following exceptions/additions.

- If the PWS is subject to sampling requirements under the D/DBPRs, the PWS must collect samples for the UCMR 4 HAAs at the D/DBPR sampling locations. If a PWS is not subject to D/DBPR monitoring, the PWS is not subject to UCMR 4 HAA monitoring.

UCMR 4 HAA samples and D/DBPR compliance monitoring samples may be collected by the PWS at the same time. However in such cases, PWSs would need to arrange for UCMR 4 HAA samples to be analyzed by an approved lab using EPA Method 552.3 or 557.

- Sampling for TOC and bromide will take place at a single source water intake (concurrent with UCMR 4 HAA sampling in the distribution system). The TOC and bromide data, along with the disinfectant type and water treatment information, will aid in the understanding of brominated HAA formation.

Large PWS schedules (year and months of monitoring) will initially be determined by EPA in conjunction with the states; these PWSs will have an opportunity to modify this schedule for planning purposes or other reasons (e.g., to conduct monitoring during the months the system or the state believes the PWS is most vulnerable, because of budget constraints, if a sampling location will be closed during the scheduled month of monitoring, etc.). EPA will schedule and coordinate small system monitoring and work closely with partnering states. SMPs provide an opportunity for states to review and revise the initial sampling schedules that EPA proposes.

Exhibits 3 and 9 illustrate the timeline of general UCMR activities, and PWS monitoring activities, respectively.

6 ESTIMATING THE BURDEN AND COST OF THE COLLECTION

This section describes the respondent burden and cost for activities under UCMR 4. The burden and cost estimates for PWSs are shown in section 6(a), burden and costs to states are shown in section 6(b), and the Agency's burden and cost estimates are shown in section 6(c) (all in Part A of this ICR document).

In general, burden hours are calculated by:

- Determining the activities that PWSs and states would complete to comply with the UCMR activity (as described in section 4(b)(ii));
- Estimating the number of hours per activity (as described in section 6(a) for systems and 6(b) for states);
- Estimating the number of respondents per activity; and,
- Multiplying the hours per activity by the number of respondents for that activity.

EPA used the sources of information listed in section 6(a) and previous experience with the UCMR program to estimate the burden hours needed by systems. Assumptions are further described in sections 6(a)(i)(b) and 6(b).

The body of this ICR focuses only on the cost of the UCMR data collection over the years 2017-2019. Cost tables that are presented in this section have analogous tables in Appendix B, which present costs for the entire UCMR 4 period (2017-2021).

There are two primary categories of costs associated with UCMR: (1) labor costs, such as program implementation, sample collection, record keeping, reporting and data analysis; and (2) non-labor costs, such as laboratory fees for analyses of samples, shipping charges and contractor costs. The majority of costs are directly attributed to the fees for laboratory analytical services.

EPA is committed to accurately characterizing the burden and costs of rules it promulgates. In the development of various drinking water program rule ICRs, EPA developed a consistent set of assumptions to use in calculations. These have been developed and utilized in other drinking water program evaluations. Pertinent to the UCMR ICR are the standard assumptions for labor rates, PWS inventory numbers (the number of PWSs in the various size categories by primary water source), the number of sampling points for each PWS and analytical services. The sources and assumptions used in estimating costs and burdens are described in this section.

6(a) Estimating Burden and Cost to PWSs

Specific assumptions used in estimating PWS labor burden and cost, as well as non-labor costs, are discussed in sections 6(a)(i) and 6(a)(ii), respectively (Part A of this ICR document). A summary of the cost estimates is provided in section 6(a)(iii), Part A of this ICR document.

EPA used the following sources of PWS information to develop cost and burden estimates:

- *Inventory Data:* CWS and NTNCWS inventory was based on a September 30, 2014, inventory extract from the Federal Safe Drinking Water Information System (SDWIS/Fed).
- *EPTDS Data:* All EPTDS data were taken from the Community Water System Survey Volume II: Detailed Tables and Survey Methodology (<http://water.epa.gov/infrastructure/drinkingwater/pws/upload/cwssreportvolumeI12006.pdf>).
- *HAA Sampling Location Data:* The number of HAA samples per PWS is based on the number of samples required to be collected for the D/DBPRs. Under the D/DBPRs, SW or GWUDI PWSs serving more than 100,000 people, are binned into four different size categories. PWSs in these size categories collect D/DBPRs samples from eight, 12, 16, or 20 locations per monitoring period. Because the UCMR 4 has only one size category for PWSs serving more than 100,000 people, EPA used an average number of sample locations to determine costs, and assumes that all SW or GWUDI PWSs in this size category will collect samples from 14 locations. GW PWSs serving over 100,000 people collect samples from either six or eight locations under the D/DBPRs. EPA used an average of seven samples for the cost estimates for the UCMR 4, for those GW PWSs serving more than 100,000 people.

6(a)(i) Estimating Burden and Labor Costs

The general timing of monitoring was discussed in section 1(b) of Part A of this document (Short Characterization). The UCMR program affects approximately 5,892 PWSs, roughly two-thirds of which will conduct monitoring in 2018 and 2019. Exhibit 8 presents the estimated numbers of regulated PWSs expected to participate. Exhibit 9 presents the timeline for the PWS monitoring activities.

While developing the cost estimates for UCMR 3, some public commenters suggested that EPA underestimated PWS burden. In response to these comments, EPA reviewed the UCMR burden estimates against burden estimates used in recently published drinking water rules. In all aspects of burden assumptions (e.g., time allotted for reading rule requirements, sampling reporting, etc.), the UCMR estimates were on par with, or more conservative (higher) than estimates made for other drinking water regulations. For UCMR 4, EPA re-examined all cost estimates and assumptions to ensure that the most recently available data were used. All PWS burden estimates

represent average burden hours, which include SW and GWUDI PWSs that may have very few sampling points, and thus lower sampling burden, as well as those PWSs with higher numbers of sampling points that would therefore have greater sampling activity labor burden. A PWS's burden is primarily incurred during its one year of required UCMR monitoring. However, in compliance with the requirements of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), these cost and burden estimates are presented as an average over the applicable three-year ICR period. Small PWSs have the lowest burden because these PWSs receive a great deal of direct assistance from EPA and/or their state.

Exhibit 8: Systems to Participate in UCMR 4 Monitoring

System Size (# of people served)	National Sample Assessment Monitoring		Total # of Systems per Size Category
	10 List 1 Cyanotoxins	20 Additional List 1 Contaminants	
Small Systems¹			
25 – 10,000	800 randomly selected SW or GWUDI systems	800 randomly selected SW, GWUDI and GW systems	1,600
Large Systems²			
10,001 and over	All SW or GWUDI systems (2,725)	All SW, GWUDI and GW systems (4,292)	4,292
TOTAL	3,525	5,092	5,892

¹Total for small systems is additive because these systems will only be selected for one component of UCMR 4 sampling (10 cyanotoxins or 20 additional contaminants, although systems not required to comply with the D/DBPRs do not monitor for the UCMR 4 HAA groups). EPA pays for all analytical costs associated with monitoring at small systems.

²Large system counts are approximate. The number of large systems is not additive. All SW and GWUDI systems monitor for cyanotoxins and those same systems also monitor for the 20 additional List 1 contaminants. Large GW systems monitor for the 20 additional List 1 contaminants; however, systems not required to comply with the D/DBPRs do not monitor for the UCMR 4 HAA groups.

Exhibit 9: UCMR 4 Sampling Activity Timeline for Cost and Burden Estimations

<i>UCMR 4 – 2017 – 2021</i>				
2017	2018	2019	2020	2021
<i>Designated ICR Years</i>				
No UCMR Monitoring Activity	Assessment Monitoring ¹			No UCMR Monitoring Activity
	~ 1/3 of PWSs sample	~ 1/3 of PWSs sample	~ 1/3 of PWSs sample	

¹The following assumptions, based on the specifications in UCMR 4, were used to estimate cost and burden:

- All Assessment Monitoring PWSs will conduct sampling evenly across January 2018-December 2020 (i.e., one-third in each of the three consecutive periods).
- Approximately two-thirds of PWSs will conduct monitoring in the current ICR years of 2018 and 2019, and approximately one-third of PWSs will conduct monitoring during the ICR renewal years of 2020-2022.

The PWS labor burden consists of three primary activities: (1) reading the regulations or state guidance letter; (2) monitoring or monitoring assistance; and (3) reporting and record keeping.

Hourly labor rates (including overhead) are taken from the Bureau of Labor Statistics (BLS), National Occupational Employment and Wage Estimates, United States, BLS SOC Code 51-8031, "Local Government - Water and Liquid Waste Treatment Plant and System Operators".

May 2015 data (published in May 2016). <http://stats.bls.gov/oes/current/oes518031.htm>. The local government Occupational Employment Statistics (OES) Designation of \$23 was multiplied by a loading rate of 1.6 to account for benefits to remain consistent with the estimates used by the renewal ICR for the drinking water regulations (in progress). The wage rate was then escalated to 2016 dollars. Thus, the hourly wage rate for all PWSs was estimated to be \$36.

6(a)(i)(a) Reading the Regulations/Guidance Letter

EPA assumed that PWSs read the regulations and/or a state-issued guidance letter during the year in which PWSs monitor. Approximately two-thirds of PWSs will therefore read the regulations or a state-issued guidance letter in 2018 and 2019. Small PWSs can rely on the state and EPA for information pertaining to their requirements, rather than reading the regulation; EPA assumed small PWSs will spend one hour, on average, reading the letter or guidance. EPA assumed that PWSs serving more than 10,000 people read the regulation and information from the state, requiring on average four hours. National costs are estimated by multiplying the average burden hours by the average PWS labor rate, times the number of PWSs affected. Small PWSs are only selected to monitor for the 10 cyanotoxins or the 20 additional Assessment Monitoring contaminants (although PWSs not required to comply with the D/DBPRs are excluded from monitoring for the UCMR 4 HAA groups). All large and very large PWSs served by SW or GWUDI are expected to monitor for the 10 cyanotoxins. All large and very large PWSs also monitor for 20 additional Assessment Monitoring contaminants (although PWSs not required to comply with the D/DBPRs are excluded from monitoring for the UCMR 4 HAA groups).

6(a)(i)(b) Monitoring Burden

Exhibit 9 provides an illustration of the timeline for PWS sampling activity. For Assessment Monitoring, EPA assumed that each PWS will incur an estimated burden of 0.5 hours per sampling point to collect samples for analysis. EPA assumed that PWSs will not be able to collect all samples at the same time or at the same locations. The monitoring burden includes separate sample collection burden estimates for PWSs to collect EPTDS samples and certain distribution samples. PWSs will also need additional time to collect cyanotoxins samples at the EPTDS. For those systems required to monitor for the UCMR 4 HAA groups, EPA assumed that PWSs will collect source water TOC and bromide samples at the same time as the HAA samples. Since PWSs may collect some samples (e.g., UCMR 4 HAAs samples and compliance samples for D/DBP HAAs) at the same time, the burden estimate may overestimate the time needed for some PWSs and therefore, EPA is providing a conservative cost estimate.

