



American Water Works Association

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November 24, 2020

Mr. Joel Corona and Mr. Michael Trombley
Office of Water
Environmental Protection Agency
Mail Code: 4101M
1200 Pennsylvania Avenue, NW
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SENT VIA ELECTRONIC MAIL

RE: Increasing Consistency and Transparency in Considering Benefits and Costs in the Safe
Drinking Water Rulemaking (RIN: 2040-AF99)

Dear Mr. Corona and Mr. Trombley,

The Spring 2020 Unified Agenda of Regulatory and Deregulatory Actions indicates the U.S. Environmental Protection Agency (EPA) will draft a regulation to increase consistency and transparency in considering benefits and costs under the Safe Drinking Water Act (SDWA).^{1,2} The American Water Works Association (AWWA) has a continuing interest in EPA's drinking water program and over the past twenty-four years has supported technical dialogues, submitted data, and prepared comments to inform EPA's SDWA benefit-cost analysis (BCA) policy and execution.

AWWA supports the use of BCAs as a useful and intelligible way to evaluate EPA regulatory alternatives while recognizing inherent limitations in such national analyses. These comments are offered in the spirit of continuous improvement to further refine current practices for the betterment of public health and affordable delivery of an essential service—drinking water.

AWWA is very interested in this new rule. Building on our history of being regularly engaged on the implementation of SDWA authorities, AWWA has prepared this letter. The following provides a brief summary of existing statutory requirements for use of BCA under SDWA in developing drinking water standards, as well as a review of common elements from AWWA comments on EPA's previous BCAs.

Statutory Requirement for Benefit Cost Analysis

In 1996 the U.S. Congress amended SDWA to address widespread criticism of the hectic but unfocused regulatory program occurring under the Act. As a result of the 1986 SDWA Amendments, EPA was

¹ 2020, OIRA, [Spring 2020 Unified Agenda of Regulatory and Deregulatory Actions](#)

² 2020, EPA, [RIN 2040-AF99](#)

required to set a prescribed number of standards on a specific timeline.³ The 1996 SDWA Amendments eliminated that schedule-driven regulatory framework and replaced it with one that requires EPA to use a science-driven process in the rulemaking record using the best available, peer-reviewed science and other data collected by accepted best available methods.⁴ *Within that record, EPA has a duty under SDWA to prepare, a health risk reduction and cost analysis (HRRCA).* The HRRCA must include:

- Quantifiable and nonquantifiable health risk reduction benefits that are likely to occur as the result of treatment to comply with each maximum contaminant level (MCL).
- Quantifiable and nonquantifiable health risk reduction benefits that are likely to occur from reductions in co-occurring contaminants that may be attributed solely to compliance with the MCL.
- Quantifiable and nonquantifiable costs that are likely to occur solely as a result of compliance with the MCL, including monitoring, treatment, and other costs.
- The incremental costs and benefits associated with each alternative MCL considered.
- The effects of the contaminant on the general population and on groups within the general population such as infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations that are identified as likely to be at greater risk of adverse health effects due to exposure to contaminants in drinking water than the general population.
- Health risks associated with co-occurring contaminants.
- Other relevant factors, including the quality and extent of the information, the uncertainties in the overall analysis, and factors with respect to the degree and nature of the risk.⁵

Regulations are a critical mechanism for maintaining public confidence, ensuring responsible and effective management of risks, and providing a level playing field for state and local decision-making strategies. The SDWA HRRCA requirements provide a BCA framework for EPA to conduct a detailed analysis of the available science so that regulation of drinking water systems accomplishes these objectives. While this is an effective framework, it does not mean that execution of the SDWA rulemaking process is immune to flaws. In the more than two decades since the 1996 SDWA Amendments, AWWA has provided comments on SDWA rulemakings suggesting opportunities for improvement. AWWA recommendations for improvements to SDWA BCA practice reflect four recurring themes:

- Importance of transparency
- Defensible benefits and costs

³ The 1986 SDWA Amendments required EPA to regulate 83 contaminants by 1989 (i.e., nine contaminants within one year of enactment, another 40 contaminants within two years, and 34 more within three years). EPA was then charged with setting at least 25 more primary standards by 1991 and then 25 more every three years.

⁴ 42 USC §300g-1(b)(3)(A) and (B).

⁵ 42 USC §300g-1(b)(3)(C).

