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Agency

Chemical Contaminant Summaries for the Fourth Six-Year Review of Existing National Primary Drinking Water Regulations

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Disclaimer

This report is in support of the revise/take no action decisions for EPA's Fourth Six-Year Review of Existing Drinking Water Standards Federal Register Notice. This report is intended to provide technical background for the fourth Six-Year Review.

This document is not a regulation itself and it does not substitute for the Safe Drinking Water Act (SDWA) or EPA's regulations. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

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Acronyms and Abbreviations

2,3,7,8-TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
2,4,5-TP	2,4,5-Trichlorophenoxy propionic acid
2,4-D	2,4-Dichlorophenoxyacetic acid
ATSDR	Agency for Toxic Substances and Disease Registry
BAT	best available technology
CalEPA	California Environmental Protection Agency
DBCP	1,2-Dibromo-3-chloropropane
DBPs	disinfection byproducts
DEHA	Di(2-ethylhexyl)adipate
DEHP	Di(2-ethylhexyl)phthalate
DWEL	drinking water equivalent level
DWI-BW	drinking water intake rate adjusted for body weight
EDB	Ethylene Dibromide
EPA	U.S. Environmental Protection Agency
EQL	estimated quantitation level
FR	Federal Register
ICR	information collection request
LOAEL	lowest-observed-adverse-effect level
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MDL	minimum detection level
mg/kg-day	milligrams per kilogram of body weight per day
mg/L	milligrams per liter
mrem/yr	millirems per year
MRL	minimum reporting level
NAWQA	National Ambient Water Quality Assessment
NPDWR	National Primary Drinking Water Regulation
NTP	National Toxicology Program
OAR	Office of Air and Radiation
OPP	Office of Pesticide Programs
ORD	Office of Research and Development
PCBs	Polychlorinated Biphenyls
pCi/L	Picocuries per litre
PHS	U.S. Public Health Service
PQL	practical quantitation limit
PT	performance testing
PWS	public water system
RfD	reference dose
RSC	relative source contribution
SDWA	Safe Drinking Water Act
SMCL	secondary maximum contaminant level
SSCT	small system compliance technology
SYR	Six-Year Review
SYR 1	First Six-Year Review

SYR 2	Second Six-Year Review
SYR 3	Third Six-Year Review
SYR 4	Fourth Six-Year Review
TT	Treatment technique
USGS	U.S. Geological Survey

1 Introduction

The U.S. Environmental Protection Agency (EPA or the Agency) has completed its fourth Six-Year Review (SYR 4) of national primary drinking water regulations (NPDWRs). The 1996 Safe Drinking Water Act (SDWA) Amendments require the Agency to periodically review existing NPDWRs. Section 1412(b)(9) of SDWA reads:

> [t]he Administrator shall, not less than every 6 years, review and revise, as appropriate, each 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.

The primary goal of the Six-Year Review (SYR) process is to identify NPDWRs for possible regulatory revision. Although the statute does not define when a revision is "appropriate," as a general benchmark, EPA considered a possible revision to be "appropriate" if, at a minimum, it presents a meaningful opportunity to:

- improve the level of public health protection, and/or
- achieve cost savings for public water systems (PWS) while maintaining or improving the level of public health protection.

For SYR 4, EPA implemented the NPDWR review protocol that it developed for the first Six-Year Review (SYR 1; USEPA, 2003), including minor revisions developed during the second review process (SYR 2; USEPA, 2009b) and the third review process (SYR 3; USEPA, 2016c). Following the review method in the protocol, EPA sought new information that might affect the following NPDWR components:

- **Maximum Contaminant Level Goals** (MCLGs; the health goal) – for some contaminants new health effects assessments completed since the MCLG was promulgated or last revised provide a revised reference dose (RfD) and/or cancer classification information that led to potential MCLG estimates that are higher or lower than current MCLG values. In addition, updated information on exposure factors (USEPA, 2024d) also affected some potential MCLG estimates.
- **Maximum Contaminant Levels** (MCLs; the enforceable standard) – for some contaminants, the MCL is equal to the MCLG, and the health effects assessment indicates potential to revise the MCLG. Improvements in analytical feasibility as indicated by the practical quantitation limit (PQL) may also indicate feasibility to set the MCL closer to the MCLG[1].
- **Treatment Technique** (TT; sometimes established in lieu of an MCL) – new information on health effects, analytical feasibility, or treatment feasibility may indicate a possibility to revise the TT.

[1] For some contaminants, new information on analytical feasibility could affect the NPDWR because these are contaminants for which the MCL equals a PQL that is greater than the MCLG. EPA evaluated new information for performance testing data, method minimum detection limits (MDL), and compliance data minimum reporting levels (MRL) to determine whether it could develop an estimated quantitation level (EQL) threshold for occurrence analysis below the current PQL.

- **Other Regulatory Requirements** – Other regulatory revisions such as compliance monitoring may be appropriate if information suggest that changes in monitoring standards (e.g., frequency) could reduce health risks or costs while maintaining or improving the level of public health protection.

EPA obtained and evaluated new information available through the cutoff date for the SYR 4 cycle, which was December 2021. EPA's research methods and findings are documented in technical support documents for the following topics:

- Health effects (USEPA, 2024d);
- Analytical feasibility (USEPA, 2024b);
- EQLs for occurrence thresholds (USEPA, 2024b);
- Occurrence (USEPA, 2024a, 2024c and 2024e); and
- Treatment feasibility (USEPA, 2023f).

Based on the information provided in these technical support documents, this document provides summaries of the review findings for 71 regulated chemical contaminants. In particular, as a result of the review process, EPA identified new health effects or analytical methods information that indicated it may be possible to revise NPDWRs for several contaminants. Consequently, EPA conducted occurrence and exposure analyses at threshold concentrations that differ from current MCLs to determine if there is a meaningful opportunity to improve the level of public health protection by reducing MCLs or achieve cost savings while maintaining the level of health protection by increasing MCLs. This document reports EPA's final recommendations regarding these contaminants.

2 Chemical Contaminant Review Summaries

2.1. Acrylamide

a. *Background*. EPA published the current NPDWR for acrylamide on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR imposes a TT requirement that limits the allowable monomer levels in products used during drinking water treatment, storage, and distribution to 0.05 percent acrylamide in polyacrylamide coagulant aids, and limits the dosage of such products to a maximum of 1 mg/L (ppm). Each water system is required to certify, in writing, to the State (using third-party or manufacturer's certification) that the product used meets these residual monomers and use-level specifications.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health effects assessment search to identify relevant data on the carcinogenicity of acrylamide as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The NPDWR for acrylamide was previously identified as a candidate for regulatory revision (75 *FR* 15500, USEPA, 2010e). In SYR 3, EPA announced that the NPDWR for acrylamide were no longer candidates for revision due to low opportunity for further reduction of public health risk through regulatory revision (82 *FR* 3518, USEPA, 2017c). During SYR 4, EPA again found that the polyacrylamides-based polymers available today for water treatment have lower residual monomer content than when EPA promulgated residual content as a TT (USEPA, 2024f). For example, manufacturer product certification tests conducted by the NSF International from 2005 to 2007 and 2019 to 2021 indicated that the 90th percentile concentration of acrylamide residual monomer levels in product was approximately one-half the residual level listed in the current NPDWR (USEPA, 2024f).

The health benefits associated with the lower impurity levels are already being realized by communities throughout the country. Therefore, a regulatory revision will minimally affect health risk. Given resource limitations, competing workload priorities, and administrative costs and burden to states to adopt any regulatory changes associated with the rulemaking, the revisions to these NPDWRs are a low priority.

c. *Review Result.* Although there are data from the SYR 4 that support consideration of whether to revise the TT for acrylamide, EPA does not believe a revision to the NPDWR for acrylamide is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for acrylamide is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration that the health benefits of lower impurity levels are being realized, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.2. Alachlor

a. *Background*. EPA published the current NPDWR for alachlor on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* In 2006, EPA identified an updated qualifying health effects assessment for alachlor that could affect the MCLG (USEPA, 2006a). The assessment considered relevant noncancer effects, the assessment confirmed the RfD of 0.01 mg/kg-day (milligrams per kilogram of body weight per day). The assessment also concluded that alachlor is likely to be a human carcinogen at high doses, but not at low doses. Therefore, a linear dose-response extrapolation is no longer appropriate. EPA established a health reference value of 0.005 mg/kg-day for the nonlinear cancer assessment (USEPA, 2006a). During SYR 4, EPA determined that the RfD of 0.005 mg/kg-day remains the appropriate basis for health protection. Based on this RfD, an adjusted drinking water intake rate adjusted for body weight (DWI-BW) ratio of 33.8-mL/kg-day for the general population (all ages), and a relative source contribution (RSC) of 20 percent, the potential MCLG is 0.03 mg/L (USEPA, 2024d).

Since the health review for alachlor indicates that the MCLG could possibly increase to 0.03 mg/L (from its current MCLG of zero) and because the current MCL is based on a PQL of 0.002 mg/L, neither analytical nor treatment feasibility would be a limiting factor for a possible higher level of 0.03 mg/L.

EPA evaluated the results of the occurrence and exposure analyses for alachlor to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity for cost savings to PWSs and their customers while maintaining or improving the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for alachlor, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-1 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the National Ambient Water Quality Assessment (NAWQA) data collected by the U.S. Geological Survey (USGS). Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no to low occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at 0.5 percent of the NAWQA locations.

Table 2-1. Number and Percent of NAWQA Locations with Alachlor Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	5,669 (100%)	18,251 (100%)	23,920 (100%)
All samples are nondetects [a]	4,439 (78.3%)	17,837 (97.7%)	22,276 (93.1%)
At least one detection occurs	1,230 (21.7%)	414 (2.3%)	1,644 (6.9%)
Maximum concentration exceeds current MCL (0.002 mg/L)	91 (1.6%)	26 (0.1%)	117 (0.5%)
Maximum concentration exceeds potential MCLG (0.03 mg/L)	3 (0.1%)	2 (<0.1%)	5 (<0.1%)

Source: USEPA, 2024c (national data from 1991 to 2021; detection and exceedance estimates based on maximum sample values at each location).
a. The detection limits range from 0.000002 to 0.002 mg/L. Excludes 19 nondetects with reporting limits greater than 0.002 mg/L. Of these, 1 limit (0.038 mg/L) is greater than 0.03 mg/L.

The best available technologies (BATs) and small system compliance technologies (SSCTs) for alachlor have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for disinfection byproducts (DBPs) or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.002 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. The Agency recognizes, however, that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for alachlor, EPA does not believe a revision to the NPDWR for alachlor is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for alachlor is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.3. Alpha Particle Emitters

a. *Background*. EPA published an interim MCL of 15 pCi/L for gross alpha particle activity on July 9, 1976 (41 *FR* 28402, USEPA, 1976) and finalized the MCL on December 7, 2000 (65 *FR* 76708, USEPA, 2000). As noted in the August 14, 1975, proposal (40 *FR* 34324, USEPA, 1975) and a subsequent September 30, 1986 notice (51 *FR* 34836, USEPA, 1986b), EPA considered the feasibility of treatment techniques, analytical methods and monitoring when establishing the MCL of 15 pCi/L. On December 7, 2000 (65 *FR* 76708, USEPA, 2000), EPA established an

MCLG of zero based on a cancer classification of A ("known human carcinogen") and finalized the NPDWR by retaining the MCL of 15 pCi/L (picocuries per litre). EPA noted in the December 7, 2000, notice (65 *FR* 76708, USEPA, 2000) that new risk estimates from *Federal Guidance Report 13* reaffirmed that the 15 pCi/L gross alpha particle MCL (including radium 226 but excluding uranium and radon) was appropriate and protective.

b. *Technical Reviews.* EPA's Office of Air and Radiation (OAR) is currently reviewing the health risks resulting from exposure to alpha particle emittersThe new health effects assessment was not completed by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d). Additional information OAR's efforts to update the cancer risk coefficients and risk models for exposure to radionuclides through ingestion of water and about the status of the scientific review of the draft document titled "Federal Guidance Report No. 16: Cancer Risk Coefficients for Environmental Exposure to Radionuclides" can be found in the *Federal Register* (87 *FR* 15988, USEPA, 2022b)

Although there is an ongoing health effects assessment, the MCLG is zero and the current MCL is higher than the MCLG. Therefore, EPA reviewed whether there is potential to revise the MCL based on new information regarding analytical and treatment feasibility for gross alpha particles. EPA promulgated a detection limit of 3 pCi/L in 1976 (41 *FR* 28402, USEPA, 1976) and retained the use of a detection limit as the required measure of sensitivity for radiochemical analysis in lieu of an MDL or PQL in the final rule (65 *FR* 76708, USEPA, 2000). EPA did not identify new information that would lower the detection limit. In addition, since the December 7, 2000, regulation, there is no new information regarding treatment feasibility. Since there is no new information regarding analytical or treatment feasibility that suggests changes to the MCL, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* The Agency does not believe a revision to the NPDWR for gross alpha particles is appropriate at this time because a reassessment of the health risks resulting from exposure to alpha particles is in progress (USEPA, 2024d). Furthermore, there is no new information regarding analytical or treatment feasibility that would warrant reconsideration of the MCL.

2.4. Antimony

a. *Background*. EPA published the current NPDWR for antimony on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.006 mg/L. EPA based the MCLG on a RfD of 0.0004 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.00014 mg/kg-day based on a more recent health effects assessment (CalEPA, 2016). The updated RfD is based on a more recent critical study and uses a more current modeling approach for dose-response characterization (USEPA, 2024d). Based on an RfD of 0.00014 mg/kg-day, an updated DWI-BW ratio of 33.8 mL/kg-day for the general population (all ages), and an RSC of 40 percent, the potential MCLG is 0.002 mg/L (USEPA, 2024d).