The monitoring burden for Assessment Monitoring includes receipt of monitoring kit, reading laboratory instructions, travel time to collect samples and collection and shipping of samples. It is calculated by: (hour burden per sampling point) times (number of sampling points) times (number of PWSs) times (number of sample events per year). This estimate is an average. Some PWSs need less than 0.5 hours per sampling point to collect a sample, while other PWSs need

more time. Many GW PWSs realize savings in their sampling burden as a result of the allowance for representative sample points. Sampling burden accounts for the estimated reduction in entry points where these PWSs will sample (as described in section 6(a)(ii), Part A of this ICR document). Certain PWSs that purchase all of their water from a single wholesaler, and that have more than one connection to that wholesaler, may elect to sample from only one EPTDS. Because this cost savings has not been factored into the cost estimates, the sampling costs are conservative.

6(a)(i)(c) Reporting and Record Keeping

PWSs will be required to report specific information prior to monitoring, and will be required to report some information with their monitoring results.

- *Reporting Prior to Monitoring:* As with the reading burden (described above, in Section 6(a)(i)(a)), all initial reporting prior to UCMR 4 monitoring (including proposals for representative sample points) will be completed in 2017.

Small PWSs: EPA assumed that small PWSs will send contact and sampling point information prior to monitoring. EPA estimated this one-time reporting burden will take PWSs two hours.

Large SW (and GWUDI) PWSs: EPA assumed that large SW and GWUDI PWSs will send contact and sampling point information prior to monitoring. EPA allotted a one-time reporting burden of six hours.

Large GW PWSs: EPA assumed that large GW PWSs will send contact and sampling point information, which will require a one-time burden of six hours. An additional eight hours were allotted to some GW PWSs to account for compilation and submission of GW representative sampling locations proposals. Since it was unlikely that all PWSs will submit these proposals, EPA conservatively assumed that half of GW PWSs serving 10,001 to 100,000 people will compile and submit this proposal; EPA assumed that all GW PWSs serving more than 100,000 people will submit these proposals.

- *Reporting with Monitoring Results*

Small PWSs: Small PWSs can review their UCMR monitoring results, but are not required to do so. Some PWSs may not review sample results at all, while others may review the sample results in detail. As a conservative assumption, EPA estimated that it will take each small PWS 0.5 hours per sampling period for data review.

Large PWSs: Large PWSs are expected to review, approve, and submit the data to the state and EPA via the EPA electronic reporting system. EPA estimated that it will take these PWSs two hours per sampling period for data review and submission.

6(a)(i)(d) Public Notification

The CCR rule requires that CWSs notify their consumers of the detection of any unregulated contaminants in their annual CCR reports (63 FR 44512 (August 19, 1998)). The Public Notification Rule requires that CWSs and NTNCWSs report any failure to conduct UCMR monitoring (65 FR 25982, May 4, 2000). No additional public notification is required by UCMR.

6(a)(ii) *Estimating Non-labor Costs*

Under UCMR, small PWSs only incur labor costs. By design of the rule, EPA will assume all costs for analyses of the samples and for shipping the samples from small systems to laboratories contracted by EPA to analyze UCMR 4 samples (the cost of shipping is now included in the estimated cost of each analytical method). The laboratory analysis and shipping cost estimates described here are the basis for EPA and large PWS non-labor costs. Estimates of laboratory analytical costs associated with the analysis of each sample are presented in this section. EPA estimates are based on consultations with national drinking water laboratories.

For those PWSs that collect samples for cyanotoxins, not all samples collected will necessarily need to be analyzed. Initially, three samples will be collected at the EPTDS for cyanotoxins. One sample will be collected for EPA Method 546 (Adda ELISA), another for potential analysis by EPA Method 544, and another for analysis by EPA Method 545. If the EPTDS ELISA result is less than 0.3 micrograms per liter ($\mu\text{g/L}$) (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. If the ELISA result is greater than or equal to 0.3 $\mu\text{g/L}$, the result will be reported to EPA and the EPA Method 544 sample will then be analyzed to identify and quantify nodularin and the six specific microcystin congeners. Cylindrospermopsin and anatoxin-a will only be monitored at the EPTDS, with analysis by EPA Method 545.

To estimate the percentage of positive ELISA samples, and thus the percentage of samples that will need to be subsequently analyzed by Method 544, EPA discussed the matter with several states that have been affected by algal blooms and associated cyanotoxins. Based on those discussions, EPA estimated that two percent of the EPTDS samples will be positive, and will need to be analyzed using Method 544.

Exhibit 10 shows the analytical costs per sample.

Exhibit 10: Assessment Monitoring (List 1) Analytical Costs

Method Type	Average Analysis Cost per UCMR 4 Sample ¹
3 Alcohols using EPA Method 541 (Gas Chromatography/Mass Spectrometry (GC/MS))	\$327
Bromide ²	\$55
3 Brominated HAA Groups using EPA Method 552.3 (Gas Chromatography/Electron Capture Detection (GC/ECD) or 557 (Ion Chromatography/Electrospray Ionization/Tandem Mass Spectrometry (IC/ESI-MS/MS))	\$209
1 Cyanotoxin group using Adda ELISA (EPA Method 546)	\$193
7 Cyanotoxins using EPA Method 544 (Solid Phase Extraction (SPE) Liquid Chromatography/Tandem Mass Spectrometry(LC/MS/MS))	\$469
2 Cyanotoxins using EPA Method 545 (Liquid Chromatography/Electrospray Ionization-Tandem Mass Spectrometry (LC/ESI-MS/MS))	\$388
2 Metals using EPA Method 200.8 (Inductively Coupled Plasma Mass Spectrometry (ICP-MS)) or alternate SM ³ or ASTM ⁴	\$75
8 Pesticides and a Pesticide Byproduct using EPA Method 525.3 (SPE GC/MS)	\$371
3 Semivolatile Organic Chemicals using EPA Method 530 (GC/MS)	\$346
TOC ²	\$63
Total	\$2,496

¹The average analytical cost for Assessment Monitoring was determined by averaging estimates provided by five drinking water laboratories.

²TOC and bromide are HAA indicators and are analyzed using methods to be determined by PWSs and their laboratories. TOC methods include: Standard Method (SM) 5310 B or 5310 B-00, SM 5310 C or 5310 C-00, SM 5310 D or 5310 D-00, EPA Method 415.3 (Rev. 1.1 or 1.2) (40 C.F.R. § 141.131 (d)(3)). Bromide methods include: EPA Methods 300.0 (Rev 2.1), 300.1 (Rev 1.0), 317.0 (Rev. 2.0), 326.0 (Rev 1.0) or American Society for Testing Materials (ASTM) D 6581-12 (40 C.F.R. § 141.131 (d)(2)).

³SM 3125 or SM 3125-09.

⁴ASTM International D5673-10.

UCMR 4 specifies that the majority of samples (i.e., with the exception of samples for UCMR 4 HAA groups, TOC, and bromide) be collected at EPTDSs. Some large PWSs that use GW sources and have multiple EPTDSs may be able to realize significant savings by sampling representative sample point(s) rather than sampling each EPTDS. PWSs must meet certain PWS configuration criteria, submit a proposal regarding representative sample points and receive approval from EPA or the state. Labor related to submission and coordination of these proposals

is discussed in section 6(a)(i)(c), Part A of this ICR document. To account for the savings on laboratory fees that will be realized by large GW PWSs, EPA assumed that large PWSs will sample at approximately 75% of the current EPTDSs, and that very large PWSs will sample at 50% of the current EPTDSs.

PWSs that purchase all of their water from a wholesale PWS, and that have more than one intake from that wholesaler may collect EPTDS samples from a representative intake. The representative site must be one of the higher annual volume EPTDS connections. EPA did not attempt to estimate the number of PWSs that would take advantage of this allowance. Thus, the cost estimates presented in this ICR are conservative.

Total laboratory and shipping fees were estimated per required sampling location, per sampling event, as follows: (number of PWSs) times (number of periods per year) times (number of sampling points per PWS) times (method and shipping costs).

6(a)(iii) Summary of Labor and Non-labor Costs to PWSs

Exhibit 11a displays a summary of labor and non-labor costs, by year, for the three-year ICR period. Analogous information presenting estimated costs over the five-year UCMR 4 implementation period is provided in Exhibit B-1a, in Appendix B. Small PWSs incur labor costs only. Large PWSs incur both labor and non-labor costs.

The nationwide cost to PWSs for implementing the total UCMR program over the three-year ICR period is \$64.4 million. Large and very large PWSs incur about 99% of the total PWS cost, \$63.8 million. Annual cost per small PWSs for UCMR implementation over the three-year ICR period is \$169 per PWSs, all attributed to labor. Annual cost per large PWSs is \$684 for labor plus \$5,756 for analytical (non-labor) costs, with very large PWSs costs of \$1,253 for labor plus \$15,680 for analytical (non-labor) costs. Exhibits 8 and 9 illustrate the number of participating PWSs and timing of monitoring. Per-PWS labor burdens and costs are presented in Exhibit 11b. Analogous information for the five-year implementation period is provided in Exhibit B-1b, in Appendix B. "Response" is defined as each required reporting event for a PWS. All labor and non-labor costs associated with a reporting event (reading the regulations, monitoring and reporting) are included in the per-response cost estimate.

Exhibit 11a: Yearly Cost to Systems, by PWS Size and by Type of Cost (2017-2019)
(corresponds with Exhibit B-1a)

Cost Description	2017	2018	2019	Total ¹
SMALL PWSs (standard sample serving 10,000 or fewer people)				
Labor Costs				
Reading and Initial Reporting	\$0	\$57,874	\$57,874	\$115,747
Monitoring	\$0	\$148,542	\$148,542	\$297,085
Reporting of Results	\$0	\$64,433	\$64,433	\$128,865
Non-Labor Costs (Laboratory Analysis and Shipping (paid for by EPA))	\$0	\$0	\$0	\$0
Subtotal – Small PWSs	\$0	\$270,848	\$270,848	\$541,697
LARGE PWSs (serving 10,001 to 100,000 people)				
Labor Costs				
Reading and Initial Reporting	\$0	\$655,780	\$655,780	\$1,311,559
Monitoring	\$0	\$936,046	\$936,046	\$1,872,091
Reporting of Results	\$0	\$1,064,005	\$1,064,005	\$2,128,010
Non-Labor Costs (Laboratory Analysis and Shipping)	\$0	\$22,363,604	\$22,363,604	\$44,727,211
Subtotal – Large PWSs	\$0	\$25,019,436	\$25,019,436	\$50,038,872
VERY LARGE PWSs (serving greater than 100,000 people)				
Labor Costs				
Reading and Initial Reporting	\$0	\$71,787	\$71,787	\$143,575
Monitoring	\$0	\$299,458	\$299,458	\$598,916
Reporting of Results	\$0	\$138,511	\$138,511	\$277,021
Non-Labor Costs (Laboratory Analysis and Shipping)	\$0	\$6,381,726	\$6,381,726	\$12,763,453
Subtotal – Very Large PWSs	\$0	\$6,891,482	\$6,891,482	\$13,782,965
ALL PWSs				
Total Labor for All Systems	\$0	\$3,436,435	\$3,436,435	\$6,872,869

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Cost Description	2017	2018	2019	Total¹
Total Non-Labor for All Systems	\$0	\$28,745,332	\$28,745,332	\$57,490,664
Total Labor and Non-Labor for All PWSs	\$0	\$32,181,767	\$32,181,767	\$64,363,533

¹Totals may not equal the sum of components due to rounding.