- Consideration of community-level impacts and household-level affordability
- Necessity of addressing uncertainty

Importance of Transparency

In the development of regulations to protect public health, transparency is critical. Transparency facilitates stakeholder understanding and engagement. While some aspects of a HRRCA may be estimated based on readily available information, there are often aspects that require extensive data analysis (e.g. Revised Total Coliform Rule Revisions).⁶ Transparency begins with deciding which scientific data are included and excluded, as well as, what assumptions underpin the analysis. It extends through the process of data analysis. Transparency entails not simply describing the analysis but doing so where the reader can readily distinguish the strengths and weaknesses of the approach taken within the time window available for stakeholder engagement in the decision-making process. *Providing a clear understanding of EPA's analytical premise for its rule option analysis improves the overall reliability of the rulemaking process and the timely implementation of the final rule.* It also helps support communities as they plan for any necessary capital investments or operational changes and undertake any necessary water rate increases.

EPA should consider increasing stakeholder engagement throughout the BCA preparation process. For example, opportunities for stakeholder engagement are often limited to brief, statutorily required public comment periods and public meetings offering limited time for substantive discussion.⁷ Earlier meaningful engagement throughout the rulemaking process, including development of the BCA, will enable EPA's analysis to benefit from the knowledge of stakeholders, experts, and practitioners during rule development rather than afterward. Early and extensive engagement of knowledgeable stakeholders has facilitated BCA development for several major regulations with positive results.^{8, 9, 10}

Clearly disclosing the key elements of benefit and cost estimates has been a recurring theme in AWWA's comments. For example, analyses supporting the Arsenic Rule were seriously debated in part because the cost curves for treatment technologies and their application in the rule option analysis could not be replicated.¹¹ More recently the benefit and cost estimates used to support proposed revision of the Lead and Copper Rule were described in voluminous detail but in a manner that was not readily communicated embedded assumptions and calculations that significantly influenced the resulting estimates.¹²

⁶ 2010, AWWA, [Comments on "Proposed Rule, National Primary Drinking Water Regulations: Revisions to the Total Coliform Rule"](#) (Docket ID No. EPA-HQ-OW-2008-0878),"

⁷ 2001, AWWA, Comment to "Request for Information of Groundwater Contamination Incidents Believed to be Due to Hydraulic Fracturing of Coalbed Methane Wells," (W-01-09)

⁸ 1998, EPA, [Regulatory Impact Analysis for the Stage 1 Disinfectants/Disinfection Byproducts Rule, EPA-815-B-98-002](#).

⁹ 2003, The Cadmus Group, Inc., [Economic Analysis for the Long Term 2 Enhanced Surface Water Treatment Rule](#).

¹⁰ 2012, EPA, [Economic Analysis for the Proposed Revised Total Coliform Rule](#), EPA-815-R-10-001.

¹¹ 2000, AWWA, Correspondence from Tom Curtis to Cynthia Dougherty, (November 14, 2000).

¹² 2020, AWWA, [Comment on "National Primary Drinking Water Regulations: Proposed Lead and Copper Rule Revisions,"](#) (EPA-HQ-OW-2017-0300).

Defensible Benefits and Costs

To effectively support a drinking water standard, quantified benefits and costs must be defensible and clearly traceable to the available science. This is a challenging task when the state of science is rapidly evolving.

Benefit Estimates – This task is particularly difficult for projecting the health benefits of proposed rule options. When estimating benefits, the following considerations should be addressed:

- Exposure to a chemical may generate a variety of health outcomes based on a spectrum of exposures. In quantifying health benefits from reduced exposure, EPA should utilize a defined process for identifying the relevant and quantifiable health outcome(s).
- The quantification of defensible health benefits must have a defined scope and should be reflective of clear and direct adverse health impacts. While there may be a number of health outcomes and associated health burden from contaminant exposure, only significant health benefits for which there is a clear basis to estimate risk reduction should be quantified.^{13, 14}
- The basis for the estimate of accrued benefits from regulatory options in the BCA must be clearly communicated and carefully consider how uncertainties in the underlying risk assessment may skew the BCA. This is especially pertinent when assessments of health impacts compound conservative assumptions that emphasize the “possible” rather than the “likely” impact of a contaminant on public health. EPA’s risk assessment paradigm then leaves how to address this level of conservatism to risk management in setting the SDWA standard. A technically sound BCA is central to this task and, consequently, to effective risk communication of the Agency’s risk management decision.

To-date, EPA practice in the SDWA standard development process is to prepare estimates for health risk reduction through a primary standard based on a particular health endpoint of serious concern. EPA selects an endpoint(s) for which data is sufficient to prepare a quantifiable health risk reduction estimate associated with the named contaminant.¹⁵ EPA will typically acknowledge and describe potential ancillary health risk reduction benefits (co-benefits) that are less readily quantified as nonquantifiable benefits or in describing uncertainty in the benefit analysis.¹⁶ Nonquantifiable risk reduction may include the benefits associated with other health endpoints associated with the named contaminant or with health risk reduction accrued by removing other contaminants along with the named contaminant.¹⁷

Cost Estimates -- BCAs should include a comprehensive consideration of the public investment requirements to address potential drinking water regulations, which will ultimately be borne by water system rate payers.

