Consideration of Other Regulatory Revisions in Support of the Second Six-Year Review of the National Primary Drinking Water Regulations

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List of Acronyms and Abbreviations

AMG	Alternative Monitoring Guidelines
ASDWA	Association of State Drinking Water Administrators
BAT	Best Available Technology
CCR	Consumer Confidence Report
CFR	Code of Federal Regulations
CWS	Community Water System
EPA	United States Environmental Protection Agency
EPTDS	Entry Point to the Distribution System
FR	*Federal Register*
GWUDI	Ground Water under the Direct Influence of Surface Water
HAA5	Haloacetic Acids
LCR	Lead and Copper Rule
LT2ESWTR	Long-Term 2 Enhanced Surface Water Treatment Rule
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
mg/L	Milligrams per Liter
MRL	Method Reporting Limit
NAS	National Academy of Sciences
NPDWR	National Primary Drinking Water Regulation
NTNCWS	Non-transient, Non-community Water System
OCCT	Optimal Corrosion Control Treatment
OECA	Office of Enforcement and Compliance Assurance
OGC	Office of General Counsel
OGWDW	Office of Ground Water and Drinking Water
OPEI	Office of Policy, Economics, and Innovation
PN	Public Notification
POE	Point-of-Entry
POU	Point-of-Use
PQL	Practical Quantitation Limit
PWS	Public Water System
SDWA	Safe Drinking Water Act
SMCL	Secondary Maximum Contaminant
SNC	Significant Non-Complier
TCR	Total Coliform Rule
Stage 2 DBPR	Stage 2 Disinfectant and Disinfection Byproducts Rule
TNCWS	Transient Non-Community Water System
TSC	Technical Support Center
TT	Treatment Technique

UCMR	Unregulated Contaminant Monitoring Regulation
UIC	Underground Injection Control
V&E	Variance and Exemption
VOC	Volatile Organic Compound

1.0 Introduction and Background

1.1 Purpose of the Six-Year Review

Under the Safe Drinking Water Act (SDWA), as amended in 1996, the U.S. Environmental Protection Agency (EPA) must periodically review existing National Primary Drinking Water Regulations (NPDWRs) and, if appropriate, revise them. Section 1412(b)(9) of SDWA states:

> *The Administrator shall, not less often than every 6 years, review and revise, as appropriate, each national primary drinking water regulation promulgated under this title. Any revision of a national primary drinking water regulation shall be promulgated in accordance with this section, except that each revision shall maintain, or provide for greater, protection of the health of persons.*

EPA completed and published the results of its first Six-Year Review (Six-Year Review 1) on July 18, 2003 (68 *Federal Register* [FR] 42908, USEPA, 2003a) after developing a systematic approach, or protocol, for the review of NPDWRs. EPA has applied the same protocol with some refinements to the second Six-Year Review of NPDWRs (Six-Year Review 2) (USEPA, 2009).

To facilitate the regulatory review of a large number of NPDWRs, EPA performs a series of analyses at the beginning of each review cycle, intended to target those NPDWRs that are the most appropriate candidates for revision. During each review cycle, EPA reviews the following key information and/or factors to determine whether regulatory revisions are possible and appropriate: health risk assessments; analytical methods and treatment technology assessments; occurrence and exposure analyses; and other regulatory revisions (such as implementation-related issues).

1.2 Purpose of the Review of "Other Regulatory Revisions"

In addition to the review of the maximum contaminant level goals (MCLGs), maximum contaminant levels (MCLs), and treatment techniques (TTs) components of the NPDWRs, EPA considers whether other regulatory revisions might be needed, such as system monitoring and reporting requirements, as part of Six-Year Review process. For the Six-Year Review 2, EPA utilized the protocol established during Six-Year Review 1 for evaluating which implementation issues to consider (USEPA, 2003b). EPA's protocol focused on items that were not already being addressed, or had not been addressed, through alternative mechanisms (e.g., as a part of a recent or ongoing rulemaking). In addition to this limitation, EPA considered potential implementation-related revisions if they:

1) Represented a potential change to an NPDWR, as defined under section 1401 of SDWA[1];
2) Were "ready" for rulemaking – that is, the problem to be resolved had been clearly defined and specific option(s) had been formulated to address the problem under the current regulatory framework; and
3) Would clearly improve the level of public health protection; and/or provide a meaningful opportunity for cost savings (either monetary or burden reduction) while not lessening public health protection.

[1] The subject of the Six-Year-Review, as specified in section 1412(b)(9) of the SDWA, is "each national primary drinking water regulation," as defined under section 1401 of SDWA.

2.0 Issues Identified by the EPA/State Workgroup

To gather input regarding implementation-related concerns and help the Agency identify the top one or two issues for Six-Year Review 2, EPA requested that the Association of State Drinking Water Administrators (ASDWA) form a workgroup of member States and primacy agencies. In the fall of 2007, ten member States agreed to participate and confer with EPA on a joint EPA/State workgroup (see Appendix A for a list of States and EPA offices that participated in the workgroup). In the initial meeting, EPA asked participating States to work towards identifying their top one or two implementation-related issues and formulate potential solutions that States would be willing to implement and EPA could feasibly address under existing regulatory frameworks. EPA also provided participating States with an overview of the guidelines used for Six-Year Review 1, to help States better understand the scope of the review process.