Exhibit 11b: Per System (Respondent) and Per Response UCMR Costs (2017-2019)
(corresponds with Exhibit B-1b)

Burden / Cost	Total over 2017-2019			Annual Average over 2017-2019		
	Small PWSs	Large PWSs	Very Large PWSs	Small PWSs	Large PWSs	Very Large PWSs
PER RESPONDENT:						
Labor Cost	\$508	\$2,051	\$3,757	\$169	\$684	\$1,253
Non-Labor Cost	\$0	\$17,269	\$47,040	\$0	\$5,756	\$15,679
Burden (labor hours)	18.4	69.7	139.3	6.1	23.2	46.4
PER RESPONSE:						
Number Responses per Respondent	6.7	11.4	14.1	2.2	3.8	4.7
Labor Cost per Response	\$76	\$181	\$266	\$25	\$60	\$89
Non-Labor Cost per Response	\$0	\$1,520	\$3,331	\$0	\$507	\$1,110
Burden (labor hours) per Response	2.7	6.1	9.9	0.9	2.0	3.3

6(b) Estimating the Burden and Cost to States

Since the UCMR is a direct implementation rule, individual state costs largely depend on the degree to which they volunteer to assist EPA (as specified in their PA). EPA assumed that states incur only labor costs, because no capital investments are expected for UCMR 4. Because states are involved in a variety of UCMR implementation and oversight activities but have few defined responses, burden estimates are based on yearly activities. Thus, for “per response” estimates, states have an average of 1.0 response per year.

EPA used updated estimates from ASDWA’s “Insufficient Resources for State Drinking Water Programs Threaten Public Health: an Analysis of State Drinking Water Programs’ Resources and Needs.” to estimate state burden and cost for the implementation and oversight of UCMR 4. EPA reviewed the estimates used by ASDWA for various aspects of drinking water program implementation activities and used professional judgement and experience from prior UCMR cycles to determine which activities apply to assisting with UCMR 4. Assumptions include:

- One full-time equivalent (FTE) is equivalent to 2,080 hours per year; this represents a change from UCMR 3, as the previous estimates used 1,800 hours per year for one FTE.

- States will need one supervisor per seven technical FTEs, and one support staff for every 20 technical FTEs.
- Wage rate information for states from the BLS was used since these rates are more recent than the rates used by ASDWA. This same source of information for the wage rate was used for the renewal ICRs for current drinking water regulations. Wage rate information was updated using the most recently available data, and was calculated as follows:
 - The state labor rate of \$30 was multiplied by a loading rate of 1.6 to account for benefits. The wage rate was then escalated to 2016 dollars using the Employment Cost Index for wages and salaries in trade, transport, and utilities for December 2015 and March 2016. The index value (accessed from <http://www.bls.gov> on May 19, 2016), was 123.9 for December 2015 and 125.7 for March 2016. State Employee wage rates from National Occupational Employment and Wage Estimates, United States, BLS SOC Code 19-2041, "State Government - Environmental Scientists and Specialists, Including Health," hourly mean wage rate. May 2015 data (published in March 2016). <http://stats.bls.gov/oes/current/oes192041.htm>. The average estimated wage rate for states is \$48.

The model included state resource needs for different aspects of the Phase II/V and nitrate regulations. EPA needed to isolate the UCMR costs from the aggregated costs. Based on professional judgment regarding the relative magnitude of the UCMR program, EPA assumed that:

- ASDWA's estimates of hours include the following activities for implementation of the chemical program: setting up monitoring schedules for PWSs; notifying PWSs of requirements; reviewing data/information submitted to the state; determining compliance; assigning violations; commencing enforcement actions; and data entry/ record keeping /reporting to EPA. ASDWA also included hours for running a waiver program. The estimates also assumed most states have a state-wide waiver and that most systems have individual use or susceptibility waivers for some analytes. EPA used the same labor estimates as a base in order to provide a conservative estimate for UCMR 4 activities. Under UCMR 4, states are anticipated to: assist PWSs with monitoring schedules; notify PWSs of requirements; and possibly review data. EPA's estimates allotted states 10.75 hours per small PWS, and 13.25 hours per large PWS to help implement the UCMR program. EPA assumed that during the first and last year of the five-year UCMR period (2017 and 2021), when there are no monitoring activities, UCMR represents 1% of the bundled program resource needs (although the costs for 2020 and 2021 are not relevant to the current, 2017-2019, ICR estimations); during the three years when monitoring is conducted, UCMR represents 3% of the bundled program resource needs.

- ASDWA’s model includes time for state staff training on database use; inventory updates; responses to data queries (e.g., producing monthly violation reports for program staff); quarterly reporting and record keeping; and QC of data entered for compliance oversight. ASDWA assumed one FTE per year for small and very small states, 1.75 FTEs for medium states, five FTEs for large states, and six FTEs for very large states. For UCMR, EPA assumed that states will use this time to review PWS data. In some instances, states may enter and track UCMR data in their own database systems.
- States are estimated to need 20 hours in the first ICR year of 2017 to read and understand UCMR 4.
- States are assumed to need 0.15 FTEs in 2017 to develop PAs with EPA. This estimate assumes that two FTEs will devote three weeks in the first year of UCMR 4 to complete this task.
- ASDWA provided estimates for PWS training and technical assistance with estimates ranging from 0.67 hours per PWS to two hours per PWS, based on population served. For UCMR 4, states were allotted one hour per PWS for technical assistance for all three monitoring years. This accounts for states writing monitoring schedule letters to PWSs and providing other technical assistance during monitoring years.
- ASDWA estimated that states will need to train technical staff on new rule requirements, noting that 11 hours were needed per technical FTE for three new rules. ASDWA assumed that training will include one day of classroom training per technical FTE and three hours per technical FTE for follow-up questions; reading rule; and discussions. EPA assumed that training will occur only in the first year, and that 3.67 hours per FTE (i.e., one-third of the 11 hours allotted for three new rules) for UCMR 4.

Some of the state labor estimates depend on the size of the state. Exhibit 12 shows the number of states in each size category. EPA further refined the labor burden estimates by taking the level of state participation under UCMR 3 into consideration. EPA reviewed key areas of state participation under UCMR 3 including: review and revision to the SMPs; assisting EPA with updates to information for large PWSs; two separate sets of PWS notifications; and compliance assistance. Based on prior UCMR activities, 80 percent of states typically participated in their optional UCMR activities. Burden estimates generated from the ASDWA estimates were multiplied by this “percent participation in UCMR 3” to approximate state costs at expected participation levels under UCMR 4.

Exhibit 12: Number of States in Each Size Category (State Resource Model Assumptions)

Size Category	Number of States
Very Small	10
Small	11
Medium	23
Large	10
Very Large	2
<i>Total</i>	56

EPA estimates that the average annual burden over the three ICR years (2017-2019) for 56 states to implement UCMR is 13,681 hours (or 244 hours per state per year), with an average annual cost of \$660,173 (or \$11,789 per state per year). See Exhibits 13a and 13b for a summary of estimated state burdens and costs (analogous five-year information for 2017-2021 provided in Exhibits B-2a and B-2b, in Appendix B).

Exhibit 13a: Yearly Cost and Burden to States for Implementation of UCMR 4 (2017-2019)¹ (corresponds with Exhibit B-2a)

Cost/Burden	2017	2018	2019	Total ²	Annual Average
Costs to all states for labor related to UCMR implementation and oversight					
	\$891,086	\$544,716	\$544,716	\$1,980,519	\$660,173
Labor burden for all states for UCMR implementation and oversight (number of hours)					
	18,466	11,288	11,288	41,043	13,681

¹ All costs are attributed to labor and are estimated over the period 2017-2019.

² Totals may not equal the sum of components due to rounding.

Exhibit 13b: Per State (Respondent) and Per Response UCMR 4 Costs (2017-2019) (corresponds with Exhibit B-2b)

Burden / Cost	Total over 2017-2019	Annual Average over 2017-2019
PER RESPONDENT:		
Labor Cost	\$35,366	\$11,789
Non-Labor Cost	\$0	\$0.00
Burden (labor hours)	732.9	244.3
PER RESPONSE:		
Number Responses per Respondent ¹	3.0	1.0
Labor Cost per Response	\$11,788.80	\$3,930
Non-Labor Cost per Response	\$0	\$0
Burden (labor hours) per Response	244.3	81.4

¹ States have 1 response per year, since there are no specific cyclical state reporting requirements under the UCMR program.

6(c) Estimating Agency Burden and Cost

EPA incurs burden and costs related to UCMR implementation activities, including: regulatory support activities; national and regional oversight and data analysis; and the small PWS testing program. These activities are described in detail in section 5(a), Part A of this ICR document. Labor and contractual costs are estimated using the federal government general schedule (GS) pay scale; assuming a labor level of GS 13, step 5, and taken from the Maryland/District of Columbia rate schedule for January 2016 (see the U.S. Office of Personnel Management website: www.opm.gov). With these assumptions, labor and contractor rates were based on a 2,080 hour work year, with a \$166,533 annual salary, which includes 60% overhead, or \$80 per hour. Additional cost assumptions are described in sections 6(c)(i)-(iii), Part A of this ICR document. Cost and burden estimates are presented in Exhibits 14a and 14b, respectively

6(c)(i) Regulatory Support Activities

Regulatory support activities include the labor and non-labor costs for laboratory approval process and QA/QC activities; and general technical support and guidance documents. Cost and burden assumptions for these activities are as follows:

Laboratory Approvals and QA/QC Activities: EPA incurs various labor or contractor costs related to the laboratory PT/approvals; laboratory QA/QC; and provision of analytical standards, as follows:

- The laboratory approval program (including the PT component) is estimated to cost EPA \$238,811 in 2017 to prepare for the beginning of monitoring. Estimates were based on costs realized by the Agency for similar activities during UCMR 2 and UCMR 3. A three percent inflation rate was applied to the costs of UCMR 3 to estimate the costs for UCMR 4. These costs are also included in Appendix B.
- QC Audits of contract laboratories occurs throughout active UCMR monitoring. Labor (hours) for each audit includes: a 3-day site inspection (for two individuals); one full-day travel for two individuals (assume two half days); and three days of report writing (for one individual), which includes review and response to laboratory comments. Travel costs for two individuals include: round trip flight, three nights hotel stay, two full day food per diem, and two days at the proportional meals rate from the 2016 federal rate for the Continental U.S. (from the U.S. Government Services Administration website: <http://www.gsa.gov>). Also included is rental of one car for both travelers. EPA estimated that these QC audits would take place four times each monitoring year, at an estimated cost of \$9,314 per trip.

- EPA estimated that analytical standards provision and coordination will cost \$618,734 total for three ICR years (or \$206,245 per ICR year). Cost estimates are based on costs realized by the Agency for prior similar activities.