Because of a possible change in the MCLG for antimony, EPA considered whether analytical feasibility is likely to be a limitation if the Agency were to consider lowering the MCL to (the

potential MCLG). EPA reviewed performance testing (PT) data from the SYR 4 cycle to determine if the PQL could be revised (i.e., analytical feasibility). During SYR 4, EPA evaluated MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for antimony during the current review cycle. The SYR 4 Information Collection Request (ICR) dataset contains MRL values for 185,382 samples. Less than 80 percent of these values are less than or equal to the modal MRL of 0.001 mg/L. The mode is also less than the potential MCLG of 0.002 mg/L. The MDLs of approved methods range from 0.0004 to 0.003 mg/L. Multiplying the MDLs by 10 results in a possible estimated quantiation level (EQL) range from 0.004 to 0.03 mg/L. The lower bound of this range is the only value below the PQL of 0.006 mg/L. More than 20 percent of the MRL values exceed 0.004 mg/L. Based on this evaluation, EPA determined that the MRL data do not support use of the potential MCLG for the occurrence analysis and an EQL is not feasible (USEPA, 2024b). Since the MCL is constrained by the PQL, and the PQL is unchanged, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* Although there are new data indicating that it might be possible to revise the MCLG and the MCL, analytical feasibility would limit the extent to which the MCL for antimony could be revised at the present time. The current MCL equals the PQL, which cannot be lowered. Thus, a lower MCL is not feasible and an NPDWR revision has no potential for health risk reduction.

2.5. Arsenic

a. *Background*. EPA published the current NPDWR for arsenic on January 22, 2001 (66 *FR* 6976, USEPA, 2001b). The NPDWR established an MCLG of zero based on a cancer classification of A, "known human carcinogen". The NPDWR also established an MCL of 0.010 mg/L, which is higher than the feasible analytical level of 0.003 mg/L. EPA exercised its discretionary authority to set an MCL at a level higher than feasible (SDWA Section 1412(b)(6)), based on the finding that a final MCL of 0.010 mg/L represents the level that best maximizes health risk reduction benefits at a cost that is justified by the benefits (66 *FR* 6976, USEPA, 2001b at 7020).

b. *Technical Reviews.* The Integrated Risk Information System (IRIS) program in EPA's Office of Research and Development (ORD) is currently conducting a reassessment of the health risks resulting from exposure to inorganic arsenic. On October 16, 2023, EPA released the draft "IRIS Toxicologial Review of Inorganic Arsenic" for public review and comment (88 *FR* 71360, USEPA, 2023b). The final health effects assessment of cancer and noncancer health effects was not completed by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d). Therefore, the MCLG remains zero. Furthermore, the outcome of the assessment could affect the MCL, which was based on benefit-cost analysis, by affecting the health risk reduction benefits.

Although there is an ongoing health effects assessment, the MCLG is zero and the current MCL is higher than the MCLG. The MCL is based on benefit-cost analysis, which could be affected by the outcome of a health effects assessment.

Since EPA did not identify a health or technology basis for revising the arsenic NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* The Agency does not believe a revision to the NPDWR for arsenic is appropriate at this time because a reassessment of the health risks resulting from exposure to arsenic is ongoing (USEPA, 2024d). As noted previously, the arsenic MCL is based on the SDWA benefit-cost analysis provision (Section 1412(b)(6)) and the health effects assessment is important for reviewing the benefits associated with the basis of the MCL.

2.6. Asbestos

a. *Background*. EPA published the current NPDWR for asbestos on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 7 million fibers/L. EPA evaluated asbestos as a Category II[2] contaminant (equivalent to Group C, "possible human carcinogen) by the oral route of exposure".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of asbestos as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for asbestos because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the asbestos NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the asbestos NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.7. Atrazine

a. *Background*. EPA published the current NPDWR for atrazine on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.003 mg/L. EPA based the MCLG on a RfD of 0.005 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.076 mg/kg-day based on an EPA Office of Pesticide Programs (OPP) human health risk assessment (USEPA, 2018a). The updated RfD is based on a more recent critical study and uses a more current modeling approach for dose-response characterization (USEPA, 2024d). Based on an RfD of 0.076 mg/kg-day, an adjusted DWI-BW ratio of 35.6-mL/kg-day for females aged 13 to 49 years, and an RSC of 20 percent, the potential MCLG is 0.4494 mg/L, rounded to 0.4 mg/L (USEPA, 2024d).

[2] Category II contaminants include those contaminants for which EPA has determined there is limited evidence of carcinogenicity from drinking water considering weight of evidence, pharmacokinetics, potency, and exposure. For Category II contaminants, EPA has used two approaches to set the MCLG: Either (1) setting the MCLG based upon noncarcinogenic endpoints of toxicity (the RfD) then applying an additional risk management factor of 1 to 10; or (2) setting the MCLG based upon a theoretical lifetime excess cancer risk range of 10^{-5} to 10^{-6} using a conservative mathematical extrapolation model.

EPA evaluated the results of the occurrence and exposure analyses for atrazine to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity for cost savings to PWSs and their customers while maintaining or improving the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for atrazine, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-2 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data collected by the USGS. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no to low occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at less than 2 percent of the NAWQA locations.

Table 2-2. Number and Percent of NAWQA Locations with Atrazine Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	6,511 (100%)	18,682 (100%)	25,193 (100%)
All samples are nondetects [a]	2,047 (31.4%)	14,485 (77.5%)	16,532 (65.6%)
At least one detection occurs	4,464 (68.6%)	4,197 (22.5%)	8,661 (34.4%)
Maximum concentration exceeds current MCL (0.003 mg/L)	446 (6.8%)	36 (0.2%)	482 (1.9%)
Maximum concentration exceeds potential MCLG (0.4 mg/L)	3 (<0.1%)	0 (0%)	3 (<0.1%)

Source: USEPA, 2024c (national data from 1991 to 2020; estimates based on maximum sample values at each location).
a. The detection limits range from 0.000001 to 0.0026 mg/L. Excludes 68 nondetects with reporting limits greater than 0.003 mg/L, none of which are greater than 0.4 mg/L.

The BATs and SSCTs for atrazine have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.003 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment. Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for atrazine, EPA does not believe a revision to the NPDWR for atrazine is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for atrazine is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.8. Barium

a. *Background*. EPA published the current NPDWR for barium on July 1, 1991 (56 *FR* 30266, USEPA, 1991a). The NPDWR established an MCLG and an MCL of 2 mg/L. EPA based the MCLG on a RfD of 0.07 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity", via the oral route.

b. *Technical Reviews.* In 2005, EPA completed a health effects assessment for barium that could affect the MCLG (USEPA, 2005a). The assessment considered relevant studies on the toxicity of barium including developmental and reproductive toxicity and updated the RfD for barium from 0.07 mg/kg-day to 0.2 mg/kg-day (USEPA, 2005a). During SYR 4, EPA determined that the RfD of 0.2 mg/kg-day remains the appropriate basis for health protection. Based on this RfD, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages) and an RSC of 80 percent results in a potential MCLG of 5.6 mg/L, rounded to 6.0 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for barium to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for barium, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-3 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no to low occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at 0.4 percent of the NAWQA locations.

Table 2-3. Number and Percent of NAWQA Locations with Barium Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	7,203 (100%)	30,194 (100%)	37,397 (100%)
All samples are nondetects [a]	311 (4.3%)	1,340 (4.4%)	1,651 (4.4%)
At least one detection	6,892 (95.7%)	28,854 (95.6%)	35,746 (95.6%)
Maximum concentration exceeds current MCL (2 mg/L)	28 (0.4%)	113 (0.4%)	141 (0.4%)
Maximum concentration exceeds potential MCLG (6 mg/L)	8 (0.1%)	32 (0.1%)	40 (0.1%)

Source USEPA, 2024c (data from 1991 to 2021; detection and exceedance estimates based on maximum sample values at each location).
a. The detection limits range from 0.00002 to 0.004 mg/L; the mode is 0.001 mg/L.

The BATs and SSCTs for barium have other beneficial effects, e.g., reduction of other co-occurring contaminants or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 2 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for barium, EPA does not believe a revision to the NPDWR for barium is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for barium is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.9. Benzene

a. *Background*. EPA published the current NPDWR for benzene on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG of zero based on a cancer classification of A, "known human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of benzene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for benzene is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of benzene might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Fifteen PT studies had sample concentrations below the current PQL of 0.005 mg/L, all of which had passing rates above 75 percent. Thus, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 424,678 samples. Over 80 percent of these values are less than or equal to the modal MRL of 0.0005 mg/L. The MDLs of approved methods range from 0.00001 to 0.00004 mg/L. Multiplying the MDLs by 10 results in a possible EQL range from 0.0001 to 0.0004 mg/L. This range of values are over an order of magnitidue less than the PQL. Therefore, EPA set the EQL equal to the modal MRL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for benzene to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-4 shows the results of the occurrence and exposure analysis for the current MCL of 0.005 mg/L and the potential MCLG of 0.0005 mg/L. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 9 of 52,207 systems (0.02 percent) serving 2,455 people (<0.01 percent of 274.6 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for up to 83 systems (0.16 percent) serving 319,633 people (0.12 percent).

Table 2-4. Number and Percent of Systems with Mean Concentrations Exceeding Benzene Thresholds and Corresponding Estimates of Population Served [a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	9	9	0.02%	0.02%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	83	69	0.16%	0.13%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	2,455	2,455	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	319,633	202,634	0.12%	0.07%

Source: USEPA, 2024a

a. Percentages are based on the 52,207 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,587,312 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for benzene is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.10. Benzo[a]pyrene

a. *Background*. EPA published the current NPDWR for benzo[a]pyrene on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of zero based on a cancer

classification of B2, “probable human carcinogen”. The NPDWR also established an MCL of 0.0002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search for relevant data on the carcinogenicity of benzo[a]pyrene as well as non-cancer related health effects. EPA didnot identify any new information that might affect the current MCLG (USEPA, 2024d).

The existing MCLG is still zero and the current MCL is based on a PQL of 0.0002 mg/L. Therefore, EPA reviewed whether there is potential to revise the PQL. During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for benzo[a]pyrene during the current review cycle. The SYR 4 ICR dataset contains MRL values for 149,713 samples. Less than 80 percent of these values are less than or equal to the modal MRL of 0.00002 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000016 to 0.00023 mg/L. Multiplying the MDLs by 10 results results in possible EQL values ranging from 0.00016 to 0.0023 mg/L. The lowest range value of 0.0016 mg/L rounds to 0.0002 mg/L, which is the PQL. Thus, the MDL data do not support an EQL below the PQL (USEPA, 2024b). Based on this evaluation, EPA believes that there is no potential to lower the PQL for benzo[a]pyrene and an EQL was not developed (USEPA, 2024b).

Since the MCL is constrained by the PQL, and the PQL is unchanged, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* EPA did not identify new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL). Therefore, EPA does not believe a revision to the NPDWR for benzo[a]pyrene is appropriate at this time.

2.11. Beryllium

a. *Background*. EPA published the current NPDWR for beryllium on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.004 mg/L. EPA classified beryllium in Group B2, “probable human carcinogen”, based on clear evidence of its carcinogenicity via inhalation or injection in several animal species. However, EPA also placed beryllium in drinking water Category II for regulation, based on the weight of evidence for carcinogenicity via ingestion and the potency, exposure, and pharmacokinetics of this chemical. EPA derived the MCLG by applying an additional risk management factor of 10 to the RfD of 0.005 mg/kg-day (57 *FR* 31776, USEPA, 1992).

b. *Technical Reviews.* In 1998, EPA completed a health effects assessment for beryllium (USEPA, 1998) that updated the RfD for beryllium from 0.005 mg/kg-day (and an additional cancer risk factor of 10) to 0.002 mg/kg-day (without an additional risk factor) (USEPA, 1998). During prior SYR cycles, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for cost savings to public water systems or their customers and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (68 *FR* 42908, USEPA, 2003; USEPA, 2016a). During SYR 4, based on an RfD of 0.002 mg/kg-day, an adjusted DWI-

BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.014 mg/L, rounded to 0.01 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for beryllium to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for beryllium, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-5 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no to low occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at 0.6 percent of the NAWQA locations.

Table 2-5. Number and Percent of NAWQA Locations with Beryllium Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	4,541 (100%)	20,901 (100%)	25,442 (100%)
All samples are nondetects [a]	3,704 (81.6%)	17,449 (83.5%)	21,153 (83.1%)
At least one detection	837 (18.4%)	3,452 (16.5%)	4,289 (16.9%)
Maximum concentration exceeds current MCL (0.004 mg/L)	70 (1.5%)	82 (0.4%)	152 (0.6%)
Maximum concentration exceeds potential MCLG (0.01 mg/L)	34 (0.7%)	44 (0.2%)	78 (0.3%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits for the results shown range from 0.0000007 to 0.004 mg/L. Excludes 6,121 nondetects with reporting limits greater than 0.004 mg/L. Of these, 55 are greater than 0.01 mg/L, ranging from 0.011 mg/L to 12 mg/L.

The BATs and SSCTs for beryllium have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.004 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for beryllium, EPA does not believe a revision to the NPDWR for beryllium is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for beryllium is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low

occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.12. Beta Particle and Photon Emitters

a. *Background*. EPA published an interim MCL of 4 millirems per year (mrem/yr) for beta particle and photon emitters on July 9, 1976 (41 *FR* 28402, USEPA, 1976) and finalized the MCL on December 7, 2000 (65 *FR* 76708; USEPA, 2000). As noted in the August 14, 1975, proposal (40 *FR* 34324, USEPA, 1975) and a subsequent September 30, 1986 (51 *FR* 34836, USEPA, 1986b) advanced notice of proposed rulemaking, EPA considered the feasibility of TTs, analytical methods and monitoring when establishing the MCL of 4 mrem/yr. EPA also considered the risks associated with beta particle and photon emitters, which generally fell within the Agency's acceptable risk range of 10^{-4} to 10^{-6} at the MCL of 4 mrem/yr. On December 7, 2000 (65 *FR* 76708, USEPA, 2000), EPA established an MCLG of zero based on a cancer classification of A ("known human carcinogen") and finalized the NPDWR by retaining the MCL of 4 mrem/yr. EPA noted in the December 7, 2000, notice (65 *FR* 76708, USEPA, 2000) that new risk estimates from Federal Guidance Report 13 reaffirmed that the 4 mrem/yr MCL was appropriate and protective.[3]

b. *Technical Reviews.* OAR is currently reviewing the health risks resulting from exposure to beta particle and photon emitters. The new health effects assessment was not completed by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d). Additional information OAR's efforts to update the cancer risk coefficients and risk models for exposure to radionuclides through ingestion of water and about the status of the scientific review of the draft document titled "Federal Guidance Report No. 16: Cancer Risk Coefficients for Environmental Exposure to Radionuclides" can be found in the *Federal Register* (87 *FR* 15988, USEPA, 2022b).