To compile an initial list of possible issues, the workgroup requested feedback from all States. The feedback from States resulted in a list of 22 possible issues. ASDWA then asked States from the workgroup to rank each of the issues as high, medium, or low priority. Eight of the ten workgroup members responded. Total scores used for ranking the issues were calculated by assigning the following values: high priority - 3 points; medium - 2 points; and, low - 1 point, and then tallying the scores for each issue. The list of all 22 issues identified during the workgroup process is presented in Appendix B; issues are listed in order of highest to lowest priority score, and their actual score totals are provided in the "State/Workgroup Priority Score" column of the table. Concurrent with the ranking process, EPA used the factors listed on page 1 (Section 1.2) to evaluate whether the issues were: (1) best addressed through technical assistance, guidance, or other mechanisms[2], (2) outside the scope of this Six-Year Review[3], or (3) within the scope of the this Six- Year Review and could possibly be addressed by regulatory action. These groupings are reflected in the "Findings" column of Appendix B. Although the primary purpose of the workgroup was to identify the top issues that were within the scope of this NPDWR review, EPA attempted to provide assistance during the workgroup meetings by having Agency experts discuss some of the items that fit within the technical assistance/guidance categories.

Based on issue rankings and determinations of how issues were best addressed, the workgroup narrowed the list of 22 down to 4 issues. Of these four items, three appeared to be within the scope of the Six-Year Review, and EPA agreed that an information or fact sheet might be appropriate for the fourth item, which pertains to the need for clarification of public notification (PN) requirements for fluoride (see Section 3.1 for summary of this "non-Six-Year Review" issue). The EPA/State workgroup agreed that public comment via the FR would provide additional insight on the national scope of these issues (i.e., Are the issues isolated to a few States/systems or more widespread?); the importance of these issues to other States, as well as the public water systems (PWSs); and ideas for potential resolutions. This additional input could further assist in identifying the top one or two issues that should be considered for regulatory revision.

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[2] An example of an item identified by the States that was better addressed through technical assistance is the issue of false positive analytical test results (e.g., for phthalates). EPA addressed this concern with States during the course of the workgroup meetings, offering direct technical assistance from laboratory experts at EPA's Technical Support Center (TSC) in Cincinnati, Ohio, and noting that TSC is a resource for any laboratory with questions regarding methods issues, with contact information available at: http://www.epa.gov/esd/tsc/tsc.htm. EPA provided additional information and technical experts to suggest possible solutions for each of the issues raised by the States (see Appendix B).

[3] An example of an issue that was "outside of the scope of the Six Year Review" was a concern raised related to the Unregulated Contaminant Monitoring Regulation (UCMR). Because the UCMR is not an NPDWR, as defined under section 1401 of SDWA, it was therefore not within the scope of the Six-Year Review.

The following sections of this document provide background and summary information regarding the three issues that were within the scope of an NPDWR review, as well as the fourth item (PN requirements for fluoride) for which EPA is considering some form of information or fact sheet. Potential resolutions discussed by State workgroup members are also summarized. EPA recognizes that some of the potential resolutions suggested by the State workgroup members may need to be better defined prior to any potential revision that the Agency might consider. Issues that fall within the scope of an NPDWR revision for the current review effort include:

- Section 2.1 – Change the location of monitoring for nitrate/nitrite.
- Section 2.2 – Reduce the monitoring frequency for ground water systems with historically low levels of nitrate/nitrite.
- Section 2.3 – Revise the monitoring requirements for non-community water systems in light of the potential health risks associated with chronic contaminants.

2.1 Change the Monitoring Location for Nitrate/Nitrite

Issue Description

States in the workgroup expressed concern that nitrification within the distribution system may be a growing issue[4]. And while the extent or cause has yet to be fully examined, there is some concern that nitrification is occurring in water systems that have adopted chloramines as a disinfection treatment option and potential exceedances above the MCL for nitrate/nitrite may go undetected at the current sampling location[5].

See Appendix B for the original tracking notes on this issue.

Potential Resolution(s) Suggested by State Workgroup Members

To address this concern, the State workgroup members suggested moving the location of the nitrate/nitrite sampling point. This would either be somewhere other than the entry point to the distribution system (EPTDS), or the system could maintain the existing EPTDS sample location and add additional sampling points in the distribution system[6]. The State workgroup members also posed several potential options for the frequency of sampling. First, sampling for nitrate/nitrite could be done on the same schedule for bacteria under the Total Coliform Rule (TCR). Second, the samples for nitrate/nitrite could be taken together with samples for disinfection byproducts under the Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR). Lastly, the sampling

[4] Nitrification is a microbial process by which reduced nitrogen compounds (primarily ammonia) are sequentially oxidized to nitrite and nitrate. See www.epa.gov/safewater/disinfection/tcr/pdfs/whitepaper_tcr_nitrification.pdf for additional information on nitrification.

[5] The health effects technical review identified new information on developmental effects of nitrate and nitrite, as well as data regarding its carcinogenicity, which may indicate the need to update the Agency's risk assessment. In light of this information, EPA is considering nitrate and nitrite as potential candidates for new health effects assessments. If new assessments are initiated, EPA does not expect that they will be completed in the time frame of the current Six-Year Review cycle. When the new assessments are completed EPA will be able to determine the potential impacts on the MCLG, MCL, and/or monitoring requirements, and the most appropriate timing for any potential revisions.

[6] The monitoring framework suggested by the workgroup is consistent with the monitoring requirements for six nitrosamine compounds in the second Unregulated Contaminant Monitoring Regulation for Public Water Systems (UCMR 2) (72 FR 367 (USEPA, 2007)). Under that rule, some PWSs are required to sample both at the entry point to the distribution system and within the distribution system at the point of maximum residence time.

could occur at particular points in the distribution at a frequency to be determined. The Agency indicated that additional data on nitrate/nitrite occurrence within the distribution system would be needed to determine if the issue is State-specific or national in scope. Although Texas provided some monitoring data[7], workgroup members agreed that taking public input on this topic might generate the data needed to better define the scope of the issue.