Technical Support/Guidance Document Development: These activities cost EPA approximately \$180,899 total over the ICR period including: costs for developing and distributing guidance for laboratories that will participate in UCMR 4 testing; fact sheets; and other pertinent guidance related to UCMR 4 implementation. These activities will take place in 2017 and 2018. Cost estimates were based on costs realized by the Agency for prior similar activities. For UCMR 4, a three percent inflation rate was applied to the costs of UCMR 3.

6(c)(ii) National and Regional Oversight and Data Analysis

EPA activities include data analysis, management oversight and support at both the regional and national level for assistance to states with UCMR implementation. During the core period of UCMR 4 activity, EPA estimates that it will dedicate 5.5 FTEs each year to program oversight and data analysis, based on experience with prior UCMR cycles. These activities are estimated as labor cost and burden to the Agency (see the corresponding description of these activities in section 5(a)(ii), Part A of this ICR document). These activities will cost EPA an estimated \$2.8 million in total over the three-year ICR period.

6(c)(iii) Costs for Small System Testing Program

EPA provides logistical support for the small PWS testing program. This activity includes costs for contractual labor, sampling supplies, and shipping costs, and is estimated to cost EPA \$425 per sampling event per sampling site, based on actual historical costs incurred during UCMR 3 for this same activity. These activities, plus analytical and shipping fees are estimated to cost EPA \$11.3 million in total over the three ICR years. See section 6(a)(ii), Part A of this ICR document, for assumptions regarding applicable laboratory fees for individual methods. Total costs that EPA incurs for the small PWS testing program were calculated by multiplying the laboratory and shipping fees by: (number of PWSs) times (number of sampling periods per year) times (number of sampling points per PWS).

6(c)(iv) Estimated Agency Cost and Burden

EPA estimates that the Agency cost for the UCMR 4 program during the ICR period of 2017-2019 is \$15.2 million; (with annual average cost over the ICR period of \$5.1 million). EPA costs for UCMR implementation are shown in Exhibit 14a; average annual labor and non-labor costs, as well as small PWS testing program costs are shown in Exhibit 14b. Appendix B, Exhibits B-3a and B-3b provide analogous information over the five-year UCMR 4 implementation period.

Exhibit 14a: Yearly Cost to EPA for UCMR Implementation, by Type of Cost (2017-2019)¹
(corresponds with Exhibit B-3a)

Cost Description	2017	2018	2019	Total ²	Annual Average
Regulatory Support Activities: laboratory PT; QC audits; analytical standards provision; and technical support, guidance document development					
Lab PT	\$238,811	\$0.00	\$0.00	\$238,811	\$79,604
QC Audits	\$18,627	\$37,255	\$37,255	\$93,136	\$31,045
Analytical Standards	\$119,405	\$245,975	\$253,354	\$618,734	\$206,245
Technical Support	\$119,405	\$61,494	\$0	\$180,899	\$60,300
Subtotal – Regulatory Support	\$496,248	\$344,724	\$290,609	\$1,131,580	\$377,193
National and Regional Oversight and Data Analysis: UCMR management oversight; review and evaluation of data from all UCMR monitoring					
	\$915,932	\$915,932	\$915,932	\$2,747,797	\$915,932
Small PWS Testing: implementation coordination; and analytical and shipping costs for small PWS testing for Assessment Monitoring					
Implementation Coordination	\$0.00	\$2,252,279	\$2,252,279	\$4,504,558	\$1,501,519
Fees for Analysis and shipping – standard sample	\$0.00	\$3,382,834	\$3,382,834	\$6,765,669	\$2,255,223
Subtotal – Small PWS Testing	\$0.00	\$5,635,113	\$5,635,113	\$11,270,227	\$3,756,742
TOTAL	\$1,412,180	\$6,895,770	\$6,841,654	\$15,149,604	\$5,049,868

¹ Agency costs were estimated over the period 2017-2019.² Totals may not equal the sum of components due to rounding.

Exhibit 14b: Summary of EPA Burdens and Costs for UCMR Implementation (2017-2019) (corresponds with Exhibit B-3b)

Burden / Cost	Annual Average Cost over Three-year ICR Period of 2017-2019 ¹
Labor Cost	\$915,932
Non-Labor Cost	\$4,133,936
Total Cost to EPA for UCMR	\$5,049,868
Burden (labor hours)	11,440.0

¹Totals may not equal the sum of components due to rounding.

6(d) Estimating the Respondent Universe and Total Burden and Costs

Section 1(b) of Part A of this ICR describes the general timing of monitoring. Exhibit 8 presents the estimated numbers of regulated PWSs affected by UCMR 4, and Exhibit 9 presents the timeline in which the PWS monitoring activities is expected to take place. The frequency of responses for PWSs is described in Section 4(b)(ii)(a).

Exhibit 15 summarizes national hours and costs for UCMR 4 during the ICR period. Analogous information for the entire five-year UCMR 4 period is presented in Exhibit B-4 in Appendix B. The total labor and non-labor costs are presented for each category of respondent. The total labor burden to the sample of small PWSs is 14,976 hours, with a cost of \$541,697. The total labor burden to large PWSs is 146,848.7 hours, with a labor cost of \$5.3 million, and non-labor costs for analysis and shipping of \$44.7 million. Very large PWSs have a total labor burden for the ICR period of 28,185.9 hours, with labor and non-labor costs of \$1.0 million and \$12.8 million, respectively. The total burden to states over the three-year ICR period is 41,043 hours, with a labor cost of \$2.0 million. EPA anticipates that states will not incur any significant non-labor costs. EPA’s total burden over the same timeframe is 34,320 hours, with labor costs of \$2.8 million, and non-labor costs of \$12.4 million.

Exhibit 15: UCMR 4 National Cost Summary for the ICR period (2017-2019) (corresponds with Exhibit B-4)

Type of Cost	2017	2018	2019	TOTAL ¹	Annual Average
Small PWSs					
Labor Cost	\$0	\$270,848	\$270,848	\$541,697	\$180,566
Non-Labor Cost	\$0	\$0	\$0	\$0	\$0.00
Total Small PWS Cost	\$0	\$270,848	\$270,848	\$541,697	\$180,566

Type of Cost	2017	2018	2019	TOTAL ¹	Annual Average
Large PWSs					
Labor Cost	\$0	\$2,655,830	\$2,655,830	\$5,311,661	\$1,770,554
Non-Labor Cost	\$0	\$22,363,605	\$22,363,605	\$44,727,211	\$14,909,070
Total Large PWS Cost	\$0	\$25,019,436	\$25,019,436	\$50,038,872	\$16,679,624
Very Large PWSs					
Labor Cost	\$0	\$509,756	\$509,756	\$1,019,512	\$339,837
Non-Labor Cost	\$0	\$6,381,726	\$6,381,726	\$12,763,453	\$4,254,484
Total Very Large PWS Cost	\$0	\$6,891,482	\$6,891,482	\$13,782,965	\$4,594,322
States					
Labor Cost	\$891,086	\$544,716	\$544,716	\$1,980,519	\$660,173
Non-Labor Cost	\$0	\$0	\$0	\$0	\$0
Total State Cost	\$891,086	\$544,716	\$544,716	\$1,980,519	\$660,173
EPA					
Labor Cost	\$915,932	\$915,932	\$915,932	\$2,747,797	\$915,932
Non-Labor Cost	\$496,248	\$5,979,837	\$5,925,722	\$12,401,807	\$4,133,936
Total EPA Cost	\$1,412,180	\$6,895,770	\$6,841,654	\$15,149,604	\$5,049,868
National Total					
Total with EPA	\$2,303,265	\$39,622,253	\$39,568,137	\$81,493,656	\$27,164,552
Total without EPA	\$891,086	\$32,726,483	\$32,762,483	\$66,344,052	\$22,114,684
Total Burden (hours) for All Responses²					
Small PWSs	0.0	7,488.0	7,488.0	14,976.0	4,992.0
Large PWSs	0.0	73,424.4	73,424.4	146,848.7	48,949.6
Very Large PWSs	0.0	14,093.0	14,093.0	28,185.9	9,395.3
States	18,466.2	11,288.3	11,288.3	41,042.9	13,681.0
EPA	11,440.0	11,440.0	11,440.0	34,320.0	11,440.0
Total with EPA	29,906.2	117,733.7	117,733.7	265,373.5	88,457.8
Total without EPA	18,466.2	106,293.7	106,293.7	231,053.5	77,017.8

¹ Totals may not equal the sum of components due to rounding.

² Although EPA is not considered a respondent to the UCMR, Agency burdens are shown here to illustrate the national costs of the program. National totals are shown with and without the Agency costs.

6(e) Reasons for Change in Burden

This ICR builds upon the ICR developed for UCMR 3, entitled: *Information Collection Request for UCMR 3, ICR Number 2192.05, OMB Control No. 2040-0270*. After the UCMR 1 program was established in 1999, subsequent UCMR cost and burden estimates were incorporated into the larger Chemical/Radionuclides ICR. However, the UCMR 2 and UCMR 3 ICRs were developed and tracked separately from the Chemical/Radionuclides ICR, because the Chemical/Radionuclides ICR was a “renewal” ICR, whereas the UCMR program is, per SDWA, a program that must change every five years. Like the UCMR 2 and UCMR 3 ICRs, this action and subsequent ICRs will be developed and tracked separately. The reasons that respondents to this ICR incur a different burden than those responding to the previous UCMR ICRs include:

- UCMR 4 includes only one monitoring component; Assessment Monitoring.
- UCMR 4 includes a new list of 30 contaminants. Because the laboratory methods are different, the cost of laboratory analysis differs for UCMR 4.
 - Under UCMR 4, approximately 5,100 PWSs will monitor for 20 chemicals using up to seven methods with an estimated total unit cost of \$1,446 per sample; and approximately 3,500 SW and GWUDI PWSs will monitor for 10 cyanotoxins using up to three methods with an estimated total unit cost of \$1,050 per sample. These SW and GWUDI PWSs will monitor eight times instead of the traditional four times.
 - Under UCMR 3, approximately 5,000 PWSs monitored for 21 chemicals using six methods with an estimated total unit cost of \$1,085; approximately 1,200 PWSs monitored for seven chemicals using one method with an estimated unit cost of \$418; and 800 PWSs monitored for two viruses and indicator organisms, using three methods with an estimated total unit cost of \$1,880.
- EPA will not collect duplicate Quality Assurance (QA) field samples for the small PWSs.
- EPA updated wage rates, and re-examined labor burden estimates for states, EPA, and PWS activities.
- PWSs will collect samples from EPTDS, distribution locations, and source water (TOC and bromide) locations. Because not all of these samples will be collected at the same time, and at the same locations, EPA estimated more time for sample collection activities than in previous UCMRs.

In addition, some of the costs presented in this final ICR have changed compared to the proposed UCMR because:

- EPA removed the requirement for source water cyanotoxin analysis using ELISA.
- HAAs sampling is now limited to only those PWSs that are subject to the requirements of the D/DBPRs.
- EPA updated wage rates to 2015/2016 dollars.