¹³ 1999, AWWA, Comments on the “Radon in Drinking Water Health Risk Reduction and Cost Analysis” (W-98-30).

¹⁴ 2004, AWWA, Comments on the “Stage 2 Disinfectants and Disinfection Byproducts rule: National Primary and Secondary Drinking Water Regulations ...([Attachment](#)),” (OW-2002-0043).

¹⁵ 2000, AWWA, Comments on “Radionuclides Notice of Data Availability,” (W-00-12).

¹⁶ 1999, AWWA, Comments on the “Radon in Drinking Water Health Risk Reduction and Cost Analysis” (W-98-30).

¹⁷ 2003, The Cadmus Group, Inc., [Economic Analysis for the Long Term 2 Enhanced Surface Water Treatment Rule](#).

When developing cost estimates for rule options, the embedded assumptions should be reasonable, evidence-based, and defensible. Currently, this is a strength within many SDWA BCAs. BCAs should be supported by information collection and research that allows sound estimates of capital and operational costs, including:

- All capital investments required to support compliance such as drinking water treatment to reduce contaminant levels, associated systems for pre- and post-treatment facilities, waste management facilities, and other ancillary support facilities.¹⁸
- All long-term operation and maintenance requirements for all facilities as well as monitoring and administrative costs.

Consideration of Community-Level Impacts and Affordability

While a national analysis of benefits and costs is necessary to understand if there is a net positive national benefit from a proposed standard, there are more than 50,000 community water systems and approximately 150,000 public water systems in the United States. *A sound BCA must consider community-level impacts across a matrix of system types, sizes, and levels of occurrence.*¹⁹ In short, a national assessment of benefits and costs is not a good indicator of community-level affordability.

The community-level affordability of rule options is exacerbated by the higher unit costs for drinking water treatment at smaller system service population sizes. This phenomenon often results in a significantly different compliance burden for ratepayers served by smaller water systems. SDWA requires a specific analysis to determine if rule options are achievable for small systems, and if not, specify a variance technology.²⁰ *This analysis is an informative element of current BCA practice, but it is an insufficient analysis of affordability.* The practical and statutory constraints on small system variance technologies are such that since 1996 EPA has never identified the need for a small system variance in an SDWA rulemaking.

In addition to the potential for health risks to be created by diverting investment from needed infrastructure maintenance and renewal, additional regulatory burden can amplify existing financial stress on ratepayers who bear the cost of existing water infrastructure and system operation. Evaluating the marginal cost that a regulation burden has on household budgets is significant.^{21, 22} The marginal expense for a household can deprive low-income households of other essential needs important to their health and well-being.²³ Moreover, Executive Orders require EPA to consider the regulatory impacts of

¹⁸ 1998, AWWA, Comments on “National Primary Drinking Water Regulations: Disinfectants and Disinfection Byproducts: Notice of Data Availability; Proposed Rule.” (WH-FRL-5988-7).

¹⁹ 2000, AWWA, Comments on “Proposed Arsenic Rule,” (W-99-16).

²⁰ 42 USC 300g-1(c)(3)

²¹ 2000, AWWA, Comments on “Proposed National Primary Drinking Water Regulation for Radon-222,” (W-99-08).

²² 2004, AWWA, AMWA, NAWC, and NRWA. [Comments on “Stage 2 Disinfectants and Disinfection Byproducts Rule Stakeholder Draft,”](#) (January 16, 2004).

²³ 2019, Corona Environmental Consulting, Galardi Rothstein Group, Raftelis Financial Consultants, [Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector.](#)

rulemakings on households facing economic and social hardships.^{24, 25, 26} Most SDWA rulemakings lack substantial explicit analysis of environmental justice and low-income household impact analysis beyond the small-system variance analysis. An exception is the recent Lead and Copper Rule Revision rulemaking.²⁷ The LCR Revision analysis was much more substantial than previous rulemakings but it did not include an analysis of affordability.²⁸ AWWA is currently sponsoring an expert panel tasked with identifying implementable analytical approaches that would complement current Agency practice. Our objective is to brief program staff in early 2021 on the panel recommendations.