Although this flexibility was not addressed during workgroup deliberations, EPA notes that 40 CFR 141.23(a)(2) allows surface water systems discretion to locate the sampling point in the distribution system if that is more representative of the source after treatment.[8]

2.2 Reduce the Monitoring Frequency for Ground Water Systems with Historically Low Levels of Nitrate/Nitrite

Issue Description

The workgroup discussed the possibility of monitoring relief for ground water systems with many years of nitrate/nitrite results that were well below the existing MCL. States in the workgroup asserted that because nitrate/nitrite levels do not fluctuate significantly over time in stable ground water sources, reduced monitoring would not decrease public health protection, and would lower monitoring costs for these systems and reduce the State tracking burden. Under the current rule, States cannot issue waivers for nitrate monitoring, and no water system can conduct nitrate monitoring less frequently than annually[9].

EPA published the current NPDWR for nitrate on January 30, 1991 (56 FR 3526 (USEPA, 1991)) (40 CFR 141.62), establishing an MCL of 10.0 milligrams per liter (mg/L), and the requirement that all PWSs must monitor for nitrate at each EPTDS. The federal regulations required nitrate monitoring to begin in 1993 at a quarterly frequency for community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs) with surface water or ground water under the direct influence of surface water (GWUDI) sources, and annually for all other systems including transient non-community waters systems (TNCWSs). If monitoring results identified nitrate occurrence at less than one-half the MCL, CWSs and NTNCWSs with surface water or GWUDI sources could reduce quarterly monitoring to annual monitoring (to occur in the quarter that previously yielded the highest nitrate monitoring result). All other systems were required to remain on annual monitoring.

See Appendix B for the original tracking notes on this issue.

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[7] Subsequent to these initial discussions, the Minnesota Department of Health has also performed studies and gathered some data on nitrification in the distribution system.

[8] 40 CFR 141.23(a)(2) states: Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point) beginning in the initial compliance period. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

[9] Note that the Federal regulation at 40 CFR 141.23(a)(1) and (2), and 141.23(e) provide for more flexibility for reduced nitrite monitoring. Systems were only required to monitor for nitrite once during the initial compliance period, or between 1993 and 1995. Systems with analytical results that are less than one-half the MCL of 1.0 mg/L conduct continued monitoring at a frequency specified by the State. The federal regulations do not require these systems to monitor for nitrite again.

Potential Resolution(s) Suggested by the State Workgroup Members

The workgroup members discussed several regulatory revision options to address these ground water systems that have historically low levels of nitrate/nitrite. The potential options included:

- Revisions to Monitoring Frequency -- The State workgroup members suggested a reduced monitoring frequency of 3, 6, or 9 years. These monitoring schedules are consistent with the reduced monitoring provisions of the existing standard monitoring framework. The States suggested that some other frequency could be established as well, and noted that even a two-year monitoring frequency would help lessen the monitoring burden.
- Monitoring or Trigger Level to Qualify for Reduced Monitoring -- The State workgroup members also discussed options for a new trigger (nitrate concentration) level that would qualify systems to begin this new reduced monitoring schedule. The new trigger level would be some fraction of the MCL (e.g., one-half the MCL), the practical quantitative limit/method detection limit (or some other descriptor of detection), or some other appropriate trigger level.
- Duration of Meeting Trigger Level to Qualify for Reduced Monitoring -- States discussed how long a system would need to meet this trigger level to be allowed to begin reduced monitoring. One proposal was to use a 3-, 6-, or 9-year period consistent with the standard monitoring framework. Another proposal was to use a 5-, 10-, or 15-year option.

State workgroup members also discussed the need for a waiver option that would give States the discretion to allow systems to monitor less. EPA recommended that States consider a non-regulatory option for monitoring relief. States that adopt EPA's Alternative Monitoring Guidelines (AMG) (established in 1997 under section 1418(b) of SDWA) would have the flexibility to reduce nitrate sampling for ground water systems from an annual to a biennial (every other year) requirement. However, to adopt the AMG, States would need to undergo a full rule adoption process, and many States felt that this process was too cumbersome. States expressed that there is some hesitation to adopt AMG because in many cases, adoption of the AMG could also place system sampling out of sync with their standard chemical monitoring schedule. States indicated that they would prefer some type of regulatory revision for these ground water systems instead of using the AMG.

2.3 Revise the Monitoring Requirements for Non-Community Water Systems in Light of the Potential Health Risks Associated With Chronic Contaminants

Issue Description

The workgroup raised two concerns about balancing public health protection, and use of limited financial resources associated with non-community water system monitoring. In the case of NTNCWSs, EPA requires monitoring for contaminants that pose a health risk from chronic exposure (other than radionuclides). The workgroup suggested that some of this monitoring may not reflect the best use of limited resources. In light of the probability and magnitude of health threats, some monitoring requirements for these systems may be insufficient, and others may be excessive. However, the workgroup was also concerned that EPA does not require monitoring for these contaminants at TNCWSs, and that this may pose a potential public health risk. Though some States would have the flexibility to require additional monitoring for TNCWSs, this is not an option

in States with statutes that prohibit them from applying regulations more stringent than those specified by EPA.

See Appendix B for the original tracking notes on this issue.

Potential Resolution(s) Suggested by the State Workgroup Members

The State workgroup members posed three potential options for regulatory revision related to monitoring by non-community water systems. The first option was to revise all contaminant rules to include additional monitoring requirements for TNCWSs, as well as radionuclide monitoring for NTNCWSs. The second option was to review existing regulated contaminants and include TNCWS monitoring requirements based on the relative health risk from chronic exposure. The third option was to develop general language that would apply to all contaminant rules, giving States the discretion to require additional monitoring for contaminants that pose chronic exposure risks and can have acute effects at elevated levels potentially found at TNCWSs. Most States in the workgroup tended to prefer the third option since it offered the most flexibility for States. For some of these options EPA would need to evaluate whether sufficient occurrence and exposure data are available for TNCWSs and NTNCWSs to assess the need for revised monitoring strategies.