6(f) Burden Statement

Small PWSs that were selected for UCMR 4 monitoring are expected to sample an average of 6.7 times per PWS (i.e., number of responses per PWS) across the three-year ICR period. The average burden per response for small PWSs is 2.7 hours. Large PWSs and very large PWSs are expected to sample and report an average of 11.4 and 14.1 times per PWS, respectively, across the three-year ICR period. The average estimated burden per response for large and very large PWSs is 6.1 and 9.9 hours, respectively. States are projected to incur 3.0 responses over the three-year ICR period related to coordination with EPA and PWSs, with an average burden per response of 244.3 hours. In aggregate during the ICR period, the average response (e.g., responses from PWS and states) is associated with a burden of 6.9 hours, with a labor plus non-labor cost of \$1,636 per response.

The annual average per-respondent burden hours and costs for the ICR period are: small PWSs – 6.1 hours at \$169 for labor; large PWSs – 23.2 hours at \$684 for labor, and \$5,756 for analytical costs; very large PWSs – 46.4 hours at \$1,253 for labor, and \$15,680 for analytical costs; and states – 244.3 hours at \$11,789 for labor. Annual average burden and cost per respondent (including PWSs and states) is 23.3 hours, with a labor plus non-labor cost of \$3,718 per respondent.

The annual average burden to EPA for UCMR 4 program activities during the ICR years is 11,440 hours, with an annual labor cost of \$915,932. EPA's annual average non-labor costs are \$4.1 million. Non-labor costs are primarily attributed to the cost of sample testing for small PWSs (testing is 91% of non-labor costs).

Exhibit 16 presents per-respondent and per-response burdens and costs over the UCMR 4 ICR period of 2017-2019 (analogous information for the 2017-2021 UCMR 4 implementation period is provided in Exhibit B-5, Appendix B). This exhibit also presents average annual burdens and costs.

Exhibit 16: UCMR 4 Per Respondent Burden and Cost Summary for the ICR Period (2017-2019) (corresponds with Exhibit B-5)

Burden (hours)/ Cost (dollars)	Small PWSs	Large PWSs	Very Large PWSs	States	EPA	National Average with EPA ¹	National Average without EPA
Three-Year Total per Respondent							
Total # of Responses Per Respondent	6.7	11.4	14.1	3.0	n/a	n/a	10.2
Labor Cost Per Respondent	\$508	\$2,051	\$3,757	\$35,366	\$2,747,797	\$2,911	\$2,222

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Burden (hours)/ Cost (dollars)	Small PWSs	Large PWSs	Very Large PWSs	States	EPA	National Average with EPA¹	National Average without EPA
Non-Labor Cost Per Respondent	\$0	\$17,269	\$47,040	\$0	\$12,401,807	\$17,539	\$14,430
<i>Total Cost (Labor plus Non-Labor)</i>	\$508	\$19,320	\$50,797	\$35,366	\$15,149,604	\$20,450	\$16,653
Total Cost Per Response	\$76	\$1,700	\$3,598	\$11,789	n/a	n/a	\$1,636
Total Burden Per Respondent (hr)	18.3	69.7	139.3	732.9	34,320	78.6	70.0
Total Burden Per Response (hr)	2.7	6.1	9.9	244.3	n/a	n/a	6.9
Average Annual per Respondent							
Ave. # of Responses Per Respondent	2.2	3.8	4.7	1.0	n/a	n/a	3.4
Labor Cost Per Respondent	\$169	\$684	\$1,253	\$11,789	\$915,932	\$970	\$741
Non-Labor Cost Per Respondent	\$0	\$5,756	\$15,680	\$0	\$4,133,936	\$5,846	\$4,810
<i>Ave. Cost (Labor plus Non-Labor)</i>	\$169	\$6,440	\$16,933	\$11,789	\$5,049,868	\$6,817	\$5,551
Average Annual per Respondent (cont.)							
Ave. Cost Per Response	\$25	\$567	\$1,199	\$3,930	n/a	n/a	\$545
Ave. Burden Per Respondent (hr)	6.1	23.2	46.4	244.3	11,440.0	26.2	23.3

Burden (hours)/ Cost (dollars)	Small PWSs	Large PWSs	Very Large PWSs	States	EPA	National Average with EPA ¹	National Average without EPA
Ave. Burden Per Response (hr)	0.9	2.0	3.3	81.4	n/a	n/a	2.3

¹ National average burdens and costs differ greatly between the state respondents and the various PWS respondents. This should be taken into consideration when looking at the national average with or without EPA.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain or disclose or provide information to or for a federal agency. This includes the time needed to: review instructions; develop, acquire, install and utilize technology and systems for the purposes of collecting, validating and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

As further described in section 4(b)(ii)), the total burden hours for the three ICR years by activity type includes:

- 43,429.3 for PWSs pre-monitoring activities of reading regulations and guidance documents; developing representative sampling point documents;
- 76,528.0 for PWSs sampling;
- 70,053.3, for PWSs reporting and recordkeeping activities; and,
- 41,042.9 for state activities including preparing guidance documents, working with systems, and implementing the UCMR program.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

To comment on EPA’s need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA established a public docket for this ICR. Docket ID Number EPA-HQ-OW-2015-0218, is available for public viewing at the Water Docket in the EPA Docket Center (EPA/DC), EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC. This EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for this Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426. An electronic version of the public docket is available at www.regulations.gov. This site can be used to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. When in the system, select “search,” then key in the Docket ID Number identified above. Also, you can send

comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, D.C. 20503, Attention: Desk Officer for EPA. Please include the EPA Docket ID Number EPA-HQ- OW-2015-0218 and OMB Control Number 2040-0270 in any correspondence.

– PART B OF THE SUPPORTING STATEMENT –

1 SURVEY OBJECTIVES, KEY VARIABLES, AND OTHER PRELIMINARIES

1(a) Survey Objectives

The primary objective of the statistical methods applied in this information collection is for EPA to identify and select a sample of PWSs that is representative of PWSs nationwide. The selected sample of PWSs monitors for contaminants identified by the UCMR rule. The representativeness of this sample of PWSs is critical to the UCMR program because the drinking water contaminant occurrence data collected by the PWSs is used to: estimate national occurrence and exposure; establish a baseline for health effects and economic analyses; and provide information for regulatory determinations and, as appropriate, regulatory development.

1(b) Key Variables

Key variables associated with selecting a nationally representative sample of PWSs include: PWS size, source water type and geographical location.

1(c) Statistical Approach

Section 1445(a)(2) of SDWA (as amended in 1996) requires that the UCMR program include only a representative sample of PWSs serving 10,000 or fewer people. In addition to satisfying statutory requirements, selection of a sample of PWSs for participation in UCMR allows for significant national costs savings, as compared to monitoring by all PWSs. To estimate national occurrence and exposure, the primary UCMR program objective, the representative sample of PWSs must allow EPA to collect high quality data about contaminant occurrence.

1(d) Feasibility

EPA anticipates that the survey (the statistical sample) objectives are achievable given the existing time and resource constraints.

- High PWS response/participation rates (>95%) during UCMR 1, UCMR 2, and UCMR 3) give EPA confidence that equivalent or better participation rates can be achieved during UCMR 4.

- The statistical approach to this data collection requires only a fraction of small PWSs to conduct monitoring, resulting in much smaller cost and burden at the national level than would be incurred if all PWSs monitored. Small PWSs that are selected for UCMR 4 monitoring incur only a few hours of labor burden. EPA pays for all laboratory fees and shipping costs related to small PWS testing.
- The survey results will support future CCLs and regulatory determinations.

2 SURVEY DESIGN

2(a) Target Population and Coverage

PWSs are the target population for UCMR monitoring. All PWSs that serve more than 10,000 retail customers are subject to the Assessment Monitoring component of UCMR 4 monitoring. Eligible small PWSs (serving 10,000 or fewer people) are only required to conduct UCMR 4 monitoring if they are part of the statistical selection for Assessment Monitoring or the Screening Survey, or if they have been selected to monitor for Pre-Screen Testing. UCMR 4 does not include a Screening Survey or Pre-Screen Testing. Small PWSs are only selected to monitor for one component of UCMR 4 List 1 Assessment Monitoring (i.e., the 10 cyanotoxins or the 20 additional contaminants).

2(b) Sample Design

2(b)(i) Sampling Frame

EPA developed the sample frame for the statistical selection of UCMR PWSs, including the system PWSID, name, source water category, and population-served data for each UCMR-eligible PWS. Initial data were pulled from EPA's Safe Drinking Water Information System (SDWIS/FED) inventory database and were adjusted to account for known anomalies in population and inventory reporting (for example, how wholesalers report their population data).

2(b)(ii) Sample Size

UCMR 4 monitoring will include Assessment Monitoring conducted by all PWSs serving more than 10,000 people ("large" and "very large" PWSs), and Assessment Monitoring conducted by 1,600 representative PWSs serving 10,000 or fewer people ("small" PWSs). 800 small SW and GWUDI PWSs will monitor for 10 cyanotoxins. A different group of 800 small PWSs (SW, GWUDI, and GW PWSs) will monitor for the 20 additional contaminants, although within this group, approximately 652 PWSs will monitor for the HAAs group.

2(b)(iii) Stratification Variables

In developing the representative sample, EPA considers factors such as population served, water source and geographic location. The sample of PWSs is stratified by population served (PWS size), allocating samples proportionately to each state by PWS size and then by water source type. Other provisions, presented below, ensure broad geographic coverage.

2(b)(iv) Sampling Method

To satisfy the specifications of SDWA section 1445(a)(2)(A), the representative sample of PWSs accounts for different PWS sizes, sources of water supply and geographic location (e.g., states). The sample is expected to be stratified by water source type (i.e., GW or SW and GWUDI) and by PWS size category (i.e., serves 25 to 500 people, 501 to 3,300 people, etc.). This stratification allows EPA to account for different exposure risks of contaminant occurrence that could be related to the vulnerability differences between SW and GW sources and differing technical, management, and/or financial capacity that can vary across PWS sizes.

With contaminant exposure assessment as a primary goal, PWSs are expected to be selected in proportion to the population served. This population-weighted allocation leads to statistically valid estimates of national exposure. To ensure the sample provides equity across states for involvement in the UCMR, EPA expects to include at least two PWSs from each state. This additional PWS selection requirement provides allocation across all the states and territories to account for differences in spatial vulnerability and contaminant occurrence, and to ensure equity in participation. Small tribal PWSs across the EPA Regions are expected to be grouped into a single category (equivalent to a “state”) for the representative sample.

2(b)(v) Multi-Stage Sampling

Because PWS status can change over time, EPA also expects to select “alternate” PWSs that fit the size/source water strata of the originally selected PWS. Through an interactive review process with the states, PWSs that no longer meet eligibility criteria (for example, if they are in a different size category than when originally selected, have become inactive, or do not have a retail customer base) will be replaced by an alternate PWS that meets the stratification criteria.

2(c) Precision Requirements

2(c)(i) Precision Targets

The representative sample of PWSs must be selected so that the data collected yield accurate and precise estimates of national contaminant occurrence (the fraction of PWSs at which a contaminant occurs) and exposure (the fraction of people exposed to a contaminant). For estimates of exposure fractions, EPA specified a margin of error of $\pm 1\%$ with 99% confidence, when the estimated exposure fraction is 1%. That is, if the estimated exposure fraction is 1%, EPA will be able to state with 99% confidence that the true exposure fraction is between 0% and 2%. Because there are uncertainties and sources of variation in this and other such sampling programs, statistical sampling theory used to derive levels of accuracy and precision may not account for all of these sources of variation. Hence, the high confidence level, low allowable error, and consequent large sample size should help ensure adequate data to meet the objectives of the UCMR program.