Although there is an ongoing health effects assessment, the MCLG is zero and the current MCL is higher than the MCLG. Therefore, EPA reviewed whether there is potential to revise the MCL based on new information available regarding the analytical and treatment feasibility for beta particle and photon emitters. EPA promulgated the MCL of 4 mrem/yr for man-made beta particle and photon emitters (present in any combination) in 1976 (41 *FR* 28402, USEPA, 1976) and retained the use of the detection limit as the required measure of sensitivity in the December

[3] After the December 7, 2000, final regulation, two trade associations and several municipal water systems challenged EPA's standard for the beta photon emitters by claiming that the Agency did not use the best available science when finalizing the standard. In February of 2003, the District of Columbia (DC) Circuit Court of Appeals upheld EPA's regulation for beta and photon emitters (as well as radium 226 and 228 and uranium). In July 2004, the DC Circuit Court of Appeals also upheld the policy and scientific basis of EPA's application of the beta particle and photon (man-made) drinking water standards to the ground water protection standards used for Yucca Mountain under 40 CFR part 197 (66 *FR* 32073, USEPA, 2001c).

2000 final rule (65 *FR* 76708, USEPA, 2000). The original rule estimated a risk ceiling of 5.6×10^{-5} for whole body doses. Limits were set in picocurie units for each nuclide equivalent to a 4 mrem dose. The dosimetry found in USEPA (1999) and reported in the December 2000 final rule reveals more exact risks that are still within the Agency's acceptable limits. While individual dose estimates changed over time, the overall limit of 4 mrem was retained along with a two-tiered potential level to avoid analyzing each possible nuclide below the screen, and still be protective. EPA did not identify new information that would lower the detection limits for beta particle and photon emitters. In addition, since the December 7, 2000, regulation, there is no new information regarding treatment feasibility. Since there is no new information regarding analytical or treatment feasibility that suggests changes to the MCL, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* The Agency does not believe a revision to the NPDWR for beta particles is appropriate at this time because a reassessment of the health risks resulting from exposure to beta particles is in progress (USEPA, 2024d). Furthermore, there is no new information regarding analytical or treatment feasibility that would warrant reconsideration of the MCL.

2.13. Cadmium

a. *Background*. EPA published the current NPDWR for cadmium on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.005 mg/L. Because of inadequate dose-response data to characterize the presence or lack of a carcinogenic hazard from oral exposure, the Agency classified cadmium as a Group D carcinogen, "not classifiable as to human carcinogenicity" by the oral route of exposure. Therefore, EPA developed the MCLG for cadmium based on the RfD of 0.0005 mg/kg-day.

b. *Technical Reviews.* During SYR 3, EPA identified new information that potentially affects the MCLG for cadmium (USEPA, 2016b). In 2012, the Agency for Toxic Substances and Disease Registry (ATSDR) updated its health effects assessment of cadmium. The ATSDR identified a change in this assessment that could lead to a change in the MCLG (ATSDR, 2012). The assessment reported a minimum risk level of 0.0001 mg/kg-day (ATSDR, 2012). During SYR 4, EPA determined that the ATSDR value remained appropriate. Based on this value of 0.0001 mg/kg-day, an adjusted DWI-BW ratio of 33.8 mL/kg-day for the general population (all ages) and an RSC of 25 percent results in a potential MCLG of 0.0007 mg/L (USEPA, 2024d).

Because of a possible change in the MCLG for cadmium, EPA considered whether analytical feasibility is likely to be a limitation if the Agency were to consider lowering the MCL to 0.0007 mg/L (the potential MCLG). During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for cadmium during the current review cycle. The SYR 4 ICR dataset contains MRL values for 185,346 samples. Over 80 percent of these values are less than or equal to the modal MRL of 0.001 mg/L; however, fewer than 80 percent are less than or equal to the potential MCLG of 0.0007 mg/L. Therefore, EPA determined that the potential MCLG cannot be the occurrence threshold. The MDLs of approved methods range from 0.00005 to 0.001 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.0005 to 0.01 mg/L. The highest value exceeds the PQL of 0.002 mg/L. The highest value that is less than the PQL is 0.001 mg/L, which is also the modal MRL. Thus, EPA set the EQL equal to the modal MRL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for cadmium to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-6 shows the results of the occurrence and exposure analysis for the current MCL of 0.005 mg/L and the EQL of 0.001 mg/L. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 12 of 50,989 systems (0.02 percent) serving 2,212 people (<0.01 percent of 269.6 million people). Note that these results are system-wide averages based on the monitoring data in the SYR 4 ICR dataset; they do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL of 0.001 mg/L for up to 182 systems (0.36 percent) serving 430,823 people (0.16 percent).

Table 2-6. Number and Percent of Systems with Mean Concentrations Exceeding Cadmium Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	12	10	0.02%	0.02%
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (EQL)	182	126	0.36%	0.25%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	2,212	1,462	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (EQL)	430,823	400,852	0.16%	0.15%

Source: USEPA, 2024a

a. Percentages based on the 50,989 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 269,570,338 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for cadmium, EPA does not believe a revision to the NPDWR for cadmium is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for cadmium is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.14. Carbofuran

a. *Background*. EPA published the current NPDWR for carbofuran on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.04 mg/L. EPA

based the MCLG on a RfD of 0.005 mg/kg-day and a cancer classification of E, "evidence of non-carcinogenicity for humans".

b. *Technical Reviews.* In 2008, the Agency updated health effects assessment of carbofuran (USEPA, 2008), including relevant studies on the toxicity of carbofuran including developmental and reproductive toxicity. The assessment identified an acute RfD of 0.0003 mg/kg-day and an acute population-adjusted dose (aPAD) of 0.00006 mg/kg-day, which includes an additional Food Quality Protection Act safety factor of 5 (USEPA, 2008). During SYR 4, based on the aPAD of 0.00006 mg/kg-day, an adjusted DWI-BW ratio of 43.3 mL/kg-day for children zero to 13 years old, and an RSC of 20 percent, EPA established a potential MCLG of 0.0003 mg/L (USEPA, 2024d).

During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). There are no PT results at sample concentrations below the PQL of 0.007 mg/L. Because of a lack of PT data below the PQL, EPA determined that the data do not support reduction of the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 138,416 samples. Less than 80 percent of these values are less than or equal the modal MRL of 0.0009 mg/L. The range exceeds the potential MCLG of 0.0003 mg/L but extends below the current PQL. Therefore, EPA determined that the potential MCLG of 0.0003 mg/L cannot be the occurrence threshold. The MDLs of approved methods range from 0.000058 to 0.0015 mg/L. Applying a multiplier of 10, results in possible EQL values ranging from 0.00058 to 0.015 mg/L. EPA used the highest value below the PQL (0.0052 mg/L) and rounded to 0.005 mg/L to obtain an EQL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for carbofuran to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-7 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The analysis uses single sample or peak results instead of system average results because the health endpoint is associated with acute exposure.[4] The occurrence and exposure analysis shows no exceedance of the current MCL of 0.04 mg/L. Average concentrations exceeded the EQL at 7 of 37,375 systems (0.02 percent), serving 49,409 people (0.02 percent of 228.5 million people). Following cancellation of most registered uses of carbofuran in 2009 (74 *FR* 11551, USEPA, 2009a), declining agricultural applications should further reduce the occurrence of carbofuran in drinking water sources (Ryberg and Gilliom, 2015).

[4] The SYR 4 ICR occurrence data are based on the Standardized Monitoring Framework for synthetic organic compounds, which is designed to evaluate long-term exposure to contaminants with chronic exposure health endpoints. As a result, EPA recognizes that short-term seasonal peaks, which correspond to past carbofuran application as a pesticide, cannot be readily detected in this dataset. Nonetheless, the peak concentrations in the SYR 4 ICR dataset are the best available data to evaluate potential occurrence for carbofuran because the health endpoint is associated with acute exposure.

Table 2-7. Number and Percent of Systems with a Peak Concentration that Exceeds Carbofuran Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Number of Systems or Sum of Population	Percent of Systems or Population
Number (%) of Systems with Peak Concentrations > 0.04 mg/L (MCL)	0	0%
Number (%) of Systems with Peak Concentrations > 0.005 mg/L (EQL)	7	0.02%
Sum (%) of Population Served by Systems with Peak Concentrations > 0.04 mg/L (MCL)	0	0%
Sum (%) of Population Served by Systems with Peak Concentrations > 0.005 mg/L (EQL)	49,409	0.02%

Source: USEPA, 2024a

a. Percentages based on the 37,375 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 228,527,022 people.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for carbofuran, EPA does not believe a revision to the NPDWR for carbofuran is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for carbofuran is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.15. Carbon Tetrachloride

a. *Background*. EPA published the current NPDWR for carbon tetrachloride on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of carbon tetrachloride as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

The current MCL for carbon tetrachloride is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of carbon tetrachloride might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Fifteen PT studies had sample concentrations below the

current PQL of 0.005 mg/L, all of which had passing rates above 75 percent. Thus, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 447,499 samples. Over 80 percent of these values are less than or equal to the modal MRL of 0.0005 mg/L. Thus, the MRL data support an EQL value equal to the modal MRL. The MDLs of approved methods range from 0.000008 to 0.00021 mg/L. Multiplying the MDLs by 10 results in possible EQL values ranging from 0.00008 to 0.0021 mg/L, which supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for carbon tetrachloride to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-8 shows the results of the occurrence and exposure analysis for the current MCL of 0.005 mg/L and the EQL of 0.0005 mg/L. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 3 of 52,205 systems (0.01 percent) serving 2,108 people (<0.01 percent of 274.6 million people). Note that these results are system-wide averages based on the monitoring data in the SYR 4 ICR dataset; they do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL of 0.0005 mg/L at up to 90 systems (0.17 percent) serving 766,891 people (0.28 percent).

Table 2-8. Number and Percent of Systems with Mean Concentrations Exceeding Carbon Tetrachloride Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	3	3	0.01%	0.01%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	90	74	0.17%	0.14%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	2,108	2,108	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	766,891	628,221	0.28%	0.23%

Source: USEPA, 2024a

a. Percentages based on the 52,205 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,593,290 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for carbon tetrachloride is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.16. Chlordane

a. *Background*. EPA published the current NPDWR for chlordane on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of chlordane as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

The current MCL for chlordane is based on a PQL of 0.002 mg/L. The Agency considered whether changes in the analytical feasibility of chlordane might lead to a lower MCL. During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for chlordane during the current review cycle. The SYR 4 ICR dataset contains MRL values for 150,289 samples. Less than 80 percent of these values are less than or equal the modal MRL of 0.0002 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.0000028 to 0.00022 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.000028 to 0.0022 mg/L. The highest value exceeds the PQL of 0.002 mg/L. Therefore, EPA used the highest value below the PQL (0.0014 mg/L) and rounded to 0.001 mg/L to obtain an EQL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for chlordane to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-9 shows the results of the occurrence and exposure analysis for the current MCL and the EQL of 0.001 mg/L. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for 1 of 38,310 systems (<0.01 percent) serving 240 people (<0.01 percent of 230.5 million people).

Table 2-9. Number and Percent of Systems with Mean Concentrations Exceeding Chlordane Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.002 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (EQL)	1	1	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.002 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (EQL)	240	240	<0.01%	<0.01%

Source: USEPA, 2024a

a. Percentages are based on the 38,310 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 230,456,908 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews on treatment feasibility or economic considerations.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for chlordane is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.17. Chromium

a. *Background*. EPA published the current NPDWR for total chromium on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.1 mg/L. Although the NPDWR regulates total chromium, the adverse health effects associated with hexavalent chromium (Cr VI) are the basis of the current MCLG because that is the more toxic species (56 *FR* 3526, USEPA, 1991c). EPA based the MCLG on an RfD of 0.005 mg/kg-day and an assumed RSC from water of 70 percent for total chromium. EPA regulated chromium as a Group D carcinogen, "not classifiable as to human carcinogenicity" by the oral route of exposure.

b. *Technical Reviews.* EPA is currently assessing the health risks resulting from exposure to hexavalent chromium under the IRIS program. On October 20, 2022 EPA published its draft "IRIS Toxicological Review of Hexavalent Chromium [Cr(VI)]" for public comment (87 *FR*

63774, USEPA, 2022a). The final health effects assessment was not available by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for total chromium because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the total chromium NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA did not identify new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL). Therefore, EPA does not believe a revision to the NPDWR for total chromium is appropriate at this time.

2.18. Cyanide

a. *Background*. EPA published the current NPDWR for cyanide on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.2 mg/L. EPA based the MCLG on a RfD of 0.02 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity". During the first SYR cycle, EPA recommended a revision to the BATs for cyanide to clarify that "chlorine" should be "alkaline chlorine" to avoid potential for the formation of harmful cyanogen chloride. EPA promulgated that revision in 69 *FR* 38850, USEPA, 2004a.

b. *Technical Reviews.* In 2010, the Agency updated its health effects assessment of cyanide. The Agency identified a change in this assessment that could lead to a change in the MCLG (USEPA, 2010d). This assessment considered relevant studies on the toxicity of cyanide including developmental and reproductive toxicity. The assessment updated the RfD from 0.02 mg/kg-day to 0.0006 mg/kg-day (USEPA, 2010d). During SYR 3, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for health risk reduction and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (USEPA, 2016a). During SYR 4, based on an RfD of 0.0006 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general populatio (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.0044 mg/L, rounded to 0.004 mg/L (USEPA, 2024d).