3.0 Other Issues

3.1 Public Notification Requirements for Fluoride

The fourth item that was identified by the State workgroup members pertains to the need for clarification of PN requirements for fluoride. Although PN is not within the scope of the Six-Year Review because it is not an NPDWR as defined by SDWA section 1401, EPA agreed this item could be addressed outside the review process, possibly through some form of information or fact sheet to clarify the PN requirements for fluoride.

Currently, PWSs that exceed the fluoride MCL of 4.0 mg/L are required to notify their customers within 30 days of the exceedance. If a PWS exceeds the fluoride Secondary MCL (SMCL) of 2.0 mg/L, they are required to notify their customers within 12 months of the exceedance. The States voiced concerns about (1) the confusion that occurs between the different PN requirements for the MCL and the SMCL, and (2) the timeliness of the PN requirement for the SMCL.

The workgroup indicated that waiting 12 months to notify customers of an exceedance of the SMCL does not adequately protect young children from dental fluorosis during a critical stage of tooth enamel development. The participating States requested that EPA consider regulatory revisions to clarify the PN requirements and better reflect the health and aesthetic implications of each. EPA noted that PN requirements are not within the scope of an NPDWR review though agreed that a fact or information sheet may be useful to clarify any confusion.

The Agency is updating its evaluation of the relative contribution of drinking water to total fluoride exposure considering the contributions from dental products, foods, pesticide residues, and other sources such as ambient air and medications. After the Agency completes and publishes peer reviewed versions of these assessments, it will be able to determine the potential impacts on the MCLG, MCL, and/or the SMCL, and associated PN requirements.

See Appendix B for the original tracking notes on this issue.

References

USEPA. 1991. National Primary Drinking Water Regulations; Synthetic Organic Chemicals and Inorganic Chemicals; Monitoring for Unregulated Contaminants; National Primary Drinking Water Regulation Implementation; National Secondary Drinking Water Regulations; Final Rule. *Federal Register*. Vol. 56, No. 20, p. 3526. January 30, 1991.

USEPA. 2003a. National Primary Drinking Water Regulations; Announcement of Completion of EPA's Review of Existing Drinking Water Standards. *Federal Register*. Vol. 68, No. 138, p. 42908. July 18, 2003.

USEPA. 2003b. *EPA Protocol for Review of Existing National Primary Drinking Water Regulations*. EPA Report 815-R-03-002. Final. June 2003.

USEPA. 2007. Unregulated Contaminant Monitoring Regulation (UCMR) for Public Water Systems Revisions; Final Rule. *Federal Register*. Vol. 72, No. 2, p. 367. January 4, 2007.

USEPA. 2009. *EPA Protocol for the Second Review of Existing National Primary Drinking Water Regulations (Updated)*. EPA Report 815-B-09-002. October 2009.

Appendices

Appendix A: Review of Implementation Issues – States and EPA Offices Participating in the Workgroup

Appendix B: Second Six-Year Review of National Primary Drinking Water Regulations - Summary of Initial List of 22 Issues Identified by Working Group

Appendix C: Summary of the January 18, 2008 Discussion on Issues Use of POU/POE Devices

Appendix A: Review of Implementation Issues – State and EPA Offices Participating in the Workgroup

ASDWA/States	
ASDWA (Liaison to EPA)	Nebraska
Delaware	New Jersey
Idaho	New York
Minnesota	Oregon
Missouri	Texas
North Carolina	
EPA Offices	
Office of Enforcement and Compliance Assurance (OECA)	Office of Ground Water and Drinking Water (OGWDW)
Office of General Counsel (OGC)	Office of Policy, Economics, and Innovation (OPEI)

Appendix B: Second Six-Year Review of National Primary Drinking Water Regulations - Summary of Initial List of 22 Issues Identified by Working Group

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
Monitoring and Reporting Violations	**More clearly distinguish between monitoring and reporting violations so that the actual significance of each type of violation is known:** Under the current violation tracking process, a water system that samples and reports the results a day late looks as bad as a system that does not collect any samples at all. This may have ramifications on the status of systems as Significant Non-Compliers (SNCs). There may be a solution to this issue that does not require a regulatory change.	21	Outside the scope of this review effort; best handled through technical assistance.	

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
Chem/Rad Rules (*Arsenic and Uranium MCLs)*	**States would like assistance in determining cost effective methods for dealing with chem/rad wastes:** The new MCLs for arsenic and uranium are causing problems for some very small systems (e.g., < 50 connections). The problem is not in the treatment, but in the disposal of the treatment waste. This is a significant implementation issue that has never been adequately addressed by EPA.	21	Outside the scope of this review effort; best handled through guidance.	EPA noted during workgroup discussions that many guidance documents/training materials related to treatment/disposal costs have been developed for the arsenic and radionuclides regulations. The following websites link to the various webcasts and/or other sources of information for these rules: www.epa.gov/safewater/dwa/rules.html www.epa.gov//safewater/radionuclides/compliancehelp.html www.epa.gov/safewater/arsenic/compliance.html In a follow up email, EPA provided a weblink (www.npdespermits.com/sparrc/) to a simulation tool entitled "Software Program to Ascertain Radionuclide Residual Concentrations (SPARRC)." This tool can be used to estimate quantities and concentrations of radium and uranium in water treatment plant residuals (for selected treatment technologies using a mass balance approach). In this version, EPA also incorporated a disposal cost estimating tool for a few technologies in SPARRC, and included default unit costs based on national average cost information. EPA has used available case study data to validate the mass balance calculations and compared outputs with another radionuclide mass balance model. The users can estimate quantities and costs for radionuclide-contaminated residuals given user-defined inputs for influent water quality and treatment operation parameters.