2(c)(ii) Non-sampling error

For those PWSs selected to conduct UCMR monitoring, response is a requirement. As with any regulation, some non-compliance can be expected. However, high compliance levels (>95%) during prior UCMR monitoring (attributable to extensive outreach and compliance assistance) give EPA confidence that the same or better compliance levels can be achieved during UCMR 4. EPA plans to continue outreach and compliance assistance efforts as needed.

2(d) Questionnaire Design

No questionnaires are anticipated for UCMR 4. Analytical results for contaminant occurrence are expected to be reported directly by the laboratories to EPA's electronic reporting system.

3 PRETESTS AND PILOT TESTS

For UCMR 4, EPA expects to apply the same basic statistical methods that were used to select the UCMR 1, 2 and 3 national representative samples of small PWSs. Following sample adjustments made through communications with states, >99% of the final sample of small PWSs (and >95% of large PWSs) completed their required monitoring and reporting.

4 COLLECTION METHODS AND FOLLOW-UP

4(a) Collection Methods

Large PWSs are required to submit their data (posted to EPA's electronic data reporting system by their laboratories) to EPA. Small PWSs work directly with an EPA-appointed UCMR Sampling Coordinator, and monitoring data from the small PWSs are submitted directly to EPA's electronic reporting system by the laboratories conducting the analyses.

4(b) Survey Response and Follow-up

High compliance levels (>95%) during prior UCMRs give EPA confidence that equivalent or better levels can be achieved during UCMR 4. EPA continues outreach and compliance assistance efforts as needed. Each small PWS works with a UCMR Sampling Coordinator, and has minimal reporting requirements and one-on-one compliance assistance.

Lessons learned during UCMR 1, 2 and 3 helped refine UCMR 4 requirements. UCMR 4:

- Has an increased sample frequency for cyanotoxins, and uses a phased sample-analysis for microcystins.
- Revises sampling locations.
- Compresses the monitoring schedule for cyanotoxins by eliminating sampling during December-February.
- Updates, revises, adds and removes data elements to account for the contaminants in UCMR 4, and requires the reporting of QC data by all laboratories.

In UCMR 3, EPA established a requirement that PWSs report contact information and zip codes for customers they serve. In UCMR 4, EPA continues the requirement. Zip code reporting specifications appear in 40 CFR 141.35(c)(1) and (d)(1) for large and small PWSs, respectively. Zip codes are collected for each PWS's service area, as collected under UCMR 3, to support, among other things, an assessment of whether or not minority, low-income and/or indigenous-population communities are uniquely impacted by particular drinking water contaminants.

5 ANALYZING AND REPORTING SURVEY RESULTS

5(a) Data Preparation

After laboratories post UCMR 4 monitoring results and required data elements to EPA's electronic reporting system, EPA allows time for QC review by the PWSs, states, and the Agency before placing the data in the NCOD for public access.

Data problems may occur, but EPA takes the following efforts to reduce problems and increase the dependability and quality of the occurrence data. The UCMR electronic data reporting system and EPA QA/QC assessments screen for the use of inappropriate measurement units and other improper data. Additional automated QC functions are already in place to identify possible data quality issues such as duplicate data submissions and incomplete data. All Assessment Monitoring samples are collected by trained PWS staff and analytical results are generated by laboratories that are approved for UCMR 4 drinking water analysis. Electronic data submission also avoids potential re-keying errors. As part of the data QA/QC procedures, all edits or changes made to the data are documented.

5(b) Analysis

For UCMR 1, 2 and 3, EPA developed a two-stage analytical approach for the evaluation of the national occurrence of contaminants. EPA will use the same two-tier approach to analyze the data for UCMR 4.

The first stage of analysis, Stage 1, provides a straightforward evaluation of occurrence for simple and conservative assessments of contaminant occurrence. The Stage 1 analysis of the UCMR data consists of non-parametric, unweighted counts and simple descriptive statistics of analytical results for each of the contaminants. These occurrence analyses are conducted at the sample level, PWS level and population-served level. For each contaminant, occurrence measures include the number and percent of samples with analytical detections and the minimum, median, maximum, and 99th percentile values of those detections. PWS-level occurrence measures include the number and percent of PWSs with one or more analytical detections and the number and percent of PWSs with two or more analytical detections of a given contaminant. Population-served occurrence measures include: the number and percent of population served by PWSs with one or more analytical detections, and the number and percent of population served by PWSs with two or more analytical detections of a given contaminant. Similar measures may also be conducted for each EPTDS for each PWS. Since these contaminant and PWS- level occurrence measures are based on raw occurrence data (that have not been adjusted for population-weighting and sampling), they are less accurate representations of national occurrence than occurrence measures based on adjusted occurrence data.

Based on the findings of the Stage 1 analysis, EPA can select contaminant(s) for which more detailed and sophisticated statistical evaluations – the Stage 2 analysis – may be warranted as a next step to generate national probability estimates of contaminant occurrence and exposure. Specifically, the modeling and estimation of PWS mean contaminant concentrations may be desired. The Stage 2 analysis uses a Bayesian-based hierarchical model to estimate the percent (and number) of PWSs with a mean contaminant concentration above any specified concentration threshold. The Bayesian-based Hierarchical Model also provides quantified error of estimation, and enables estimates of mean contaminant concentrations below the MRL. This statistical model was used to generate the contaminant occurrence estimates for 60 regulated contaminants for the first Six-Year Review of NPDWRs, an approach that underwent peer review.

5(c) Reporting Results

After final review and formatting the data collected through this ICR, the data are expected to be made available to the public through the NCOD, as was done with the data collected for UCMR 1, 2 and 3. The analytical results from UCMR 4 monitoring will support regulatory determinations and, as appropriate, regulation development. For contaminants with significant occurrence and health effects, EPA expects to use the results: to support an exposure assessment; to establish the baseline for health effects and economic analyses; to analyze contaminant co-occurrence; and to evaluate treatment technology, including contaminant source management. Further, the results may suggest that the occurrence of certain contaminants may be significant enough to initiate research on health effects and treatment technology. Finally, the data may guide future source water protection efforts.

APPENDICES

APPENDIX A: Relevant Authorities in SDWA 1996 Amendments

Section 1412(b)(1) Identification of contaminants for listing:

(A) General authority – The Administrator shall, in accordance with the procedures established by this subsection, publish a maximum contaminant level goal and promulgate a national primary drinking water regulation for a contaminant (other than a contaminant referred to in paragraph (2) for which a national primary drinking water regulation has been promulgated as of the date of enactment of the Safe Drinking Water Act Amendments of 1996) if the Administrator determines that

- (i) the contaminant may have an adverse effect on the health of persons;
- (ii) the contaminant is known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern; and
- (iii) in the sole judgment of the Administrator, regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems.

(B) Regulation of unregulated contaminants–

(i) Listing of contaminants for consideration–

(I) Not later than 18 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996 and every 5 years thereafter, the Administrator, after consultation with the scientific community, including the Science Advisory Board, after notice and opportunity for public comment, and after considering the occurrence data base established under section 1445(g), shall publish a list of contaminants which, at the time of publication, are not subject to any proposed or promulgated national primary drinking water regulation, which are known or anticipated to occur in public water systems, and which may require regulation under this title.

(II) The unregulated contaminants considered under subclause (i) shall include, but not be limited to, substances referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and substances registered as pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act.

(III) The Administrator's decision whether or not to select an unregulated contaminant for a list under this clause shall not be subject to judicial review.

(ii) Determination to regulate–

(I) Not later than 5 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, and every 5 years thereafter, the Administrator shall, after notice of the preliminary determination and opportunity for public comment, for not fewer than 5 contaminants included on the list published under clause (i), make determinations of whether or not to regulate such contaminants.

(II) A determination to regulate a contaminant shall be based on findings that the criteria of clauses (i), (ii), and (iii) of subparagraph (A) are satisfied. Such findings shall be based on the best available public health information, including the occurrence data base established under section 1445(g).

(III) The Administrator may make a determination to regulate a contaminant that does not appear on a list under clause (i) if the determination to regulate is made pursuant to subclause (II).

(IV) A determination under this clause not to regulate a contaminant shall be considered final Agency action and subject to judicial review.

(iii) Review – Each document setting forth the determination for a contaminant under clause (ii) shall be available for public comment at such time as the determination is published.

(C) Priorities – In selecting unregulated contaminants for consideration under subparagraph (B), the Administrator shall select contaminants that present the greatest public health concern. The Administrator, in making such selection, shall take into consideration, among other factors of public health concern, the effect of such contaminants upon subgroups that comprise a meaningful portion of the general population (such as infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations) that are identifiable as being at greater risk of adverse health effects due to exposure to contaminants in drinking water than the general population.

(D) Urgent threats to public health – The Administrator may promulgate an interim national primary drinking water regulation for a contaminant without making a determination for the contaminant under paragraph (4)(C), or completing the analysis under paragraph (3)(C), to address an urgent threat to public health as determined by the Administrator after consultation with and written response to any comments provided by the Secretary of Health and Human Services, acting through the director of the Centers for Disease Control and Prevention or the director of the National Institutes of Health. A determination for any contaminant in accordance with paragraph (4)(C) subject to an interim regulation under this subparagraph shall be issued, and a completed analysis meeting the requirements of paragraph (3)(C) shall be published, not later than 3 years after the date on which the regulation is promulgated and the regulation shall be repromulgated, or revised if appropriate, not later than 5 years after that date.

(E) Regulation – For each contaminant that the Administrator determines to regulate under subparagraph (B), the Administrator shall publish maximum contaminant level goals and promulgate, by rule, national primary drinking water regulations under this subsection. The Administrator shall propose the maximum contaminant level goal and national primary drinking water regulation for a contaminant not later than 24 months after the determination to regulate under subparagraph (B), and may publish such proposed regulation concurrent with the determination to regulate. The Administrator shall publish a maximum contaminant level goal and promulgate a national primary drinking water regulation within 18 months after the proposal thereof. The Administrator, by notice in the FR, may extend the deadline for such promulgation for up to 9 months.

(F) Health advisories and other actions – The Administrator may publish health advisories (which are not regulations) or take other appropriate actions for contaminants not subject to any national primary drinking water regulation.

Section 1412(b)(4) Goals and standards:

(A) Maximum contaminant level goals – Each maximum contaminant level goal established under this subsection shall be set at the level at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety.

(B) Maximum contaminant levels – Except as provided in paragraphs (5) and (6), each national primary drinking water regulation for a contaminant for which a maximum contaminant level goal is established under this subsection shall specify a maximum contaminant level for such contaminant which is as close to the maximum contaminant level goal as is feasible.

(C) Determination – At the time the Administrator proposes a national primary drinking water regulation under this paragraph, the Administrator shall publish a determination as to whether the benefits of the maximum contaminant level justify, or do not justify, the costs based on the analysis conducted under paragraph (3)(C).