During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). There are no PT results at sample concentrations below the PQL of 0.1 mg/L. Three studies had passing rates below 75 percent at sample concentrations above the PQL, all of which included a limited sample size (10 or fewer laboratories). Because of a lack of PT data below the PQL, EPA determined that the data do not support reduction of the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 119,685 samples. Fewer than 80 percent of these values are less than or equal the modal MRLof 0.01 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of the approved method range from 0.0005 to 0.05 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.005 to 0.5 mg/L. Excluding the values greater than the current PQL, the next highest value indicates a possible EQL of 0.05 mg/L, which is greater than the potential MCLG, but less than the PQL. Therefore, EPA set the EQL equal 0.05 mg/L (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for cyanide to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-10 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 9 of 38,760 systems (0.02 percent) serving 97,971 people (0.04 percent of 237.3 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for up to 328 systems (0.85 percent) serving 8,134,220 people (3.43 percent).

Table 2-10. Number and Percent of Systems with Mean Concentrations Exceeding Cyanide Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.2 mg/L (MCL)	9	8	0.02%	0.02%
Number (%) of Systems with Mean Concentrations > 0.05 mg/L (EQL)	328	309	0.85%	0.80%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.2 mg/L (MCL)	97,971	95,171	0.04%	0.04%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.05 mg/L (EQL)	8,134,220	8,051,760	3.43%	3.39%

Source: USEPA, 2024a

a. Percentages are based on the 38,760 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 237,319,733 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

EPA also identified several analytical and reporting issues that may impact the accuracy of the occurrence data. EPA is aware of an analytical artifact created by ascorbic acid pretreatment of drinking water samples disinfected with chloramines that can result in false positives for free cyanide (USEPA, 2020a). Second, EPA is aware that some systems analyze samples for total cyanide and if the results are lower than the MCL, report the total cyanide results as free cyanide. EPA was unable to evaluate the impact of these issues on the occurrence estimates with the available information. EPA intends to help address these data gaps by continuing to disseminate the 2020 guidance on analytical methods for cyanide and may consider an additional analyte code for total cyanide in the SDWIS reporting system.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for cyanide, EPA does not believe a revision to the NPDWR for cyanide is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for cyanide is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the uncertain occurrence of this contaminant because of data gaps, EPA has decided that any revision to the NPDWR would not be appropriate.

2.19. 2,4-D (2,4-Dichlorophenoxyacetic acid)

a. *Background*. EPA published the current NPDWR for 2,4-D on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.07 mg/L. EPA based the MCLG on a RfD of 0.01 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.21 mg/kg-day based on an EPA OPP human health risk assessment (USEPA, 2017a). The updated RfD is based on a more recent critical study (USEPA, 2024d). Based on an RfD of 0.21 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day) for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 1.24 mg/L, rounded to 1 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for 2,4-D to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for 2,4-D, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-11 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows almost no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would not affect systems that rely on source water at any of the NAWQA locations.

Table 2-11. Number and Percent of NAWQA Locations with 2,4-D Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	2,569 (100%)	8,958 (100%)	11,527 (100%)
All samples are nondetects [a]	1,756 (68.4%)	8,894 (99.3%)	10,650 (92.4%)
At least one detection	813 (31.6%)	64 (0.7%)	877 (7.6%)
Maximum concentration exceeds current MCL (0.07 mg/L)	0 (0%)	0 (0%)	0 (0%)
Maximum concentration exceeds potential MCLG (1 mg/L)	0 (0%)	0 (0%)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2020; estimates based on maximum sample values at each location).
a. The detection limits range from 0.000007 to 0.0078 mg/L.

The BATs and SSCTs for 2,4-D have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities.

Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.07 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not

recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for 2,4-D, EPA does not believe a revision to the NPDWR for 2,4-D is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 2,4-D is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.20. Dalapon (2,2-Dichloropropionic Acid)

a. *Background*. EPA published the current NPDWR for dalapon on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.2 mg/L. EPA based the MCLG on a RfD of 0.03 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of dalapon as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for dalapon because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the dalapon NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the dalapon NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.21. Di(2-ethylhexyl)adipate (DEHA)

a. *Background*. EPA published the current NPDWR for DEHA on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.4 mg/L. EPA based the MCLG on a RfD of 0.6 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of DEHA as well as non-cancer related health

effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for DEHA because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the DEHA NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the DEHA NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.22. Di(2-ethylhexyl)phthalate (DEHP)

a. *Background*. EPA published the current NPDWR for DEHP on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.006 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of DEHP as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

The current MCL for DEHP is based on a PQL of 0.006 mg/L. The Agency considered whether changes in the analytical feasibility of DEHP might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Only one PT study had a sample concentration slightly less than the current PQL. It had a passing rate greater than 75 percent. The PT data indicate uncertain potential to reduce the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 156,347 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.0006 mg/L (USEPA, 2024b). The MDLs of approved methods range from 0.00005 to 0.00225 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.0005 to 0.0225 mg/L. The only value within the range that is less than the PQL is also less than the MRL mode. EPA determined that although MRL values are generally below the PQL, neither the MRL mode nor MDL multiplier values support an EQL value less than the PQL. Therefore, EPA did not develop an EQL (USEPA, 2024b).

Since the MCL is constrained by the PQL, and the PQL is unchanged, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* EPA did not identify new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL). Therefore, EPA does not believe a revision to the NPDWR for DEHP is appropriate at this time.

2.23. 1,2-Dibromo-3-chloropropane (DBCP)

a. *Background*. EPA published the current NPDWR for DBCP on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of

B2, “probable human carcinogen”. The NPDWR also established an MCL of 0.0002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of DBCP as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

The current MCL for DBCP is based on a PQL of 0.0002 mg/L. The Agency considered whether changes in the analytical feasibility of DBCP might lead to a lower MCL. During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for DBCP during the current review cycle. The SYR 4 ICR dataset contains MRL values for 200,803 samples. Less than 80 percent of these values are less than or equal to the modal MRL of 0.00001 mg/L (USEPA, 2024b). The MDLs of approved methods range from 0.0000016 to 0.000063 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.000016 to 0.00063 mg/L. The highest value is greater than the PQL of 0.0002 mg/L. The highest value less than the PQL is 0.0001 mg/L. Although the MDL data indicate potential for an EQL of 0.0001 mg/L, almost 19 percent of the MRL values are greater than this value. Therefore, EPA did not develop an EQL.

Since the MCL is constrained by the PQL, and the PQL is unchanged, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* EPA did not identify new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL). Therefore, EPA does not believe a revision to the NPDWR for DBCP is appropriate at this time.

2.24. 1,2-Dichlorobenzene (o-Dichlorobenzene)

a. *Background*. EPA published the current NPDWR for 1,2-dichlorobenzene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.6 mg/L. EPA based the MCLG on a RfD of 0.09 mg/kg-day and a cancer classification of D, “not classifiable as to human carcinogenicity”.

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.3 mg/kg-day based on an ATSDR toxicological profile (ATSDR, 2006). The updated RfD is based on the same critical study as the RfD for the promulgated MCLG but uses a chronic health endpoint instead of a subchronic health endpoint (USEPA, 2024d). Based on an RfD of 0.3 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, the potential MCLG is 1.78 mg/L, rounded to 2.0 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for 1,2-dichlorobenzene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for 1,2-dichlorobenzene, its usefulness is limited for potential cost savings to PWSs and their customers because the Agency does not know which systems are

treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-12 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows almost no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at less than 0.1 percent of the NAWQA locations.

Table 2-12. Number and Percent of NAWQA Locations with 1,2-Dichlorobenzene Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	1,797 (100%)	17,998 (100%)	19,795 (100%)
All samples are nondetects [a]	1,762 (98.1%)	17,937 (99.7%)	19,699 (99.5%)
At least one detection	35 (1.9%)	61 (0.3%)	96 (0.5%)
Maximum concentration exceeds current MCL (0.6 mg/L)	0 (0%)	1 (<0.1%)	1 (<0.1%)
Maximum concentration exceeds potential MCLG (2 mg/L)	0 (0%)	1 (<0.1%)	1 (<0.1%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.00000275 to 0.5 mg/L. Excludes 35 nondetects with reporting limits greater than 0.6 mg/L. Of these, 3 are greater than 2 mg/L, ranging from 2.5 mg/L to 5 mg/L.

The BATs and SSCTs for glyphosate have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.6 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for 1,2-dichlorobenzene, EPA does not believe a revision to the NPDWR for 1,2-dichlorobenzene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 1,2-dichlorobenzene is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.25. 1,4-Dichlorobenzene (p-Dichlorobenzene)

a. *Background*. EPA published the current NPDWR for 1,4-dichlorobenzene on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG and an MCL of 0.075 mg/L. EPA based the MCLG on a RfD of 0.1 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.07 mg/kg-day based on an ATSDR toxicological profile (ATSDR, 2006). The updated RfD is based on the same critical study as the RfD for the promulgated MCLG but uses a chronic health endpoint instead of a subchronic health endpoint (USEPA, 2024d). Based on a RfD of 0.07 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, the potential MCLG is 0.41 mg/L, rounded to 0.4 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for 1,4-dichlorobenzene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for 1,4-dichlorobenzene, its usefulness is limited for potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-13 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows almost no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at less than 0.1 percent of the NAWQA locations.

Table 2-13. Number and Percent of NAWQA Locations with 1,4-Dichlorobenzene Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	3,474 (100%)	20,653 (100%)	24,127 (100%)
All samples are nondetects [a]	3,307 (95.2%)	20,477 (99.1%)	23,784 (98.6%)
At least one detection	167 (4.8%)	176 (0.9%)	343 (1.4%)
Maximum concentration exceeds current MCL (0.075 mg/L)	1 (<0.1%)	0 (0%)	1 (<0.1%)
Maximum concentration exceeds potential MCLG (0.4 mg/L)	0 (0%)	0 (0%)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.00000279 to 0.071 mg/L. Excludes 152 nondetects with reporting limits greater than 0.075 mg/L. Of these, 40 are greater than 0.4 mg/L, ranging from 0.5 mg/L to 5 mg/L.

The BATs and SSCTs for 1,4-dichlorobenzene have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.075 mg/L would be likely to discontinue

treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for 1,4-dichlorobenzene, EPA does not believe a revision to the NPDWR for 1,4-dichlorobenzene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 1,4-dichlorobenzene is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.26. 1,2-Dichloroethane (Ethylene Dichloride)

a. *Background*. EPA published the current NPDWR for 1,2-dichloroethane on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of 1,2-dichloroethane as well as non-cancer related health effects. EPA did not identify any information that might affect the current MCLG (USEPA, 2024d).

The current MCL for 1,2-dichloroethane is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of 1,2-dichloroethane might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Twenty-one PT studies had concentrations below the PQL, 20 of which had passing rates above 75 percent. The one study with a lower passing rate included a limited sample size (10 or fewer laboratories). Thus, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 437,232 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L. Thus, the MRL data support an EQL value equal to the modal MRL. The MDLs of approved methods range from 0.000012 to 0.00006 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00012 to 0.0006 mg/L, which supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the modal MRL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for 1,2-dichloroethane to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-14 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 3 of 52,209 systems (<0.01 percent) serving 1,064 people (<0.01 percent of 274.6 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for up to 60 systems (0.11 percent) serving 181,041 people (0.07 percent).

Table 2-14. Number and Percent of Systems with Mean Concentrations Exceeding 1,2-Dichloroethane Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	3	3	<0.01%	<0.01%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	60	43	0.11%	0.08%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	1,064	1,064	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	181,041	65,323	0.07%	0.02%

Source: USEPA, 2024a

a. Percentages are based on the 52,209 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,593,936 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for 1,2-dichloroethane is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.27. 1,1-Dichloroethylene

a. *Background*. EPA published the current NPDWR for 1,1-dichloroethylene on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG and an MCL of 0.007 mg/L. EPA based the MCLG on a RfD of 0.01 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* In 2002, the Agency updated its health effects assessment of 1,1-dichloroethylene (USEPA, 2002b). The assessment considered relevant studies on the toxicity of 1,1-dichloroethylene including developmental and reproductive toxicity. The assessment updated the RfD from 0.01 mg/kg-day to 0.05 mg/kg-day and concluded that there is inadequate information to assess carcinogenic potential via the oral route (USEPA, 2002b). Thus, the risk management factor of 10 applied to the current MCLG may no longer be needed. During prior SYR cycles, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for health risk reduction and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (68 *FR* 42908, USEPA, 2003; 75 *FR* 15500, USEPA, 2010e; USEPA, 2016a). During SYR 4, based on an RfD of 0.05 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.29 mg/L, rounded to 0.3 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for 1,1-dichloroethylene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for 1,1-dichloroethylene, its usefulness is limited for potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-15 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows almost no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at 0.04 percent of the NAWQA locations.

Table 2-15. Number and Percent of NAWQA Locations with 1,1-Dichloroethylene Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	1,571 (100%)	19,369 (100%)	20,940 (100%)
All samples are nondetects [a]	1,536 (97.8%)	18,868 (97.4%)	20,404 (97.4%)
At least one detection	35 (2.2%)	501 (2.6%)	536 (2.6%)
Maximum concentration exceeds MCL (0.007 mg/L)	4 (0.3%)	76 (0.4%)	80 (0.4%)
Maximum concentration exceeds potential MCLG (0.3 mg/L)	0 (0%)	4 (<0.1%)	4 (<0.1%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.00002 to 0.007 mg/L. Excludes 501 nondetects with reporting limits greater than 0.007 mg/L. Of these, 41 are greater than 0.3 mg/L, ranging from 0.5 mg/L to 5 mg/L.

The BATs and SSCTs for 1,1-dichloroethylene have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.007 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for 1,1-dichloroethylene, EPA does not believe a revision to the NPDWR for 1,1-dichloroethylene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 1,1-dichloroethylene is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.28. cis-1,2-Dichloroethylene

a. *Background*. EPA published the current NPDWR for cis-1,2-dichloroethylene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.07 mg/L. EPA based the MCLG on a RfD of 0.01 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* In 2010, the Agency updated its health effects assessment of cis-1,2-dichloroethylene (USEPA, 2010c), including relevant studies on the toxicity of cis-1,2-

dichloroethylene including developmental and reproductive toxicity. The assessment updated the RfD from 0.01 mg/kg-day to 0.002 mg/kg-day (USEPA, 2010c). During SYR 3, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for health risk reduction and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (USEPA, 2016a). During SYR 4, based on an RfD of 0.002 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.011 mg/L, rounded to 0.01 mg/L (USEPA, 2024d).