Necessity of Addressing Uncertainty

Numerous individual variables and multiple variables in combination influence the outcome of BCAs. Uncertainty in the information available about each variable can compound in a manner that may not be clear to decision-makers or the public unless clearly stated.²⁹ *Uncertainties should be clearly noted, and the influence of uncertainty on the BCA evaluated. Where uncertainty associated with particular component of the BCA is very influential, additional analysis and clear communication of that import of that analysis is warranted.*

The following components of a BCA frequently contain enough uncertainty to markedly influence the analysis:

- Potential health impacts, in both severity and minimum thresholds
- Risk assessment and management assumptions taken based upon health impacts
- Distribution of contaminant occurrence relative to level(s) of concern
- Treatment and other costs
- Benefits (health and otherwise) realized from managing target contaminant(s) and co-occurring contaminants

Applying BCAs Beyond Primary Drinking Water Standards

Since the 1996 Amendments, EPA has worked diligently to conduct BCAs to support primary drinking water standards. A BCA has not always been applied to other Agency actions under SDWA. For example, the Underground Injection Control program regulation of geologic sequestration of carbon dioxide was supported by a BCA that mirrored the standard of care applied to HRRCA preparation.^{30,31} This is not the

²⁴ 1994, Executive Order 12898, [Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations](#).

²⁵ 2014, EPA, [Guidelines for Preparing Economic Analyses](#).

²⁶ 2016, EPA, [Technical Guidance for Assessing Environmental Justice in Regulatory Actions](#).

²⁷ 2019, Abt Associates, [Environmental Justice Analysis for the Proposed Lead and Copper Rule Revisions](#).

²⁸ 2020, AWWA, Comments on [“National Primary Drinking Water Regulations: Proposed Lead and Copper Rule Revisions,”](#) (EPA-HQ-OW-2017-0300).

²⁹ 2004, AWWA, [Comments on “Long-Term 2 Enhanced Surface Water Treatment Rule, Proposed Rule,”](#) (OW-2002-0039).

³⁰ [75 Federal Register 77229](#).

³¹ EPA, 2008, [Cost Analysis for the Proposed Federal Requirements Under the Underground Injection Control Program for Carbon Dioxide Geologic Sequestration Wells \(Proposed GS Rule\)](#).

case for recommendations accompanying drinking water health advisories published by the Agency.^{32, 33} *EPA health advisories and associated recommendations can have impacts akin to primary drinking water standards and exceed thresholds set in Office of Management and Budget, as well as, Agency guidance for economically significant documents.*^{34, 35, 36} Since AWWA's 2015 correspondence on this issue EPA Office of Water and Office of Enforcement and Compliance Assistance have issued guidance to States and EPA Regions that encourage observed contaminant levels above health advisory concentrations to be treated as warranting immediate public notice, installation of treatment, distribution of alternative water supplies or other actions.³⁷ Such health advisories consequently warrant a thorough BCA.

SDWA Processes

The SDWA regulatory process incorporates multiple steps, some of which have identifiable costs for the regulated community. It is more challenging to ascribe benefits to these interim process steps. Consequently, EPA has not been preparing a BCA in support of notices associated with the contaminant candidate list, regulatory determinations, unregulated contaminant monitoring, and six-year review SDWA provisions.³⁸ Given the intermediate stage in the regulatory process each of these notices requires specific analyses to support decision-making. There is a needed emphasis on risk communication at each one of these process steps, and decision-making around the UCMR clearly includes a thorough cost analysis. It is however premature in the regulatory process to prepare a full BCA for this group of SDWA activities.

Thank you for your consideration. If you have any questions regarding this correspondence or if we can be of assistance in some other way, please contact Chris Moody (202.326.6127, cmoody@awwa.org).

Best regards,



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cc: Jennifer McLain, EPA/OW/OGWDW
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³² EPA, 2015, [EPA Drinking Water Health Advisories for Cyanotoxins](#).

³³ EPA, 2016, [Drinking Water Health Advisories for PFOA and PFOS](#).

³⁴ 2015, AWWA, Correspondence to Ms. Muellerleile, June 15, 2015.

³⁵ 2015, EPA, [Recommendations to Public Water System to Manage Cyanotoxins in Drinking Water](#), EPA 815-R-15-010

³⁶ 2016, EPA, [Factsheet PFOA and PFOS Drinking Water Health Advisories](#), EPA 800-F-16-003

³⁷ 2018, EPA, [Updated Guidance on Emergency Authority under Section 1431 of the Safe Drinking Water Act](#).

³⁸ 42 USC §300g–1(b)(1)(B)(i), 42 USC §300g–1(b)(1)(B)(ii), 42 USC §300j–4(a)(2) and 42 USC §300g–1(b)(9)

Who is AWWA

The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our membership includes more than 4,500 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000-plus total membership represents the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.