(D) Definition of feasible – For the purposes of this subsection, the term “feasible” means feasible with the use of the best technology, treatment techniques and other means which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purpose of this paragraph, granular activated carbon is feasible for the control of synthetic organic chemicals, and any technology, treatment technique, or other means found to be the best available for the control of synthetic organic chemicals must be at least as effective in controlling synthetic organic chemicals as granular activated carbon.

(E) Feasible technologies

(i) In general – Each national primary drinking water regulation which establishes a maximum contaminant level shall list the technology, treatment techniques, and other means which the Administrator finds to be feasible for purposes of meeting such maximum contaminant level, but a regulation under this subsection shall not require that any specified technology, treatment technique, or other means be used for purposes of meeting such maximum contaminant level.

(ii) List of technologies for small systems – The Administrator shall include in the list any technology, treatment technique, or other means that is affordable, as determined by the Administrator in consultation with the States, for small public water systems serving

(I) a population of 10,000 or fewer but more than 3,300;

(II) a population of 3,300 or fewer but more than 500; and

(III) a population of 500 or fewer but more than 25;

and that achieves compliance with the maximum contaminant level or treatment technique, including packaged or modular systems and point- of-entry or point-of-use treatment units. Point- of-entry and point-of-use treatment units shall be owned, controlled and maintained by the public water system or by a person under contract with the public water system to ensure proper operation and

maintenance and compliance with the maximum contaminant level or treatment technique and equipped with mechanical warnings to ensure that customers are automatically notified of operational problems. The Administrator shall not include in the list any point-of-use treatment technology, treatment technique, or other means to achieve compliance with a maximum contaminant level or treatment technique requirement for a microbial contaminant (or an indicator of a microbial contaminant). If the American National Standards Institute has issued product standards applicable to a specific type of point-of-entry or point-of-use treatment unit, individual units of that type shall not be accepted for compliance with a maximum contaminant level or treatment technique requirement unless they are independently certified in accordance with such standards. In listing any technology, treatment technique, or other means pursuant to this clause, the Administrator shall consider the quality of the source water to be treated.

(iii) List of technologies that achieve compliance – Except as provided in clause (v), not later than 2 years after the date of enactment of this clause and after consultation with the States, the Administrator shall issue a list of technologies that achieve compliance with the maximum contaminant level or treatment technique for each category of public water systems described in subclauses (I), (II), and (III) of clause (ii) for each national primary drinking water regulation promulgated prior to the date of enactment of this paragraph.

(iv) Additional technologies – The Administrator may, at any time after a national primary drinking water regulation has been promulgated, supplement the list of technologies describing additional or new or innovative treatment technologies that meet the requirements of this paragraph for categories of small public water systems described in subclauses (I), (II), and (III) of clause (ii) that are subject to the regulation.

(v) Technologies that meet surface water treatment rule – Within one year after the date of enactment of this clause, the Administrator shall list technologies that meet the Surface Water Treatment Rule for each category of public water systems described in subclauses (I), (II), and (III) of clause (ii).

Section 1445(a) Provision of Information to Administrator; Monitoring Program for Unregulated Contaminants

(1)(A) Every person who is subject to any requirement of this title or who is a grantee, shall establish and maintain such records, make such reports, conduct such monitoring, and provide such information as the Administrator may reasonably require by regulation to assist the Administrator in establishing regulations under this title, in determining whether such person has acted or is acting in compliance with this title, in administering any program of financial assistance under this title, in evaluating the health risks of unregulated contaminants, or in advising the public of such risks. In requiring a public water system to monitor under this subsection, the Administrator may take into consideration the system size and the contaminants likely to be found in the system's drinking water.

(B) Every person who is subject to a national primary drinking water regulation under section 1412 shall provide such information as the Administrator may reasonably require,

after consultation with the State in which such person is located if such State has primary enforcement responsibility for public water systems, on a case-by-case basis, to determine whether such person has acted or is acting in compliance with this title.

(C) Every person who is subject to a national primary drinking water regulation under section 1412 shall provide such information as the Administrator may reasonably require to assist the Administrator in establishing regulations under section 1412 of this title, after consultation with States and suppliers of water. The Administrator may not require under this subparagraph the installation of treatment equipment or process changes, the testing of treatment technology, or the analysis or processing of monitoring samples, except where the Administrator provides the funding for such activities. Before exercising this authority, the Administrator shall first seek to obtain the information by voluntary submission.

(D) The Administrator shall not later than 2 years after the date of enactment of this subparagraph, after consultation with public health experts, representatives of the general public, and officials of State and local governments, review the monitoring requirements for not fewer than 12 contaminants identified by the Administrator, and promulgate any necessary modifications.

(2) Monitoring Program for Unregulated Contaminants

(A) Establishment – The Administrator shall promulgate regulations establishing the criteria for a monitoring program for unregulated contaminants. The regulations shall require monitoring of drinking water supplied by public water systems and shall vary the frequency and schedule for monitoring requirements for systems based on the number of persons served by the system, the source of supply, and the contaminants likely to be found, ensuring that only a representative sample of systems serving 10,000 persons or fewer are required to monitor.

(B) Monitoring Program for Certain Unregulated Contaminants

(i) Initial List – Not later than 3 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996 and every 5 years thereafter, the Administrator shall issue a list pursuant to subparagraph (A) of not more than 30 unregulated contaminants to be monitored by public water systems and to be included in the national drinking water occurrence data base maintained pursuant to subsection (g).

(ii) Governors' Petition – The Administrator shall include among the list of contaminants for which monitoring is required under this paragraph each contaminant recommended in a petition signed by the Governor of each of 7 or more States, unless the Administrator determines that the action would prevent the listing of other contaminants of a higher public health concern.

(C) Monitoring Plan for Small and Medium Systems

(i) In General – Based on the regulations promulgated by the Administrator, each State may develop a representative monitoring plan to assess the occurrence of unregulated contaminants in public water systems that serve a population of 10,000 or fewer in that State. The plan shall require monitoring for systems representative of different sizes, types, and geographic locations in the State.

(ii) Grants for Small System Costs – From funds reserved under section 1452(o) or appropriated under subparagraph (H), the Administrator shall pay the reasonable cost of such testing and laboratory analysis as are necessary to carry out monitoring under the plan.

(D) Monitoring Results – Each public water system that conducts monitoring of unregulated contaminants pursuant to this paragraph shall provide the results of the monitoring to the primary enforcement authority for the system.

(E) Notification – Notification of the availability of the results of monitoring programs required under paragraph (2)(A) shall be given to the persons served by the system.

(F) Waiver of Monitoring Requirement – The Administrator shall waive the requirement for monitoring for a contaminant under this paragraph in a State, if the State demonstrates that the criteria for listing the contaminant do not apply in that State.

(G) Analytical Methods – The State may use screening methods approved by the Administrator under subsection (i) in lieu of monitoring for particular contaminants under this paragraph.

(H) Authorization of Appropriations – There are authorized to be appropriated to carry out this paragraph \$10,000,000 for each of the fiscal years 1997 through 2003.

1445(g) Occurrence Data Base

(1) In General – Not later than 3 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, the Administrator shall assemble and maintain a national drinking water contaminant occurrence data base, using information on the occurrence of both regulated and unregulated contaminants in public water systems obtained under subsection (a)(1)(A) or subsection (a)(2) and reliable information from other public and private sources.

(2) Public Input – In establishing the occurrence data base, the Administrator shall solicit recommendations from the Science Advisory Board, the States, and other interested parties concerning the development and maintenance of a national drinking water contaminant occurrence data base, including such issues as the structure and design of the data base, data input parameters and requirements, and the use and interpretation of data.

(3) Use – The data shall be used by the Administrator in making determinations under section 1412(b)(1) with respect to the occurrence of a contaminant in drinking water at a level of public health concern.

(4) Public Recommendations – The Administrator shall periodically solicit recommendations from the appropriate officials of the National Academy of Sciences and the States, and any person may submit recommendations to the Administrator, with respect to contaminants that should be included in the national drinking water contaminant occurrence data base, including recommendations with respect to additional unregulated contaminants that should be listed under subsection (a)(2). Any recommendation submitted under this clause shall be accompanied by reasonable documentation that–

(A) the contaminant occurs or is likely to occur in drinking water; and

(B) the contaminant poses a risk to public health.

(5) Public Availability – The information from the data base shall be available to the public in readily accessible form.

(6) Regulated Contaminants – With respect to each contaminant for which a national primary drinking water regulation has been established, the data base shall include information on the detection of the contaminant at a quantifiable level in public water systems (including detection of the contaminant at levels not constituting a violation of the maximum contaminant level for the contaminant).

(7) Unregulated Contaminants – With respect to contaminants for which a national primary drinking water regulation has not been established, the data base shall include

(A) monitoring information collected by public water systems that serve a population of more than 10,000, as required by the Administrator under subsection (a);

(B) monitoring information collected from a representative sampling of public water systems that serve a population of 10,000 or fewer; and

(C) other reliable and appropriate monitoring information on the occurrence of the contaminants in public water systems that is available to the Administrator.

1445(i) Screening Methods

The Administrator shall review new analytical methods to screen for regulated contaminants and may approve such methods as are more accurate or cost-effective than established reference methods for use in compliance monitoring.

[42 U.S.C. 300j-4]

APPENDIX B: Burden and Cost Exhibits for the Five-Year UCMR 4 Period of 2017-2021

Exhibit B-1a: Yearly Cost to Systems, by PWS Size and by Type of Cost (2017-2021) (corresponds with Exhibit 11a)

Cost Description	2017	2018	2019	2020	2021	Total ¹
SMALL PWSs (serving 10,000 or fewer people)						
<i>Labor Costs</i>						
Reading and Initial Reporting	\$0	\$57,874	\$57,874	\$57,874	\$0	\$173,621
Monitoring	\$0	\$148,542	\$148,542	\$148,542	\$0	\$445,627
Reporting of Results	\$0	\$64,433	\$64,433	\$64,433	\$0	\$193,298
<i>Non-Labor Costs (Laboratory Analysis and Shipping (paid for by EPA))</i>						
	\$0	\$0	\$0	\$0	\$0	\$0.00
Subtotal – Small PWSs	\$0	\$270,848	\$270,848	\$270,848	\$0	\$812,545
LARGE PWSs (serving 10,001 to 100,000 people)						
<i>Labor Costs</i>						
Reading and Initial Reporting	\$0	\$655,780	\$655,780	\$655,780	\$0.00	\$1,967,338.71
Monitoring	\$0	\$936,046	\$936,046	\$936,046	\$0.00	\$2,808,137
Reporting of Results	\$0	\$1,064,005	\$1,064,005	\$1,064,005	\$0.00	\$3,192,015
<i>Non-Labor Costs (Laboratory Analysis and Shipping)</i>						
	\$0	\$22,363,605	\$22,363,605	\$22,363,605	\$0.00	\$67,090,816
Subtotal – Large PWSs	\$0	\$25,019,436	\$25,019,436	\$25,019,436	\$0.00	\$75,058,307
VERY LARGE PWSs (serving greater than 100,000 people)						
<i>Labor Costs</i>						
Reading and Initial Reporting	\$0	\$71,787	\$71,787	\$71,787	\$0	\$215,362
Monitoring	\$0	\$299,458	\$299,458	\$299,458	\$0	\$898,374
Reporting of Results	\$0	\$138,511	\$138,511	\$138,511	\$0	\$415,532
<i>Non-Labor Costs (Laboratory Analysis and Shipping)</i>						
	\$0	\$6,381,726	\$6,381,726	\$6,381,726	\$0	\$19,145,179
Subtotal – Very Large PWSs	\$0	\$6,891,482	\$6,891,482	\$6,891,482	\$0	\$20,674,447
ALL PWSs						
Total Labor for All PWSs	\$0	\$3,436,434.7	\$3,436,434.7	\$3,436,434.7	\$0	\$10,309,304
Total Non-Labor for All PWSs	\$0	\$28,745,332	\$28,745,332	\$28,745,332	\$0	\$86,235,996
Total Labor and Non-Labor for All PWSs	\$0	\$32,181,767	\$32,181,767	\$32,181,767	\$0	\$96,545,300

¹ Totals may not equal the sum of components due to rounding.