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor for the potential MCLG decrease under consideration. EPA evaluated the results of the occurrence and exposure analyses for cis-1,2-dichloroethylene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-16 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG of 0.01mg/L. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for 7 of 52,210 systems (0.01 percent) serving 42,215 people (0.02 percent of 274.6 million people).

Table 2-16. Number and Percent of Systems with Mean Concentrations Exceeding cis-1,2-Dichloroethylene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.07 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.01 mg/L (EQL)	7	7	0.01%	0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.07 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.01 mg/L (EQL)	42,215	42,215	0.02%	0.02%

Source: USEPA, 2024a

a. Percentages are based on the 52,210 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,594,729 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for cis-1,2-dichloroethylene, EPA does not believe a revision to the NPDWR for cis-1,2-dichloroethylene is appropriate at this time. In making this decision, the Agency

considered whether any possible revision to the NPDWR for cis-1,2-dichloroethylene is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.29. trans-1,2-Dichloroethylene

a. *Background*. EPA published the current NPDWR for trans-1,2-dichloroethylene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.1 mg/L. EPA based the MCLG on a RfD of 0.02 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of trans-1,2-dichloroethylene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for trans-1,2-dichloroethylene because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the trans-1,2-dichloroethylene NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the trans-1,2-dichloroethylene NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.30. Dichloromethane (Methylene Chloride)

a. *Background*. EPA published the current NPDWR for dichloromethane on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of dichloromethane as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for dichloromethane is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of dichloromethane might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved

methods (USEPA, 2024b). Thirteen PT studies had concentrations below the PQL, 12 of which had passing rates above 75 percent. The one study with a lower passing rate included a limited sample size (10 or fewer laboratories). Thus, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 423,751 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.00002 to 0.00018 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.0002 to 0.0018 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for dichloromethane to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-17 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for 2 of 52,222 systems (<0.01 percent) serving 109 people (<0.01 percent of 274.6 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for up to 215 systems (0.41 percent) serving 360,289 people (0.13 percent).

Table 2-17. Number and Percent of Systems with Mean Concentrations Exceeding Dichloromethane Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	2	2	<0.01%	<0.01%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	215	140	0.41%	0.27%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	109	109	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	360,289	186,077	0.13%	0.07%

Source: USEPA, 2024a

a. Percentages are based on the 52,222 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,596,487 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for dichloromethane is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would

be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.31. 1,2-Dichloropropane

a. *Background*. EPA published the current NPDWR for 1,2-dichloropropane on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of 1,2-dichloropropane as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for 1,2-dichloropropane is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of 1,2-dichloropropane might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Fourteen PT studies had concentrations below the current PQL, all of which had passing rates above 75 percent. Thus, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 418,124 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000011 to 0.000088 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00011 to 0.00088 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the modal MRL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for 1,2-dichloropropane to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-18 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for up to 41 of 52,197 systems (0.08 percent) serving 34,800 of 274.6 million people (0.01 percent).

Table 2-18. Number and Percent of Systems with Mean Concentrations Exceeding 1,2-Dichloropropane Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	41	37	0.08%	0.07%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	34,800	34,296	0.01%	0.01%

Source: USEPA, 2024a

a. Percentages are based on the 52,197 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,592,711 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for 1,2-dichloropropane is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.32. Dinoseb

a. *Background*. EPA published the current NPDWR for dinoseb on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.007 mg/L. EPA based the MCLG on a RfD of 0.001 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of dinoseb as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for dinoseb because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA

did not identify a health or technology basis for revising the dinoseb NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the DEHA NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.33. Diquat

a. *Background*. EPA published the current NPDWR for diquat on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.02 mg/L. EPA based the MCLG on a RfD of 0.0022 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* In 2002, the Agency updated its health effects assessment of diquat (USEPA, 2002a). This assessment considered relevant studies on the toxicity of diquat including developmental and reproductive toxicity. The assessment updated the RfD from 0.002 mg/kg-day to 0.005 mg/kg-day (USEPA, 2002a). During prior SYR cycles, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for cost savings to public water systems or their customers and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (68 *FR* 42908, USEPA, 2003; 75 *FR* 15500, USEPA, 2010e; USEPA, 2016a). During SYR 4, based on an RfD of 0.005 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.029 mg/L, rounded to 0.03 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for diquat to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for diquat, its usefulness is limited for determining potential cost savings to PWS and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency sought data on source water quality to conduct an assessment of the potential for treatment cost savings. NAWQA does not contain monitoring results for diquat. Therefore, the Agency obtained available information on diquat use and fate and transport.

Diquat's primary uses are as an algaecide, defoliant, desiccant, and herbicide (USEPA, 1995). The USGS estimated total diquat application to crops of less than 300,000 pounds in 2017, with vegetables and fruit for almost all applications (USGS, 2015). Diquat use on crops occurred primarily in the upper Midwest and Great Lakes region, North Dakota, the Pacific Northwest, California, and Florida. In comparison to other commonly used pesticides (e.g., alachlor, glyphosate, and picloram), use estimates for diquat are very low (USEPA, 2024c).

The *Reregistration Eligibility Decision (RED) for Diquat Dibromide* (USEPA, 1995) notes that although diquat is persistent (i.e., it does not hydrolyze and is resistant to degradation), it becomes immobile when it adsorbs to soil particles and, therefore, is not expected to contaminate ground water. Furthermore, diquat dissipates quickly from surface water because it adsorbs to

soil sediments, vegetation, and organic matter; the estimated half-life is one to two days for diquat in surface water based on a study of two ponds in Florida (USEPA, 1995). These factors indicate the possibility of low occurrence in drinking water sources.

The BAT and SSCTs for diquat have other beneficial effects, e.g., removing other co-occurring contaminants. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.02 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for diquat, EPA does not believe a revision to the NPDWR for diquat is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for diquat is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.34. Endothall

a. *Background*. EPA published the current NPDWR for endothall on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.1 mg/L. EPA based the MCLG on a RfD of 0.02 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* In 2005, the Agency updated its health effects assessment of endothall (USEPA, 2005b). This assessment considered relevant studies on the toxicity of endothall including developmental and reproductive toxicity. The assessment updated the RfD from 0.02 mg/kg-day to 0.007 mg/kg-day (USEPA, 2005b). During the prior SYR cycles, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for health risk reduction and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (75 *FR* 15500, USEPA, 2010e, USEPA, 2016a). EPA updated its health effects assessment of endothall in 2015 (USEPA, 2015). During SYR 4, based on an RfD of 0.007 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.041 mg/L, rounded to 0.04 mg/L (USEPA, 2024d).

During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Three PT studies had sample concentrations slightly less than the current PQL; all had passing rates greater than 75 percent. The PT data indicate uncertain potential to reduce the PQL (USEPA, 2024b).The SYR 4 ICR dataset contains MRL values for 41,473 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.009 mg/L. More than 99 percent of the MRL values are less than 0.050 mg/L, which is less than the PQL of 0.090 mg/L but greater than the potential MCLG of 0.040 mg/L. The MDL of the approved method is 0.00179 mg/L. Applying a multiplier of 10 results in a possible EQL of 0.0179 mg/L, which is less than the potential MCLG. More than 30 percent of the MRL values are greater than 0.0179 mg/L, however. EPA determined that the MRL and MDL data support an EQL less than the PQL, but the MRL data do not support use of the potential MCLG value of 0.040 mg/L as a threshold for the occurrence analysis (USEPA, 2024b). A slightly higher EQL threshold of 0.050 mg/L is feasible. Therefore, EPA set the EQL equal to 0.050 mg/L (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for endothall to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-19 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on running annual average concentrations at entry points. Similarly, the occurrence and exposure analysis shows that average concentrations do not exceed the EQL of 0.05 mg/L.

Table 2-19. Number and Percent of Systems with Mean Concentrations Exceeding Endothall Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.1 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.05 mg/L (EQL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.1 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.05 mg/L (EQL)	0	0	0%	0%

Source: USEPA, 2024a

a. Percentages are based on the 18,624 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 141,592,258 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for endothall, EPA does not believe a revision to the NPDWR for endothall is

appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for endothall is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.35. Endrin

a. *Background*. EPA published the current NPDWR for endrin on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.002 mg/L. EPA based the MCLG on a RfD of 0.0003 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of endrin as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for endrin because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the endrin NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the endrin NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.36. Epichlorohydrin

a. *Background*. EPA published the current NPDWR for epichlorohydrin on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR imposes a treatment technique requirement that limits the allowable level of epichlorohydrin monomer in the polymer that is added to water as a flocculent to remove particulates. Each water system is required to certify, in writing, to the State (using third-party or manufacturer's certification) that the combination (or product) of dose and monomer level does not exceed the following level: 0.01 percent residual epichlorohydrin monomer in polymer products used during water treatment and dosed at 20 mg/L (ppm).

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of epichlorohydrin as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The NPDWR for epichlorohydrin was previously identified as a candidate for regulatory revision (75 *FR* 15500, USEPA, 2010e). In SYR 3, EPA announced that the NPDWR for epichlorohydrin was no longer a candidate for revision due to low opportunity for further reduction of public health risk through regulatory revision (82 *FR* 3518, USEPA, 2017c). During SYR 4, EPA again found that the epichlorohydrin-based polymers available today for water treatment have lower residual monomer content than when EPA promulgated residual content as a treatment technique (USEPA, 2024f). For example, manufacturer product certification tests conducted by the NSF International from 2005 to 2007 and 2019 to 2021 indicated that epichlorohydrin residual monomer levels could not be detected above a detection limit that is one-fifth the residual level listed in the current NPDWR (USEPA, 2024f).

The health benefits associated with the lower impurity levels are already being realized by communities throughout the country. Therefore, a regulatory revision will minimally affect health risk. Given resource limitations, competing workload priorities, and administrative costs and burden to states to adopt any regulatory changes associated with the rulemaking, the revisions to these NPDWRs are a low priority.

c. *Review Result.* Although there are data that support consideration of whether to revise the treatment technique for epichlorohydrin, EPA does not believe a revision to the NPDWR for epichlorohydrin is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for epichlorohydrin is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration that the health benefits of lower impurity levels are being realized, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.37. Ethylbenzene

a. *Background*. EPA published the current NPDWR for ethylbenzene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.7 mg/L. EPA based the MCLG on a RfD of 0.1 mg/kg-day and a cancer classification of D, “not classifiable as to human carcinogenicity”.

b. *Technical Reviews.* EPA is assessing the health risks resulting from exposure to ethylbenzene under the IRIS program (USEPA, 2024d). In Febrauary 2023, EPA released the “Protocol for the Ethylbenzene IRIS Assessment (Preliminary Assessment Materials)” for public review and comment (88 *FR* 10320, USEPA, 2023c).The revised health effects assessment will consider relevant studies on the toxicity of ethylbenzene, including reproductive and developmental effects. The new health effects assessment was not completed by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d).

c. *Review Result.* Since the MCL for ethylbenzene is set at its MCLG and a reassessment of the health risks resulting from exposure to ethylbenzene is in progress, the Agency does not believe a revision to the NPDWR is appropriate at this time.

2.38. Ethylene Dibromide (EDB; 1,2-Dibromoethane)

a. *Background*. EPA published the current NPDWR for EDB on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.00005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of EDB as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The existing MCLG is zero and the current MCL of 0.00005 mg/L is based on the PQL. Therefore, EPA reviewed whether there is potential to revise the PQL. EPA reviewed PT data from the SYR 4 cycle to determine if the PQL could be revised (i.e., analytical feasibility). During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for ethylene dibromide during the current review cycle. The SYR 4 ICR dataset contains MRL values for 198,152 samples. Fewer than 80 percent of these values are less than or equal to the modal MRL of 0.00001 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000001 to 0.000032 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00001 to 0.00032 mg/L. Only the lower bound is less than the PQL. A majority of the MRL values are greater than 0.00001 mg/L. Therefore, EPA did not develop an EQL (USEPA, 2024b).

Since the MCL is constrained by the PQL, and the PQL is unchanged, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* EPA did not identify new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL). Therefore, EPA does not believe a revision to the NPDWR for EDB is appropriate at this time.

2.39. Fluoride

a. *Background*. EPA published the current NPDWR for fluoride on April 2, 1986 (51 *FR* 11396, USEPA, 1986a). The NPDWR established an MCLG and an MCL of 4.0 mg/L. The MCLG was developed from a lowest effect level for crippling skeletal fluorosis of 20 mg/day with continuous exposures over a 20-year or longer period. The lowest-observed-adverse-effect level (LOAEL) was divided by an uncertainty factor of 2.5 and a drinking water intake of 2 liters/day to obtain the MCLG. Drinking water was considered to be the only source of exposure for the calculation. At the same time, EPA published a secondary maximum contaminant level (SMCL) for fluoride of 2.0 mg/L to protect against cosmetically objectionable dental fluorosis (discoloration and/or pitting of teeth), which was considered to be an adverse effect. PWSs exceeding the fluoride SMCL must provide public notification to their customers. Certain

drinking water systems may choose to fluoridate finished water as a public health protection measure for reducing the incidence of cavities. The U.S. Public Health Service (PHS) recommendation for the optimal community water fluoridation level is 0.7 mg/L (USPHS, 2015). The decision to fluoridate a water supply is made by the State or local municipality and is not mandated by EPA or any other Federal entity.

b. *Technical Reviews.* In 2010, EPA derived a total RfD of 0.08 mg/kg-day based on studies of dental fluorosis among children in the 6 months to 14 years age group (USEPA, 2010a). EPA also updated RSC estimate – which was 100 percent for the current MCLG – downward to account for the increase in daily exposure to fluoride in other sources such as dental products, foods, pesticide residues, and other sources such as ambient air and medications (USEPA, 2010b). During SYR 4, based on an RfD of 0.08 mg/kg-day, an adjusted DWI-BW ratio of 37.5 mL/kg-day for children aged 1 to <11 years and an RSC of 40 percent, EPA established a potential MCLG of 0.853 mg/L, rounded to 0.9 mg/L (USEPA, 2024d).