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
LT2ESWTR	**Provide regulatory relief for small system cryptosporidium requirements:** Early implementation of 40 CFR 141.701(a)(4)(i) has shown that one sample after months and months of low readings can trigger cryptosporidium monitoring by small systems. Some relief seems appropriate.	20	Outside the scope of this review effort since the NPDWR was just revised and published in 2006; best handled through other mechanisms.	Current Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) offers flexibility. EPA has been collecting data on turbidity, *E. coli*, and cryptosporidium for large water systems; this information may help to evaluate monitoring requirements for small systems.
Lead and Copper Rule *(extend OCCT plan timeframe)*	**Modify the Lead and Copper Rule to extend the optimal corrosion control treatment (OCCT) plan submission time frame to 12 months and then allow 18 months after that to install treatment:** Very few systems have been able to complete the study and submit plans under the existing timeframes.	18	Outside the scope of this review effort since the NPDWR was recently revised and published in 2007.	EPA is currently evaluating issues for the long-term revision effort and this item is best handled by referring it to this effort.
Nitrate-Nitrite monitoring	**Revise current nitrate/nitrite monitoring requirements to more appropriately reflect chloramination considerations:** Many water systems are adopting disinfection with chloramines as a treatment option to reduce levels of disinfection byproducts. Nitrification may be an issue but currently source water monitoring is the only requirement for nitrate and nitrite. A potential health impact could go undetected. One State (Texas) noted that they were developing data on occurrence in distribution systems but does not have these data yet.	18	Within the scope of considering for this review effort; best handled through regulatory revision or clarification.	Regulatory revision may be needed to change the location of the sampling point for monitoring. Guidance could also be considered as part of the solution; would need information/data to better understand the conditions that lead to nitrification. See section 2.1 of this document for further discussion.

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
Non-Community System Monitoring	**Review and revise, as appropriate, monitoring requirements applicable to non-community water systems in light of the potential health risks associated with each:** NTNCWSs monitor for chronic contaminants but TNCWSs do not. There may be instances where NTNCWSs monitor too much, and TNCWSs do not monitor enough (e.g., extremely high levels of a "chronic" contaminant at a TNCWS may pose an acute risk). Appropriate changes could better utilize limited resources and reduce public health risks. In addition, at least one State participant noted that radionuclides need to be monitored at NTNCWSs.	18	Within the scope of considering for this review effort; best handled through regulatory revision.	Regulatory revisions would be needed to change the applicability of monitoring requirements for NTNCWS and/or TNCWS. See section 2.3 of this document for further discussion.
Chem/Rad Rules *(Radionuclide Rule)*	**Some flexibility on monitoring and reporting should be provided to the extent it does not decrease public health protection. The data and information used to support development of the radionuclide MCLs should also be revisited. The MCLs are too stringent compared to the actual risks posed by radionuclides:** Keeping up with quarterly radium testing is very difficult. By the time samples are collected, analyzed, reported, and data are analyzed, it is nearly impossible to report violations to EPA by the required deadline. Additionally, the way the rule is written, all 4 analytes are required to be	17	Outside the scope of this review effort; the radionuclides rule was effective in 2006 and it is not clear that any changes in monitoring and reporting would clearly improve public health protection; best handled through other mechanisms.	Note that EPA correspondence with commercial labs found that counting time for radiums range from 10 to 300 minutes (depending on radium species and sample volume collected). Regarding MCLs, currently there is no new information to indicate that EPA could consider changes to the MCLs (and it would be considered backsliding to make MCLs less stringent since the MCLG is zero).

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
	monitored on possibly different frequencies therefore precluding the ability to substitute the alpha for the more expensive 226 and uranium in routine monitoring.			
Analytical Methods	**Revise performance criteria for the haloacetic acids (HAA5) analytical method:** The HAA5 method specified by 40 CFR 141.131 gives erratic results. When samples are split between separate labs there is little or no correlation between the analytical results. State workgroup members indicated that EPA's own studies showed that many labs could not produce accurate analytical results.	17	Outside the scope of this review effort; best handled through technical assistance (see notes regarding in the Additional Information column).	Experts from EPA's Technical Support Center discussed this issue with the workgroup noting that EPA has not experienced erratic results with the HAA5 method. As part of the quality assurance program for the Information Collection Rule, laboratories were required to perform analyses of fortified samples and report the results to EPA. More than 80 laboratories around the nation participated in that study providing percent recoveries for the 1,250 samples that were fortified for HAA analyses. The data demonstrated that 80% of the HAA recoveries (in fortified field samples) were within 89% and 120% while 80% of the THM recoveries (in fortified field samples) were within 87% and 114%. These data demonstrated that both HAA and THM results were equivalent and that they can both be determined accurately. EPA also provided a contact list of EPA personnel (at TSC and the Office of Research and Development), who are familiar with the analytical methods for various contaminants.

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
Lead and Copper Rule	**Amend the LCR to require PWSs that fail to comply with reduced monitoring requirements for lead and copper tap sampling (i.e., annual or tri-annual testing) to return to their initial monitoring requirements (6-month testing):** They would then have to complete two consecutive 6-month monitoring periods with results below the action levels before they would again be eligible for reduced monitoring. Currently, PWSs that fail to monitor during a reduced monitoring period could go up to 6 years without having to test for lead and copper.	16	Outside the scope of this review effort since the NPDWR was recently revised and published in 2007.	EPA is currently evaluating issues for the long-term revision effort and this item is best handled by referring it to this effort. In addition, the reduced monitoring issue may be handled best through enforcement actions.
Process Control Measurement	**Clarify and expedite the procedures for approving process control technologies:** Process control technologies often utilize new analytical methods for on-line analyzers and operational testing that are difficult to get accepted. It is difficult to determine what constitutes an acceptable adaptation of a "bench-top" technique. Since they are not analytical methods associated with an MCL, it is uncertain whether the newly proposed, expedited analytical method approval process will help.	16	Outside the scope of this review effort; best handled through technical assistance.	EPA noted during workgroup discussions that online residual analyzers for chlorine would need to go through and be evaluated under the Alternative Test Procedures (ATP) process. EPA provided information and a contact person for EPA's Technical Support Center who could discuss the ATP process for potential evaluation of online analyzers.
Variances and Exemptions Rule	**Streamline and simplify the Variance and Exemption (V & E) Rule:** V & Es could be useful tools if the rule were revised to make them less cumbersome, more	16	Outside the scope of this review effort; best handled through other mechanisms.	The process required for V&Es (other than the small system variances) is specified by the statute (Sections 1415 and 1416). The primacy requirement for States adopting V&E requirements (other than the small system variances)