Exhibit B-1b: Per System (Respondent) and Per Response UCMR 4 Costs (2017-2021)
(corresponds with Exhibit 11b)

Burden / Cost	Total over 2017-2021			Annual Average over 2017-2021		
	Small PWSs	Large PWSs	Very Large PWSs	Small PWSs	Large PWSs	Very Large PWSs
PER RESPONDENT:						
Labor Cost	\$508	\$2,051	\$3,747	\$102	\$410	\$751
Non-Labor Cost	\$0	\$17,269	\$47,040	\$0.0	\$3,454	\$9,408
Burden (labor hours)	14.0	56.7	104.0	2.8	11.3	20.8
PER RESPONSE:						
Number Responses per Respondent	6.7	11.4	14.11	1.3	2.3	2.8
Labor Cost per Response	\$76	\$180	\$266	\$15	\$36	\$53
Non-Labor Cost per Response	\$0	\$1,521	\$3,333	\$0	\$304	\$667
Burden (labor hours) per Response	2.1	5.0	7.4	0.4	1.0	1.5

Exhibit B-2a: Yearly Cost and Burden to States for Implementation of UCMR 4 (2017-2021)¹
(corresponds with Exhibit 13a)

Cost/ Burden	2017	2018	2019	2020	2021	Total ²	Annual Average
Costs to All states for labor related to UCMR implementation and oversight							
	\$891,086	\$544,716	\$544,716	\$544,716	\$33,374	\$2,558,609	\$511,722
Labor burden for all states for UCMR implementation and oversight (number of hours)							
	18,466.2	11,288.3	11,288.3	11,288.3	691.6	53,022.8	10,604.6

¹ All costs are attributed to labor and are estimated over the period 2017-2021.

² Totals may not equal sum of components due to rounding.

Exhibit B-2b: Per State (Respondent) and Per Response UCMR 4 Costs (2017-2021)
(corresponds with Exhibit 13b)

Burden / Cost	Total over 2017-2021	Annual Average over 2017-2021
PER RESPONDENT:		
Labor Cost	\$45,689	\$9,138
Non-Labor Cost	\$0	\$0.00
Burden (labor hours)	946.8	189.4
PER RESPONSE:		
Number Responses per Respondent ¹	3.0	1.00
Labor Cost per Response	\$9,139	\$3,046
Non-Labor Cost per Response	\$0	\$0
Burden (labor hours) per Response	189.4	63.1

¹ States have 1 response per year, since there are no specific cyclical state reporting requirements under the UCMR program.

Exhibit B-3a: Yearly Cost to EPA for UCMR 4 Implementation, by Type of Cost (2017-2021)¹
(corresponds with Exhibit 14a)

Cost Description	2017	2018	2019	2020	2021	Total ²	Annual Average Cost
Regulatory Support Activities: laboratory PT; QC audits; analytical standards provision; and technical support, guidance document development							
Lab PT	\$238,811	\$0.00	\$0.00	\$0	\$0	\$238,811	\$47,762
QC Audits	\$18,627	\$37,255	\$37,255	\$18,627	\$0	\$111,764	\$22,353
Analytical Standards	\$119,405	\$245,975	\$253,354	\$260,955	\$0	\$879,689	\$175,938
Technical Support	\$119,405	\$61,494	\$0	\$0	\$0	\$180,899	\$36,180
Subtotal – Regulatory Support	\$496,248	\$344,724	\$290,609	\$279,582	\$0	\$1,411,162	\$282,232
National and Regional Oversight and Data Analysis: UCMR management oversight; review and evaluation of data from all UCMR monitoring							
	\$915,932	\$915,932	\$915,932	\$915,932	\$457,966	\$4,121,695	\$824,339
Small PWS Testing: implementation coordination; and analytical and shipping costs for small PWS testing							
Implementation Coordination	\$0	\$2,252,279	\$2,252,279	\$2,252,279	\$0	\$6,756,837	\$1,351,367
Fees for Analysis and shipping	\$0	\$3,382,834	\$3,382,834	\$3,382,834	\$0	\$10,148,503	\$2,029,701
Subtotal – Small PWS Testing	\$0	\$5,635,113	\$5,635,113	\$5,635,113	\$0	\$16,905,340	\$3,381,068
TOTAL	\$1,412,180	\$6,895,770	\$6,841,654	\$6,830,628	\$457,966	\$22,438,197	\$4,487,639

¹ Agency costs are estimated over the period 2017-2021.

² Totals may not equal sum of components due to rounding.

Exhibit B-3b: Summary of EPA Burdens and Costs for UCMR 4 Implementation (2017-2021) (corresponds with Exhibit 14b)

Burden / Cost	Annual Average Cost over Five-Year UCMR Period (2017-2021)
Labor Cost	\$824,339
Non-Labor Cost	\$3,663,301
Total Cost to EPA for UCMR Implementation	\$4,487,639
Burden (labor hours)	10,296

Exhibit B-4: National Cost Summary for UCMR 4 Implementation (2017-2021)
 (corresponds with Exhibit 15)

Type of Cost	2017	2018	2019	2020	2021	TOTAL ¹
Small PWSs						
Labor Cost	\$0	\$270,848	\$270,848	\$270,848	\$0	\$812,545
Non-Labor Cost	\$0	\$0	\$0	\$0	\$0	\$0
Total Small PWS Cost	\$0	\$270,848	\$270,848	\$270,848	\$0	\$812,545
Large PWSs						
Labor Cost	\$0	\$2,655,830	\$2,655,830	\$2,655,830	\$0	\$7,967,491
Non-Labor Cost	\$0	\$22,363,605	\$22,363,605	\$22,363,605	\$0	\$67,090,816
Total Large PWS Cost	\$0	\$25,019,436	\$25,019,436	\$25,019,436	\$0	\$75,058,307
Very Large PWSs						
Labor Cost	\$0	\$509,756	\$509,756	\$509,756	\$0	\$1,529,268
Non-Labor Cost	\$0	\$6,381,726	\$6,381,726	\$6,381,726	\$0	\$19,145,179
Total Very Large PWS Cost	\$0	\$6,891,482	\$6,891,482	\$6,891,482	\$0	\$20,674,447
States						
Labor Cost	\$891,086	\$544,716	\$544,716	\$544,716	\$33,374	\$2,558,609
Non-Labor Cost	\$0	\$0	\$0	\$0	\$0	\$0
Total State Cost	\$891,086	\$544,716	\$544,716	\$544,716	\$33,374	\$2,558,609
EPA						
Labor Cost	\$915,932	\$915,932	\$915,932	\$915,932	\$457,966	\$4,121,695
Non-Labor Cost	\$496,248	\$5,979,837	\$5,925,722	\$5,914,695	\$0.00	\$18,316,503
Total EPA Cost	\$1,412,180	\$6,895,770	\$6,841,654	\$6,830,628	\$457,966	\$22,438,197
National Total						
Total with EPA	\$2,303,265	\$39,622,253	\$39,568,137	\$39,557,111	\$491,340	\$121,542,106
Total without EPA	\$891,086	\$32,726,483	\$32,726,483	\$32,726,483	\$33,374	\$99,103,909
Total Burden (hours) for All Responses²						
Small PWSs	0.0	7,4880.0	7,4880.0	7,4880.0	0.0	22,464.0
Large PWSs	0.0	73,424.4	73,424.4	73,424.4	0.0	220,273.1
Very Large PWSs	0.0	14,093.0	14,093.0	14,093.0	0.0	42,278.9
States	18,466.2	11,288.3	11,288.3	11,288.3	691.6	53,022.8
EPA	11,440.0	11,440.0	11,440.0	11,440.0	5,720.0	51,480.0
Total with EPA	29,906.2	117,733.7	117,733.7	117,733.7	6,411.6	241,878.9
Total without EPA	18,466.2	106,293.7	106,293.7	106,293.7	691.6	213,278.9

¹ Totals may not equal the sum of components due to rounding.

² Although EPA is not considered a respondent to the UCMR, Agency burdens are shown here to illustrate the national costs of the program. National totals are shown with and without the Agency costs.

Exhibit B-5: UCMR 4 Per Respondent Burden and Cost Summary (2017-2021)
(corresponds with Exhibit 16)

Burden (hours)/ Cost (dollars)	Small PWSs	Large PWSs	Very Large PWSs	States	EPA	National Average with EPA ¹	National Average without EPA
Five-Year Total per Respondent							
Total # of Responses Per Respondent	6.7	11.4	14.1	5.0	n/a	n/a	10.2
Labor Cost Per Respondent	\$508	\$2,051	\$3,757	\$45,690	\$4,121,695	\$2,856	\$2,163
Non-Labor Cost Per Respondent	n/a	\$17,269	\$47,040	n/a	\$18,316,503	\$17,575	\$14,498
<i>Total Cost (Labor plus Non- Labor)</i>	\$508	\$19,320	\$50,797	\$45,689	\$22,438,197	\$20,431	\$16,662
Total Cost Per Response	\$76	\$1,701	\$3,599	\$9,138	n/a	n/a	\$1,629
Total Burden Per Respondent (hr)	14.0	56.7	103.9	946.8	51,480.0	65.5	56.8
Total Burden Per Response (hr)	2.1	5.0	7.4	189.4	n/a	n/a	5.6
Average Annual per Respondent							
Ave. # of Responses Per Respondent	1.3	2.3	2.8	1.0	n/a	n/a	2.0
Labor Cost Per Respondent	\$102	\$410	\$751	\$9,138	\$824,339	\$571	\$433
Non-Labor Cost Per Respondent	n/a	\$3,454	\$9,407	n/a	\$3,663,301	\$3,515	\$2,900
<i>Ave. Cost (Labor plus Non-Labor)</i>	\$102	\$3,864	\$10,159	\$9,138	\$4,487,639	\$4,086	\$3,332
Ave. Cost Per Response	\$15	\$340	\$720	\$1,828	n/a	n/a	\$326
Ave. Burden Per Respondent (hr)	2.8	11.3	20.8	189.4	10,296.0	13.1	11.4
Ave. Burden Per Response (hr)	0.4	1.0	1.5	37.9	n/a	n/a	1.1

¹ National average burdens and costs differ greatly between the state respondents and the various PWS respondents. This should be taken into consideration when looking at the national average with or without EPA.