EPA is aware of ongoing efforts by the National Toxicology Program (NTP) to conduct a systematic review and meta-analysis of the published literature on developmental neurotoxicity for fluoride. In May 2023, NTP released the Draft "NTP Monograph on the State of the Science Concerning Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects: A Systematic Review" (NTP, 2023); however, the NTP systematic review and meta-analysis are not health assessments that could be used to directly inform the derivation of a potential MCLG. Additionally, the NTP has not made a final decision about the report's developmental neurotoxicity systematic review conclusions and has not formally released a final report. Therefore, the agency evaluated occurrence for the potential MCLG but also categorized fluoride as having emerging information with respect to health risks.

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor for the potential MCLG decrease under consideration. EPA evaluated the results of the occurrence and exposure analyses for fluoride to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024e). Table 2-20 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG range. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for 114 of 49,485 systems (0.2 percent) serving 161,340 people (0.1 percent of 270.2 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for up to 4,479 systems (9 percent) serving up to 17 million people (6 percent) at the potential MCLG of 0.9 mg/L.

Table 2-20. Number and Percent of Systems with Mean Concentrations Exceeding Fluoride Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 4 mg/L (MCL)	114	114	0.2%	0.2%
Number (%) of Systems with Mean Concentrations > 0.9 mg/L (potential MCLG)	4,479	4,465	9%	9%
Sum (%) of Population Served by Systems with Mean Concentrations > 4 mg/L (MCL)	161,340	161,340	0.1%	0.1%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.9 mg/L (potential MCLG)	17,035,118	16,572,770	6%	6%

Source: USEPA, 2024e

a. Percentages are based on the 49,485 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 270,193,258 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Although the occurrence analysis indicates that a revision to the MCL/MCLG may provide a meaningful opportunity to improve the level of public health protection, fluoride remains in the data gap category pending the outcome of the NTP review.

c. *Review Result.* There is new health effects information that supports a revision of the MCLG/MCL for fluoride. Based on a critical effect of severe dental fluorisis and a revision to the RSC because exposure to fluoride from other sources occurs more frequently than when the MCLG was finalized, the potential MCLG could be 0.9 mg/L. EPA's review did not identify any feasibility limitations to setting an MCL equal to the potential MCLG. Occurrence data indicate that almost 4,500 systems could be affected. Therefore, revisions to the fluoride NPDWR may provide a meaningful opportunity for health risk reduction. The pending NTP report is expected to provide an authoritative determination of the level and quality of evidence for developmental neurotoxicity of fluoride exposure to humans. Following publication of the final NTP report, which is not a health assessment, EPA will consider their systematic review and meta-analysis conclusions regarding developmental neurotoxicity and will use the final NTP report to inform the Agency's future health effects assessment for fluoride. Therefore, EPA determined that revisions to the fluoride NPDWR are not possible at this time.

2.40. Glyphosate

a. *Background*. EPA published the current NPDWR for glyphosate on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.7 mg/L. EPA based the MCLG on a RfD of 0.1 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 1.0 mg/kg-day based on an EPA OPP human health risk assessment (USEPA, 2017b). The updated RfD is based on a more recent critical study and derivation of a chronic population-adjusted dose (USEPA, 2024d). Based on this RfD, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, the potential MCLG is 5.91 mg/L, rounded to 6.0 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for glyphosate to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for glyphosate, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-21 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would not affect systems that rely on source water at any of the NAWQA.

Table 2-21. Number and Percent of NAWQA Locations with Glyphosate Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	806 (100%)	1,355 (100%)	2,161 (100%)
All samples are nondetects [a]	326 (40.4%)	1,291 (95.3%)	1,617 (74.8%)
At least one detection	480 (59.6%)	64 (4.7%)	544 (25.2%)
Maximum concentration exceeds current MCL (0.7 mg/L)	0 (0%)	0 (0%)	0 (0%)
Maximum concentration exceeds potential MCLG (6 mg/L)	0 (0%)	0 (0%)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.00002 to 0.025 mg/L.

The BATs and SSCTs for glyphosate have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.7 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for glyphosate, EPA does not believe a revision to the NPDWR for glyphosate is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for glyphosate is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the

NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.41. Heptachlor

a. *Background*. EPA published the current NPDWR for heptachlor on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.0004 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of heptachlor as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for heptachlor is based on a PQL of 0.0004 mg/L. The Agency considered whether changes in the analytical feasibility of heptachlor might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Five PT studies had sample concentrations below the current PQL of 0.0004 mg/L. All had passing rates greater than 75 percent. Two PT studies at or slightly greater than the PQL have passing rates less than 75 percent. The PT data indicate uncertain potential to reduce the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 154,431 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.00004 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.0000015 to 0.00015 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.000015 to 0.0015 mg/L. The highest value exceeds the PQL. Therefore, EPA used the highest value below the PQL (0.00005 mg/L) and rounded up to 0.0001 mg/L to obtain an EQL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for heptachlor to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-22 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL at 1 of 38,640 systems (0.003 percent), serving 900 people (<0.001 percent of 236.9 million people).

Table 2-22. Number and Percent of Systems with Mean Concentrations Exceeding Heptachlor Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.4 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.1 mg/L (EQL)	1	1	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.4 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.1 mg/L (EQL)	900	900	<0.01%	<0.01%

Source: USEPA, 2024a

a. Percentages are based on the 38,640 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 236,922,867 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for heptachlor is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.42. Heptachlor Epoxide

a. *Background*. EPA published the current NPDWR for heptachlor epoxide on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.0002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of heptachlor epoxide as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for heptachlor epoxide is based on a PQL of 0.0002 mg/L. The Agency considered whether changes in the analytical feasibility of heptachlor epoxide might lead to a lower MCL. During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved

methods (USEPA, 2024b). EPA did not receive PT data for heptachlor epoxide during the current review cycle. The SYR 4 ICR dataset contains MRL values for 153,649 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.00002 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.0000001 to 0.000202 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.000001 to 0.00202 mg/L. The highest value exceeds the PQL of 0.0002 mg/L. The next highest value below the PQL is 0.000059 mg/L, rounded up to 0.00006 mg/L. Because the MRL data show that more than 15 percent of the MRL values are greater than 0.00006 mg/L. Rounding instead to 0.0001 mg/L results a value that is greater than or equal to 97 percent of the MRL values. Therefore, EPA identified an EQL of 0.0001 mg/L (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for heptachlor epoxide to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-23 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for 1 of 38,638 systems (<0.01 percent) serving 24,343 people (0.01 percent of 236.9 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for 3 systems (0.01 percent) serving 32,710 people (0.01 percent).

Table 2-23. Number and Percent of Systems with Mean Concentrations Exceeding Heptachlor Epoxide Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.0002 mg/L (MCL)	1	1	<0.01%	<0.01%
Number (%) of Systems with Mean Concentrations > 0.0001 mg/L (EQL)	3	3	0.01%	0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0002 mg/L (MCL)	24,343	24,343	0.01%	0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0001 mg/L (EQL)	32,710	32,710	0.01%	0.01%

Source: USEPA, 2024a

a. Percentages are based on the 38,638 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 236,924,732 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for heptachlor epoxide is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to

provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.43. Hexachlorobenzene

a. *Background*. EPA published the current NPDWR for hexachlorobenzene on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.001 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of hexachlorobenzene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for hexachlorobenzene is based on a PQL of 0.001 mg/L. The Agency considered whether changes in the analytical feasibility of hexachlorobenzene might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Eleven PT studies had sample concentrations below the current PQL of 0.001 mg/L. All but one had passing rates greater than 75 percent. The data below the current PQL indicate uncertain potential to reduce the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 155,928 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0001 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000001 to 0.00013 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00001 to 0.0013 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the modal MRL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for hexachlorobenzene to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-24 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any of the systems in the analysis. Average concentrations exceed the EQL of 0.0001 mg/L for 6 of 38,311 systems (0.02 percent), serving approximately 17,278 of 232 million people (0.01 percent).

Table 2-24. Number and Percent of Systems with Mean Concentrations Exceeding Hexachlorobenzene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.0001 mg/L (EQL)	6	6	0.02%	0.02%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0001 mg/L (EQL)	17,278	17,278	0.01%	0.01%

Source: USEPA, 2024a

a. Percentages are based on the 38,311 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 232,017,188 people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for hexachlorobenzene is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.44. Hexachlorocyclopentadiene

a. *Background*. EPA published the current NPDWR for hexachlorocyclopentadiene on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.05 mg/L. EPA based the MCLG on a RfD of 0.007 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* In 2001, the Agency updated its health effects assessment for hexachlorocyclopentadiene (USEPA, 2001a). This assessment considered relevant studies on the toxicity including developmental and reproductive toxicity. It resulted in an update of the RfD from 0.007 mg/kg-day to 0.006 mg/kg-day (USEPA, 2001a). During prior SYR cycles, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for health risk reduction, and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs

associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (68 *FR* 42908, USEPA, 2003, 75 *FR* 15500, USEPA, 2010e; USEPA, 2016a). For SYR 4, the RfD remains 0.006 mg/kg-day. Based on this RfD, an updated DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.035 mg/L, rounded to 0.04 mg/L (USEPA, 2024d).

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor for the potential MCLG decrease under consideration. EPA evaluated the results of the occurrence and exposure analyses for hexachlorocyclopentadiene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-25 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Similarly, the occurrence and exposure analysis shows that average concentrations do not exceed the potential MCLG of 0.04 mg/L.

Table 2-25. Number and Percent of Systems with Mean Concentrations Exceeding Hexachlorocyclopentadiene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.05 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.04 mg/L (EQL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.05 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.04 mg/L (EQL)	0	0	0%	0%

Source: USEPA, 2024a

a. Percentages are based on the 38,471 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 236,641,628 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for hexachlorocyclopentadiene, EPA does not believe a revision to the NPDWR for hexachlorocyclopentadiene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for hexachlorocyclopentadiene is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and

- The burden on States and the regulated community to implement any regulatory change that resulted.

2.45. Lindane (gamma-Hexachlorocyclohexane)

a. *Background*. EPA published the current NPDWR for lindane on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.0002 mg/L. EPA based the MCLG on a RfD of 0.0003 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.0016 mg/kg-day based on an EPA OPP Reregistration Eligibility Decision (USEPA, 2004b, 2006b). The updated RfD is based on a more recent critical study and derivation of a chronic population-adjusted dose (USEPA, 2024d). Since NPDWR promulgation, all uses of lindane were cancelled voluntarily (USEPA, 2006c), effective July 1, 2007. Based on this RfD, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.009 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for lindane to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for lindane, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-26 provides summary data for contaminant occurrence based on maximum sample values for the locations included in NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows almost no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at less than 0.1 percent of the NAWQA locations.

Table 2-26. Number and Percent of NAWQA Locations with Lindane Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	4,879 (100%)	11,900 (100%)	16,779 (100%)
All samples are nondetects [a]	4,597 (94.2%)	11,862 (99.7%)	16,459 (98.1%)
At least one detection	282 (5.8%)	38 (0.3%)	320 (1.9%)
Maximum concentration exceeds current MCL (0.0002 mg/L)	10 (0.2%)	1 (<0.1%)	11 (<0.1%)
Maximum concentration exceeds potential MCLG (0.009 mg/L)	0 (0%)	0 (0.)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.0000006 to 0.0002 mg/L. Excludes 33 nondetects with reporting limits greater than 0.2 mg/L. Of these, 7 are greater than 0.009 mg/L, ranging from 1 mg/L to 3 mg/L.

The BATs and SSCTs for lindane have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA

were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.0002 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for lindane, EPA does not believe a revision to the NPDWR for lindane is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for lindane is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.46. Mercury (Inorganic)

a. *Background*. EPA published the current NPDWR for inorganic mercury on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.002 mg/L. The Agency based the MCLG on a drinking water equivalent level (DWEL) of 0.01 mg/L[5] and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* EPA is assessing the health risks resulting from exposure to inorganic mercury under the IRIS program (USEPA, 2024d). In March 2021, EPA released the document "Systematic Review Protocol for the Inorganic Mercury Salts IRIS Assessment (Preliminary Assessment Materials)" for public review and comment (86 *FR* 13895, USEPA, 2021). The revised health effects assessment will consider relevant studies on the toxicity of inorganic mercury, including its potential developmental and reproductive toxicity. The new health effects assessment was not completed by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d).

c. *Review Result.* Since the MCL for inorganic mercury is set at its MCLG and a reassessment of the health risks resulting from exposure to inorganic mercury is in progress, the Agency does not believe a revision to the NPDWR is appropriate at this time.

[5] The DWEL was recommended by a panel of experts on mercury and was derived using the weight of evidence from the entire inorganic mercury database. The DWEL was later back-calculated to an RfD of 0.0003 mg/kg-day (USEPA, 2016b).

2.47. Methoxychlor

a. *Background*. EPA published the current NPDWR for methoxychlor on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.04 mg/L. EPA based the MCLG on a RfD of 0.005 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* In 2010, the California Environmental Protection Agency (CalEPA) updated its health effects assessment of methoxychlor (CalEPA, 2010a). Based on this assessment, EPA determined during SYR 3 that it was possible to update the RfD from 0.005 mg/kg-day to 0.00002 mg/kg-day (USEPA, 2016b). The Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for health risk reduction and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (USEPA, 2016a). For SYR 4, the RfD remains 0.00002 mg/kg-day. Based on this RfD, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.0001 mg/L (USEPA, 2024d).

Because of a possible change in the MCLG for methoxychlor, EPA considered whether analytical feasibility is likely to be a limitation if the Agency were to consider lowering the MCL to 0.0001 mg/L (the potential MCLG). During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Forty-four PT studies had concentrations below the current PQL of 0.01 mg/L; except for two studies, all of the other studies had passing rates above 75 percent. The two studies with a passing rate less than 75 percent included a limited sample size (10 or fewer laboratories). Thus, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 156,842 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.0001 mg/L. The MDLs of approved methods range from 0.0000025 to 0.00096 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.000025 to 0.0096. Therefore, EPA used the highest value of the MDL range and rounded to 0.001 mg/L to obtain an EQL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for methoxychlor to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-27 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Average concentrations exceed the EQL for 1 of 38,834 systems (<0.01 percent) serving 22,536 people (0.01 percent of 239.4 million people served).