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
	streamlined, and with "less strings attached."			is that they must be no less stringent than the statute. States already have flexibility to adopt whatever process they want as long as it is consistent with the statute (40 CFR 142.10(d)(2)). It is unlikely that EPA can provide any more flexibility on the process for V&Es.
Point of Use and Point of Entry	**Revise Best Available Technologies (BATs) for rules for which point-of-use/point-of-entry (POU/POE) devices may be appropriate, but which are not specifically listed as BATs (e.g., nitrates):** POU/POE are sometimes recognized as BATs but they have not been consistently adopted in existing rules. There may be other situations where this technology could be effectively used as a treatment option and these need to be recognized.	15	Outside the scope of this review effort; best handled through use of existing guidance and technical assistance.	EPA noted that existing guidance includes: (1) "Small System Compliance Technology List for the Non-Microbial Contaminants Regulated before 1996" (EPA 815-R-98-002, September 1998). Available at: www.epa.gov/ogwdw/standard/tretech.html (2) "Point-of-Use Treatment Options for Small Drinking Water Systems". Available at: www.epa.gov/safewater/smallsys/pdfs/guide_smallsystems_pou-poe_june6-2006.pdf. EPA has listed small system POU/POE devices for rules promulgated since the 1996 SDWA Amendments. An August 6, 1998 FR (63 FR 151) notice lists small system devices for rules promulgated before the 1996 SDWA. In addition, a separate discussion was held between EPA staff, ASDWA, and State personnel who were interested in the POU/POE topic. Notes from this meeting are included in Appendix C.
Consumer Confidence Reports	**Revise the Consumer Confidence Report (CCR) to address a number of current implementation issues and concerns, based on experiences in implementing the rule over the past several years:** The amount of system and State resources allocated to the CCR is significant with very limited return. A major	15	Outside the scope of this review effort since CCR is not technically part of an NPDWR.	

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	overhaul of this rule is needed. Possible changes may include that the CCR is done in conjunction with and at the frequency of the sanitary surveys. A second option: The CCR is an EPA report that is maintained by EPA through SDWIS/Fed and is available electronically or in hardcopy from EPA. System owners would be responsible for identifying that the report is available and how to receive a copy.			
False Positive Sample Results	**The regulations should recognize the potential for "false positive" measurement of phthalates and allow any relief from the burden of unnecessary follow-up:** This issue is most common with phthalates, but other contaminants can show up at very low levels (below the practical quantitation limit [PQL]/method reporting limit [MRL]) and trigger additional monitoring and potentially increased levels of treatment when there really is no contamination in the water system but the result is a "false positive".	15	Outside the scope of this review effort; best handled through technical assistance (see notes in the Additional Information column).	EPA's Technical Support Center discussed this item with the workgroup noting compounds such as phthalates can occasionally be observed as false positives. EPA indicated that it is not difficult for laboratories to determine the source of the contamination and eliminate it. The first step is to determine if the contamination is the result of sampling or sample shipment and storage, or if it is a laboratory issue. The next step or solution is to either educate sampling personnel about correct sampling procedures or determine the specific step in the laboratory procedure that needs to be corrected. EPA also noted that the presence of contaminants at or above the MCL needs to be taken seriously. The presumption of a "false positive" may in itself be incorrect, or the "false positive" portion of the result may obscure the actual presence of the analyte in the sample. Using good laboratory and good sampling practices will greatly reduce if not eliminate the problems associated with false positives, even with analytes such as the phthalates.

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				EPA indicated that States, PWSs or laboratories can always call TSC if they are having problems with any EPA-approved methods. EPA provided a contact list of EPA personnel (at TSC and the Office of Research and Development), who are familiar with the analytical methods for various contaminants.

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Definition of a public water system	**Revise the definition of a PWS:** Although the definition of a PWS is in the SDWA, it seems that EPA could exercise reasonable flexibility in interpreting the statutory definition to alleviate the confusion between 25 people vs. 15 connections. The definition states, "The term 'public water system' means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals." No preference or guidance is given in the law as to where and when 25 people or 15 connections apply. It would be reasonable, for instance, for EPA to clarify through guidance that "service connections" applies where the PWS actually has individual connections that can be counted (CWSs), and "persons served water" applies to PWSs without individual service connections (TNCWSs, NTNCWSs, businesses, etc.). At least one State participant indicated that it would be useful to clarify what types of consecutive systems are not covered by SDWA, and that this could require a change to section 300g of Act.	14	Outside the scope of this review effort; best handled through guidance (see notes in the Additional Information column).	Current guidance includes Water Supply Guidance memos (#12, 34, 66A, H3 and H18), available at: http://www.epa.gov/safewater/wsg/subject.html#interpretation

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Fluoride	**Revise PN requirements associated with both the MCL and the SMCL to better reflect the implication of violations of each; this may be "folded in" to an overall effort to revise the MCL:** a) The National Academy of Sciences (NAS) has recommended that the MCL be reviewed. b) There is some confusion between the MCL and the SMCL (secondary standard) and the appropriate public notification requirements for each level.	14	Outside the scope of this review effort; best handled through regulatory revision (see notes in the Additional Information column).	While potential MCL changes are within the scope of Six-Year Review, PN alone is technically outside the scope; however, if EPA decides to make changes to the MCL, PN requirements (as well as any issues with the SMCL) will be considered. EPA is currently addressing the NAS recommendations to update the health assessment for fluoride and evaluate exposure sources (relative source contribution). Guidance and assistance could also clarify confusion between MCL and SMCL and the PN requirements in the interim. See section 3.0 of this document for further discussion.
Alternative Treatment	**Allow bottled water to be a compliance technology for appropriate rules and with appropriate caveats:** Some entities may be able to justify the use of bottled water as a viable method of resolving an MCL. Discussion regarding the proposed modification of the bottled water language is requested.	13	Outside the scope of this review effort; best handled through guidance and technical assistance.	At the request of States, EPA held a listening session in December 2006 on the viability of bottled water as an alternative compliance option for chronic contaminants regulated under the SDWA. The meeting aimed to identify what information and data would be needed for EPA to evaluate the efficacy of bottled water as an alternative compliance option for NTNCWSs. In a February 2007 follow up meeting, EPA and ASDWA agreed that current State practices for the use of bottled water on a temporary basis until the system returns to compliance are protective of public health and are being implemented in a responsible manner.

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
Chem/Rad Rules *(Nitrate monitoring)*	**Systems with a proven history of nitrate results of less than one-half the MCL (or some other trigger level) should be allowed to reduce nitrate monitoring:** In discussions on Chemical Monitoring Reform several years ago, EPA seemed favorable to this. States have identified many systems with more than 15 years of nitrate data with no nitrate detections. Reducing this monitoring would be helpful and would not decrease protection of public health.	12	Within the scope of considering for this review effort; best handled through regulatory revision.	Regulatory revisions would be needed to change monitoring frequency for these systems. See section 2.2 of this document for further discussion.
Sanitary Surveys	**Clarify applicability of sanitary surveys to various types of systems:** Sanitary survey applicability was expanded to include consecutive systems but not specifically noted in the regulations or special primacy requirements.	11	Outside the scope of this review; effort best handled through other mechanisms.	The requirements for States to conduct sanitary surveys are found in the 40 CFR Section 142,10(b)(2) (general primacy requirement for all PWSs), 142.16(b)(3) (requirement for surface water and GWUDI systems) and 142.16(o)(2)(groundwater systems). The CFR does not list any exclusion for PWSs that are classified as consecutive systems. However, some small subset of consecutive systems may be excluded from all the NPDWRs (including the sanitary survey requirements) under 141.3 (Coverage) and 142.3 (Scope). Public Water Systems excluded from these requirements must meet all of the conditions outlined in those sections including: Consists only of distribution and storage facilities (and does not have any collection and treatment facilities); Obtains all of its water from, but is not owned or operated by, a public water system to which such regulations apply: Does not sell water to any person; and, Is not a carrier which conveys passengers in interstate commerce.

Issue[1]	Description	State Workgroup Priority Score	Findings *Within or Outside the Scope of this Six-Year Review Effort* *(Issue best handled through regulatory revision, guidance, technical assistance, other mechanisms)*	Additional Information
Underground Injection Control	**Liquid waste generated by a drinking water treatment technology that is recognized by EPA to be a BAT should be exempted from the Underground Injection Control (UIC) requirements or at least establish specific criteria/standards within the revised UIC Rule for all States to adopt for these circumstances:** Some States are interpreting the UIC Class V Rule definition of Sanitary Waste to include "Water Treatment Liquid Waste" (i.e., spent backwash water), thus making it very difficult to secure a discharge permit for this type of liquid waste into on-site septic systems. However, at least one State noted that it did not agree with these exemptions, and their State would classify it as an industrial waste requiring a permit; this State also indicated that the federal standards that apply to the quality of injected waste is pretty specific.	10	Outside the scope of this review effort; best handled through other mechanisms.	
UCMR	**Allow for water system "opt out" from the UCMR for certain specified circumstances:** States are concerned about instances under the UCMR (both UCMR 1 and 2) in which there is no likelihood of a contaminant being present in a water system. That situation is very tough on States that are required by State law to evaluate all SDWA-required laboratory	9	Outside the scope of this review effort; best handled through technical assistance.	Technically, UCMR is not an NPDWR. However, EPA noted that UCMR does allow for State waivers and States can always call EPA if they need clarifications or technical assistance.

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	samples for all PWSs under their fee system. Since this situation applies to a few States, it does not get much attention. However, when States are spending resources testing for a contaminant that cannot possibly be there, they have a hard time making the case to elected officials and operators that they should participate in UCMR monitoring.			
VOC detections after painting storage tanks	**VOC detections after painting storage tanks:** Some systems in Texas are having increases in volatile organic compound (VOC) detections due to freshly painted water storage tanks. Minnesota has also had problems with newly installed plastic coatings.	Not scored since this item was added later in workgroup discussions.	Outside the scope of this review effort; best handled through technical assistance.	Regardless of the source, EPA noted during the workgroup meetings that this would still be a detection of a VOC. Systems may need guidance or technical information on how to avoid VOC contamination after a tank has been freshly painted.

1. To compile an initial list of possible issues, the workgroup requested feedback from all States. This nationwide poll resulted in a list of 22 possible implementation-related issues. ASDWA then asked States on the workgroup to rank each of the issues as high, medium, or low priority. Eight workgroup members responded. Total scores used for ranking the issues were calculated by assigning the following values: high priority - 3 points; medium - 2 points; and, low - 1 point. The issues are listed in order of highest to lowest priority score, and their actual score totals are provided in the "Priority Scoring" column.