Table 2-27. Number and Percent of Systems with Mean Concentrations Exceeding Methoxychlor Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.04 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (EQL)	1	1	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.04 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (EQL)	22,536	22,536	0.01%	0.01%

Source: USEPA, 2024a

a. Percentages are based on the 38,834 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 239,380,900 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for methoxychlor, EPA does not believe a revision to the NPDWR for methoxychlor is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for methoxychlor is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.48. Monochlorobenzene (Chlorobenzene)

a. *Background*. EPA published the current NPDWR for monochlorobenzene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.1 mg/L. EPA based the MCLG on a RfD of 0.02 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of monochlorobenzene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for monochlorobenzene because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG.

Since EPA did not identify a health or technology basis for revising the monochlorobenzene NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the monochlorobenzene NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.49. Nitrate (as N)

a. *Background*. EPA published the current NPDWR for nitrate on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 10 mg/L (as N). EPA based the MCLG on a survey of epidemiologic studies of infant methemoglobinemia in populations exposed to nitrate contaminated water. No cancer classification is currently available for nitrate (USEPA, 2024d). EPA further promulgated an MCLG and MCL for the sum of nitrate and nitrite. Both equal 10 mg/L (56 *FR* 3526, USEPA, 1991c). EPA also promulgated an alternative nitrate MCL of 20 mg/L for states to apply at their discretion to non-community water systems that meet multiple criteria including that the water is not available to children younger than six months of age (45 *FR* 57332, USEPA, 1980).

b. *Technical Reviews.* During SYR 2, EPA identified new health effects information that potentially affects the MCLG for nitrate. Therefore, EPA nominated nitrate for a new health effects assessment. Although the IRIS Program issued an assessment plan in 2017, IRIS suspended the assessment in 2019 (USEPA, 2019a). EPA is once again conducting an assessment for nitrate and nitrite as indicated in the October 2023 IRIS Program Outlook (USEPA, 2023a). On November 9, 2023, EPA released the "Protocol for the Nitrate and Nitrite IRIS Assessment (Oral)" for public review and comment (88 *FR* 77310, USEPA, 2023), which is one document released during the development of the IRIS assessment. The Protocol document is not a health assessment draft document. During SYR 4, EPA determined that the IRIS health assessment underlying the NPDWR remained the relevant assessment because subsequent assessments did not introduce new science or methods (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for nitrate because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the nitrate NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the nitrate NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.50. Nitrite (as N)

a. *Background*. EPA published the current NPDWR for nitrite on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 1 mg/L (as N). EPA based the MCLG on extrapolation from nitrate, assuming the conversion of 10 percent of nitrate-nitrogen to nitrite-nitrogen. No cancer classification is currently available for nitrite (USEPA, 2024d).

b. *Technical Reviews.* During SYR 2, EPA identified new health effects information that potentially affects the MCLG for nitrite. Therefore, EPA nominated nitrite for a new health effects assessment. Although the IRIS Program issued an assessment plan in 2017, IRIS suspended the assessment in 2019 (USEPA, 2019a). EPA is once again conducting an assessment for nitrate and nitrite as indicated in the October 2023 IRIS Program Outlook (USEPA, 2023a). On November 9, 2023, EPA released the "Protocol for the Nitrate and Nitrite IRIS Assessment (Oral)" for public review and comment (88 *FR* 77310, USEPA, 2023), which is one document released during the development of the IRIS assessment. The Protocol document is not a health assessment draft document. During SYR 4, EPA determined that the IRIS health assessment underlying the NPDWR remained the relevant assessment because subsequent assessments did not introduce new science or methods (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for nitrite because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the nitrite NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the nitrite NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.51. Oxamyl (Vydate)

a. *Background*. EPA published the current NPDWR for oxamyl on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.2 mg/L. EPA based the MCLG on a RfD of 0.025 mg/kg-day and a cancer classification of E, "evidence of non-carcinogenicity for humans".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.0026 mg/kg-day based on an EPA OPP human health risk assessment (USEPA, 2017d). The updated RfD is based on a more recent critical study of acute oral toxicity and uses a revised modeling approach for dose-response characterization (USEPA, 2024d). Based on the RfD of 0.0026 mg/kg-day, an adjusted DWI-BW ratio of 60.9 mL/kg-day for infants and young children (aged 0 to <6 years), and an RSC of 20 percent, EPA established a potential MCLG of 0.009 mg/L (USEPA, 2024d).

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor if EPA were to lower the MCLG. EPA evaluated the results of the occurrence and exposure analyses for oxamyl to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-28 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The analysis uses single sample or peak results instead of system average results because the health endpoint is associated with acute exposure.[6] The occurrence

[6] The SYR 4 ICR occurrence data are based on the Standardized Monitoring Framework for synthetic organic compounds, which is designed to evaluate long-term exposure to contaminants with chronic exposure health endpoints. As a result, EPA recognizes that short-term seasonal peaks, which correspond to oxamyl application as a pesticide, cannot be readily detected in this dataset. Nonetheless, the peak concentrations in the SYR 4 ICR dataset

and exposure analysis shows that individual sample concentrations did not exceed the current MCL for any systems in the analysis. Individual sample concentrations at 7 of 37,235 systems (0.02 percent), serving 52,677 of 227.2 million people (0.02 percent), exceeded the potential MCLG of 0.009 mg/L at least one time between 2012 and 2019.

Table 2-28. Number and Percent of Systems with Peak Concentrations Exceeding Oxamyl Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Number of Systems or Sum of Population	Percent of Systems or Population
Number (%) of Systems with Peak Concentrations > 0.2 mg/L (MCL)	0	0%
Number (%) of Systems with Peak Concentrations > 0.009 mg/L (potential MCLG)	7	0.02%
Sum (%) of Population Served by Systems with Peak Concentrations > 0.2 mg/L (MCL)	0	0%
Sum (%) of Population Served by Systems with Peak Concentrations > 0.009 mg/L (potential MCLG)	52,677	0.02%

Source: USEPA, 2024a

a. Percentages based on the 37,235 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 227,159,826 people.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for oxamyl, EPA does not believe a revision to the NPDWR for oxamyl is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for oxamyl is likely to provide a meaningful opportunity for health risk reductions. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.52. Pentachlorophenol

a. *Background*. EPA published the current NPDWR for pentachlorophenol on July 1, 1991 (56 *FR* 30266, USEPA, 1991a). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.001 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of pentachlorophenol as well as non-cancer

are the best available data to evaluate potential occurrence for oxamyl because the health endpoint is associated with acute exposure.

related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for pentachlorophenol is based on a PQL of 0.001 mg/L. The Agency considered whether changes in the analytical feasibility of pentachlorophenol might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). There are no PT results at sample concentrations below the PQL of 0.001 mg/L. Thus, that the PT data do not support reduction of the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 162,735 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.00004 mg/L. Therefore, EPA did not set the EQL equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000032 to 0.0016 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00032 to 0.016 mg/L. Several of the values within the range exceed the PQL. Therefore, EPA used the highest value below the PQL (0.00085 mg/L) and rounded to 0.0009 mg/L to obtain an EQL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for pentachlorophenol to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-29 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Similarly, the occurrence and exposure analysis shows that average concentrations do not exceed the EQL of 0.0009 mg/L.

Table 2-29. Number and Percent of Systems with Mean Concentrations Exceeding Pentachlorophenol Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.0009 mg/L (EQL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0009 mg/L (EQL)	0	0	0%	0%

Source: USEPA, 2024a

a. Percentages are based on the 41,094 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 242,338,615 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for pentachlorophenol is appropriate at this time. The occurrence and exposure analysis based on

possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.53. Picloram

a. *Background*. EPA published the current NPDWR for picloram on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.5 mg/L. EPA based the MCLG on a RfD of 0.07 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.2 mg/kg-day based on an EPA OPP human health risk assessment (USEPA, 2020b). The updated RfD is based on a more recent critical study and derivation of a chronic population-adjusted dose (USEPA, 2024d). Based on an RfD of 0.2 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 1.183 mg/L, rounded to 1.0 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for picloram to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for picloram, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-30 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would not affect systems that rely on source water at any of the NAWQA.

Table 2-30. Number and Percent of NAWQA Locations with Picloram Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	2,356 (100%)	8,855 (100%)	11,211 (100%)
All samples are nondetects [a]	2,251 (95.5%)	8,775 (99.1%)	11,026 (98.3%)
At least one detection	105 (4.5%)	80 (0.9%)	185 (1.7%)
Maximum concentration exceeds current MCL (0.5 mg/L)	0 (0%)	0 (0%)	0 (0%)
Maximum concentration exceeds potential MCLG (1 mg/L)	0 (0%)	0 (0%)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2020; estimates based on maximum sample values at each location).
1. The detection limits range from 0.00001 to 0.008 mg/L.

The BATs and SSCTs for picloram have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.5 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for picloram, EPA does not believe a revision to the NPDWR for picloram is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for picloram is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.54. Polychlorinated Biphenyls (PCBs)

a. *Background*. EPA published the current NPDWR for PCBs on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.0005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* EPA is assessing the health risks resulting from exposure to PCBs under the IRIS program. In December 2019, EPA released the document "Systematic Review Protocol For The Polychlorinated Biphenyls (PCBs) Noncancer IRIS Assessment (Preliminary Assessment Materials)" for public review and comment (84 *FR* 69742, USEPA, 2019b). The

new health effects assessment was not completed by the health effects review cutoff date for the SYR 4 cycle (USEPA, 2024d).

Although a health effects assessment is in process for PCBs, the current MCL is based on a PQL of 0.0005 mg/L. Therefore, EPA reviewed whether there is potential to revise the PQL. During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for PCBs during the current review cycle. The SYR 4 ICR dataset contains MRL values for 82,610 samples. Fewer than 80 percent of these values are less than or equal the modal MRL of 0.0001 mg/L, which is less than the PQL. The MDL of the approved method for the detection of PCBs (as decachlorobiphenyl) is 0.00008 mg/L. Applying a multiplier of 10 would give a possible EQL of 0.0008 mg/L, which is greater than the PQL. Although a majority of the MRL values are generally below the PQL, the MRL mode is not a feasible EQL, and the MDL multiplier value does not support revision of the PQL for PCBs. Therefore, EPA did not develop an EQL (USEPA, 2024b).

Since the MCL is constrained by the PQL, and the PQL is unchanged, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* The Agency does not believe a revision to the NPDWR for PCBs is appropriate at this time because a reassessment of the health risks resulting from exposure to PCBs is in progress (USEPA, 2016b). Furthermore, a review of analytical feasibility did not identify a potential to revise the MCL, which is limited by feasibility.

2.55. Combined Radiums (226 and 228)

a. *Background*. EPA published an interim MCL of 5 pCi/L for combined radium 226 and 228 on July 9, 1976 (41 *FR* 28402, USEPA, 1976) and finalized the MCL on December 7, 2000 (65 *FR* 76708; USEPA, 2000). As noted in the August 14, 1975 proposal (40 *FR* 34324, USEPA, 1975) and a subsequent September 30, 1986 *FR* notice (51 *FR* 34836, USEPA, 1986b), EPA considered the feasibility of treatment techniques, analytical methods, and monitoring when establishing the MCL of 5 pCi/L. EPA also considered the risks associated with radium 226 and 228 exposure, which generally fell within the Agency's acceptable risk range of 10^{-4} to 10^{-6} at the MCL of 5 pCi/L. On December 7, 2000 (65 *FR* 76708, USEPA, 2000), EPA established an MCLG of zero based on a cancer classification of A ("known human carcinogen") and finalized the NPDWR by retaining the MCL of 5 pCi/L. EPA noted in the December 7, 2000, *FR* notice (65 *FR* 76708, USEPA, 2000) that new risk estimates from Federal Guidance Report 13 reaffirmed that the 5 pCi/L MCL was appropriate and protective.[7] EPA also tightened the monitoring requirements for combined radiums by requiring that systems monitor for radium 226 and 228 separately.

b. *Technical Reviews.* OAR is currently reviewingthe health risks resulting from exposure to radium. The new health effects assessment was not completed by December 2021, the cutoff date for the SYR 4 cycle (USEPA, 2024d). Additional information OAR's efforts to update the cancer

[7] After the December 7, 2000, final regulation, two trade associations and several municipal water systems challenged EPA's standard for combined radiums by claiming that the Agency did not use the best available science when finalizing the standard. In February of 2003, the DC Circuit Court of Appeals upheld EPA's regulation for combined radiums (as well as beta and photon emitters and uranium).

risk coefficients and risk models for exposure to radionuclides through ingestion of water and about the status of the scientific review of the draft document titled "Federal Guidance Report No. 16: Cancer Risk Coefficients for Environmental Exposure to Radionuclides" can be found in the *Federal Register* (87 *FR* 15988, USEPA, 2022b)

Although there is an ongoing health effects assessment, the MCLG is zero and the current MCL is higher than the MCLG. Therefore, EPA reviewed whether there is potential to revise the MCL based on new information regarding analytical and treatment feasibility for radiums. EPA did not identify new information that would lower the detection limits. In addition, since the December 7, 2000, regulation, there is no new information regarding treatment feasibility. Since there is no new information regarding analytical or treatment feasibility that suggests changes to the MCL, EPA does not believe it is necessary to conduct an occurrence analysis at this time.

c. *Review Result.* The Agency does not believe a revision to the NPDWR for combined radiums is appropriate at this time because a reassessment of the health risks resulting from exposure to radium is in progress (USEPA, 2024d). Furthermore, there is no new information regarding analytical or treatment feasibility that would warrant reconsideration of the MCL.