Appendix C: Summary of the January 18, 2008 Discussion on the Use of POU/POE Devices

Purpose of call: During the most recent conference call (on December 13th) of a state-EPA workgroup that's looking at possible implementation changes for the six year review of regulations, several questions arose related to POU devices. As a follow-up to that discussion, we gathered a few states that have a good deal of experience with POU devices as compliance technologies, along with the EPA-OGWDW experts who developed the Agency's POU guidance to brainstorm a bit more about this. These are the questions/topics to discuss.

- PORTION OF SYSTEM IN COMPLIANCE: What has the Agency said, in guidance and policy, about the percentage of the homes in a community whose homes should be in compliance in order for the system as a whole to be in compliance with the MCL for the contaminant in question? Is there a need to revise what's been said to date? What experiences have states/systems had in this regard that might shed light on this question?
- NITRATE AND POU DEVICES: Can/should POU devices be used for compliance with nitrate? What has the Agency said in this regard in the past? Is there a need for any further clarification of the Agency's intent? (As background on this point, please refer to a letter of March 19, 2001 from Bill Diamond [then with EPA-OGWDW] to EPA Region VII.)
- ROLE OF GUIDANCE VS. REGULATION: As a backdrop to the two questions above, is there any need/value to incorporating any aspects of the response to these questions into regulation?

Attendees: **EPA-OGWDW**: Rajiv Khera, Brian Rourke, Jeff Kempic
Nebraska Drinking Water Program: Jack Daniel
Arizona Drinking Water Program: John Calkins
Texas Drinking Water Program: James Beauchamp
ASDWA: Jim Taft, Darrell Osterhoudt

Percentage of Users that Must Participate:

- **Current Agency Guidance:** Rourke read the portion of the Agency's POU guidance that addresses this issue and noted that: 1) it acknowledges that PWSs may choose to initiate a POU-driven solution to a water quality problem *before* all users have agreed to have POU devices installed; but 2) the guidance encourages PWSs to move expeditiously toward getting all users participating. In addition, the guidance goes on to talk about passing ordinances to cut off a customer's water in the event that the customer will not participate. He explained that the Agency had tried to avoid recommending a particular time frame for getting all users onboard due to concerns that whatever time frame was recommended (e.g., 80 days, 180 days, 270 days, etc.), there would likely have been cases that warranted exceptions to the policy/guidance. He also noted that, if eventual 100% participation is not obtained, the PWS should consider POE devices. Moeller explained that the Drinking Water Protection Division had not spoken to this issue in any of its guidance or training any differently than the Agency's POU guidance does.

- **State Experiences:** Calkins explained that, in his state, the 20 or PWSs that had employed POUs thus far each had 100% customer participation; but, all had been quite small and fairly homogeneous situations. He noted that Arizona's POU guidance allows for start-up of a situation in which POUs are used as a compliance technology if only 75% of the users participate – provided the PWS was moving expeditiously to get all users participating. In such a circumstance, the state would enter into a Consent

Decree with the PWS to require and track their movement toward 100% participation. While no time is set forth in the state's guidance for such incremental progress, he felt that 180 days was about right and any time frame greater than 365 days for getting 100% participation is too long. Daniel said that Nebraska had allowed use of POU devices as compliance technologies for 2 small CWSs and some NTNCs. In each case, 100% participation was required. He expressed the concern that, without a national maximum allowable interval for getting 100% participation, consultants who considering POU devices sometimes tend to play one state off another and seek all of the "wiggle room" allowed by current policy and guidance.

Treating Nitrate with POU Devices:

- **Past and Current Agency Guidance**: Kempic and Rourke explained that the perspective the Agency tried to convey in its POU guidance is that there are POU technologies that will work in removing nitrates, but that none has yet been listed in a rule as a small system compliance technology. They noted that the current caveat in the POU guidance related to nitrate is intended to clearly signal that POUs for nitrate should only be used in those situations where there is a public education component in place that lays out the danger posed by high nitrate levels for at-risk populations and the fact that POU devices typically only protect a single tap. Kempic and Rourke noted that, in the absence of such a component being in place, POU devices for nitrate removal should not be allowed. That caveated prohibition was what was intended by the brief mention of nitrate in Bill Diamond's 2001 guidance memo. They further said that the most appropriate situations for nitrate would be small NTNCs where only adult populations consumed water. Moeller explained that DWPD had developed some guidance that pointed to the attributes of good POU applications that may be helpful in this context.

- **State Experiences**: Calkins noted that there is only one NTNC currently using POU devices for nitrate control in Arizona (at a county park) and another location where approval is pending. He also said that, while he appreciated that POU devices for nitrate posed special concerns, centralized treatment for nitrate is likewise prone to problems and not always reliable. Daniel said that POU devices for nitrate problems are not allowed in his state due to their tendency to fail. He also asked why POU devices were specifically disallowed by the Agency for radon and VOCs. Kempic responded that the principal risk pathway of concern for VOCs and radon was through inhalation, rather than ingestion, thus a POU device at the drinking water tap would not address the volatilized radon or VOCs at the showerhead.

Guidance vs. Regulation

- **Discussion:** The call participants agreed that specific guidance or regulation to further address these questions could be helpful but can also become something of a two-edged sword: on the one hand, it disallows inappropriate uses of POU devices and helps states fend off such uses on the part of water systems or their consultants; on the other hand, prescriptive guidance or regulation can restrict flexibility on the part of states in allowing certain uses and applications that the state deems acceptable. The Agency representatives noted that there is a very "high bar" these days (due to process requirements, Agency manpower needed, etc.) to embarking on a regulatory solution. Changes to guidance (or new guidance) is a less high bar – provided states and EPA, as co-regulators, could agree on revised guidance that seemed to work well for everyone.

- **Next Steps**: It was agreed that a summary of this discussion would be shared with the State-EPA Six Year Implementation Workgroup for their further consideration.