2.56. Selenium

a. *Background*. EPA published the current NPDWR for selenium on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.05 mg/L. EPA based the MCLG on a maximum safe intake[8] of 0.4 mg/person/day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.005 mg/kg-day based on an ATSDR toxicological profile (ATSDR, 2003). The updated RfD is based on a more recent critical study (USEPA, 2024d). Based on the RfD of 0.005 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.029 mg/L, rounded to 0.03 mg/L (USEPA, 2024d).

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor for the potential MCLG decrease under consideration. EPA evaluated the results of the occurrence and exposure analyses for selenium to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-31 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for 23 of 51,317 systems (0.04 percent) serving 6,455 people (<0.01 percent of 269.7 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry

[8] The 0.4 mg/day safe level was based on data (Yang et al., 1989a, 1989b) that extrapolated from blood selenium levels to estimated dietary intake in the studied population. As described in the January 30, 1991 *FR* (56 *FR* 3526, USEPA, 1991c), the Agency partially considered selenium's status as a nutrient and did not use the typical procedure for deriving the MCLG. Hence, there is no specific reference to an RfD for selenium in the 1991 *FR* notice. After the publication of the regulation, USEPA (1991b) posted an RfD of 0.005 mg/kg-day for selenium using the same data that are the basis of the regulation.

points. Average concentrations exceed the potential MCLG for up to 91 systems (0.18 percent) serving 84,998 people (0.03 percent).

Table 2-31. Number and Percent of Systems with Mean Concentrations Exceeding Selenium Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.05 mg/L (MCL)	23	23	0.04%	0.04%
Number (%) of Systems with Mean Concentrations > 0.03 mg/L (potential MCLG)	91	91	0.18%	0.18%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.05 mg/L (MCL)	6,455	6,455	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.03 mg/L (potential MCL)	84,998	84,998	0.03%	0.03%

Source: USEPA, 2024a

a. Percentages are based on the 51,317 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 269,659,074 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for selenium, EPA does not believe a revision to the NPDWR for selenium is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for selenium is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.57. Simazine

a. *Background*. EPA published the current NPDWR for simazine on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.004 mg/L. EPA based the MCLG on a RfD of 0.005 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.073 mg/kg-day based on the EPA OPP human health risk assessment (USEPA, 2018b). The updated RfD is based on a more recent critical study and uses a more current modeling approach for dose-response characterization (USEPA, 2024d). Based on a RfD of 0.073 mg/kg-day, an

adjusted DWI-BW ratio of 35.6-mL/kg-day for females ages 13 to <49 years and an RSC of 20 percent, the potential MCLG is 0.410 mg/L, rounded to 0.4 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for simazine to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for simazine, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-32 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data collected by the USGS. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no to low occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at 0.3 percent of the NAWQA locations.

Table 2-32. Number and Percent of NAWQA Locations with Simazine Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	7,233 (100%)	16,086 (100%)	23,319 (100%)
All samples are nondetects [a]	4,910 (67.9%)	13,985 (86.9%)	18,895 (81%)
At least one detection	2,323 (32.1%)	2,101 (13.1%)	4,424 (19%)
Maximum concentration exceeds current MCL (0.004 mg/L)	51 (0.7%)	17 (0.1%)	68 (0.3%)
Maximum concentration exceeds potential MCLG (0.4 mg/L)	0 (0%)	0 (0%)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.000002 to 0.002 mg/L. Excludes 49 nondetects with reporting limits greater than 0.004 mg/L, none of which are greater than 0.4 mg/L.

The BATs and SSCTs for simazine have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.004 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. The Agency recognizes, however, that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for simazine, EPA does not believe a revision to the NPDWR for simazine is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for simazine is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low

occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.58. Styrene

a. *Background*. EPA published the current NPDWR for styrene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.1 mg/L. EPA based the MCLG on a RfD of 0.2 mg/kg-day and a cancer classification of C, "possible human carcinogen".

b. *Technical Reviews.* In 2010, the CalEPA updated its health effects assessment of styrene (CalEPA, 2010b). This assessment could lead to a change in the MCLG. This assessment concluded that there is sufficient evidence that styrene causes cancer in animals and there is limited evidence that it causes cancer in humans (CalEPA, 2010b). During SYR 3, based on the 2010 CalEPA assessment, the potential MCLG was set to zero (USEPA, 2016b). During SYR 4, EPA did not identify any changes in health effects information and the potential MCLG remains set to zero (USEPA, 2024d).

Because of a possible change in the MCLG for styrene, EPA considered whether analytical feasibility is likely to be a limitation if the Agency were to consider lowering the MCL to zero (the potential MCLG). During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Fourteen PT studies had concentrations below the current PQL of 0.005 mg/L; all of which had passing rates above 75 percent. Therefore, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 416,775 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000012 to 0.00011 mg/L. Applying a multiplier of 10 results in a possible EQL values ranging from 0.00012 to 0.0011 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for styrene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-33 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations did not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for up to 89 of 52,187 systems (0.17 percent) serving 27,473 of 274.6 million people (0.01 percent).

Table 2-33. Number and Percent of Systems with Mean Concentrations Exceeding Styrene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.1 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	89	62	0.17%	0.12%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.1 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	27,473	18,206	0.01%	0.01%

Source: USEPA, 2024a

a. Percentages are based on the 52,187 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,581,373 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for styrene, EPA does not believe a revision to the NPDWR for styrene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for styrene is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.59. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD or Dioxin)

a. *Background*. EPA published the current NPDWR for dioxin on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 3×10^{-8} mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of dioxin as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL is based on a PQL of 3×10^{-8} mg/L. Therefore, EPA reviewed whether there is potential to revise the PQL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL

values for approved methods (USEPA, 2024b). Only one PT study had a concentration below the current PQL of 3×10^{-8} mg/L. It had passing rate above 75 percent. Therefore, the PT data indicate limited potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 20,294 samples. Over 80 percent of these values are less than or equal the modal MRL of 5×10^{-9} mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDL of the only approved method is 4.4×10^{-9} mg/L. Applying a multiplier of 5 results in possible EQL value of 2.2×10^{-8} mg/L, which indicates potential to reduce the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for dioxin to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-34 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations did not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL for up to 7 of 6,222 systems (0.11 percent) serving 2,311 of 82.3 million people (<0.01 percent).

Table 2-34. Number and Percent of Systems with Mean Concentrations Exceeding 2,3,7,8-TCDD Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations 3 x 10^{-8} mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 5 x 10^{-9} mg/L (EQL)	7	1	0.11%	0.02%
Sum (%) of Population Served by Systems with Mean Concentrations 3 x 10^{-8} mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 5 x 10^{-9} mg/L (EQL)	2,311	70	<0.01%	<0.01%

Source: USEPA, 2024a

a. Percentages are based on the 6,222 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 82,318,153 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for dioxin is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.60. Tetrachloroethylene

a. *Background*. EPA published the current NPDWR for tetrachloroethylene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of tetrachloroethylene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for tetrachloroethylene is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of tetrachloroethylene might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Eleven PT studies had concentrations below the PQL, all of which had passing rates above 75 percent. Therefore, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 474,380 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000008 to 0.00014 mg/L. Applying a multiplier of 10 results in a possible EQL values ranging from 0.00008 to 0.0014 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for tetrachloroethylene to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-35 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 25 of 52,210 systems (0.05 percent) serving 906,663 of 274.6 million people (0.33 percent). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for up to 432 systems (0.83 percent) serving 15.8 million people (5.76 percent).

Table 2-35. Number and Percent of Systems with Mean Concentrations Exceeding Tetrachloroethylene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	25	24	0.05%	0.05%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	432	337	0.83%	0.65%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	906,663	906,612	0.33%	0.33%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	15,811,810	13,015,728	5.76%	4.74%

Source: USEPA, 2024a

a. Percentages are based on the 52,210 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,625,445 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

The NPDWR for tetrachloroethylene was previously identified as a candidate for regulatory revision (75 *FR* 15500, USEPA, 2010e). The most recent EPA IRIS assessment for tetrachloroethylene was finalized after the review results of SYR 2 were published. EPA notes that the cancer unit risk for drinking water is 6×10^{-8} per µg/L (USEPA, 2012). Based on this unit risk value, the risk associated with a lifetime exposure at the current MCL of 5 µg/L is 3.0×10^{-7}, which corresponds with 3 excess lifetime cancer cases per 10 million people. At a concentration of 0.5 µg/L, the risk is 0.3 excess lifetime cancer cases per 10 million people. The implied number of baseline cancer cases is, therefore, less than 5 total cases over a 70-year exposure period (an annual average of 0.07 cases). Thus, revising the tetrachloroethylene MCL further downward would result in relatively small health risk reductions among the exposed population. Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for tetrachloroethylene is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.61. Thallium

a. *Background*. EPA published the current NPDWR for thallium on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of 0.0005 mg/L. EPA based the MCLG on a

RfD of 0.00007 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity". The NPDWR also established an MCL of 0.002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of thallium as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

Although there is no change in the MCLG, the current MCL is based on a PQL of 0.002 mg/L. Therefore, EPA reviewed whether there is potential to revise the PQL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). There are no PT results at sample concentrations below the PQL of 0.002 mg/L. Given the lack of PT data below the current PQL, EPA determined that the data do not support reduction of the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 184,440 samples. More than 80 percent of these values are less than or equal the modal MRL of 0.001 mg/L, which is greater than the MCLG of 0.0005 mg/L. The MDLs of approved methods range from 0.00002 to 0.0010 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.0002 and 0.010 mg/L. The highest two values within that range exceed that the PQL, and 99 percent of MRL values exceed the next highest value of 0.0002 mg/L, indicating that an EQL less than the PQL is feasible. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for thallium to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-36 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for up to 15 of 51,007 systems (0.03 percent) serving 2,286 people (<0.01 percent of 269.6 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for up to 71 systems (0.14 percent) serving 57,541 people (0.02 percent).

Table 2-36. Number and Percent of Systems with Mean Concentrations Exceeding Thallium Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1⁄2 MRL	Non-detect values = Zero	Non-detect values = 1⁄2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.002 mg/L (MCL)	15	13	0.03%	0.03%
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (EQL)	71	55	0.14%	0.11%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.002 mg/L (MCL)	2,286	2,232	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (EQL)	57,541	43,019	0.02%	0.02%

Source: USEPA, 2024a

a. Percentages are based on the 51,007 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 269,580,903 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCL for thallium, EPA does not believe a revision to the NPDWR for thallium is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for thallium is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.62. Toluene

a. *Background*. EPA published the current NPDWR for toluene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 1 mg/L. EPA based the MCLG on a RfD of 0.2 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.0097 mg/kg-day based on a Health Canada Guidelines for Canadian Drinking Water Quality (Health Canada, 2014). The updated RfD is based on a more recent critical study and uses a more current modeling approach for dose-response characterization (USEPA, 2024d). Based on an RfD of 0.0097 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.057 mg/L, rounded to 0.06 mg/L (USEPA, 2024d).

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor for the potential MCLG decrease under consideration. EPA evaluated the results of the occurrence and exposure analyses for toluene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-37 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG set equal to 0.06 mg/L based on the new health effects information. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for 14 of 52,348 systems (0.03 percent) serving 5,256 people (<0.01 percent of 274.6 million people).

Table 2-37. Number and Percent of Systems with Mean Concentrations Exceeding Toluene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 1 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.06 mg/L (potential MCLG)	14	14	0.03%	0.03%
Sum (%) of Population Served by Systems with Mean Concentrations > 1 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.06 mg/L (potential MCLG)	5,256	5,256	<0.01%	<0.01%

Source: USEPA, 2024a

a. Percentages are based on the 52,348 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,615,844 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for toluene, EPA does not believe a revision to the NPDWR for toluene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for toluene is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.63. Toxaphene

a. *Background*. EPA published the current NPDWR for toxaphene on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.003 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of toxaphene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for toxaphene is based on a PQL of 0.003 mg/L. The Agency considered whether changes in the analytical feasibility of toxaphene might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods

(USEPA, 2024b). Four PT studies had concentrations below the current PQL of 0.003 mg/L, all of which had passing rates greater than 75 percent. The limited data below the current PQL indicate uncertain potential to reduce the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 145,265 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.001 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.00013 to 0.0017 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.0013 to 0.017 mg/L. The only value in the MDL multipler range below the PQL is 0.0013 mg/L. Therefore, EPA set the EQL equal to 0.001 mg/L (USEPA, 2024b). Although this value is less than the MDL multiplier range, almost 90 percent of the MRL data are less than or equal to this value.

EPA evaluated the results of the occurrence and exposure analyses for toxaphene to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-38 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations did not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL of 0.001 mg/L for up to 2 of 37,419 systems (0.01 percent), serving 335 people (<0.01 percent of 229.2 million people).

Table 2-38. Number and Percent of Systems with Mean Concentrations Exceeding Toxaphene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.003 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.001 mg/L (EQL)	2	0	0.01%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.003 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.001 mg/L (EQL)	335	0	<0.01%	0%

Source: USEPA, 2024a

a. Percentages are based on the 37,419 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 229,216,049 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for toxaphene is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low

occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.64. 2,4,5-Trichlorophenoxypropionic Acid (2,4,5-TP or Silvex)

a. *Background*. EPA published the current NPDWR for 2,4,5-TP on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 0.05 mg/L. EPA based the MCLG on a RfD of 0.008 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of 2,4,5-TP as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

A review of analytical or treatment feasibility is not necessary for 2,4,5-TP because changes to the MCLG are not warranted at this time and the current MCL is equal to the MCLG. Since EPA did not identify a health or technology basis for revising the 2,4,5-TP NPDWR, the Agency did not conduct a detailed occurrence and exposure analysis.

c. *Review Result.* EPA's review shows that there are no data supporting a change to the 2,4,5-TP NPDWR. As a result, a revision to the NPDWR would not be appropriate at this time.

2.65. 1,2,4-Trichlorobenzene

a. *Background*. EPA published the current NPDWR for 1,2,4-trichlorobenzene on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG and an MCL of 0.07 mg/L. EPA based the MCLG on a RfD of 0.01 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCL based on a change in cancer classification in EPA's PPRTV (USEPA, 2009c). When EPA promulgated the NPDWR, the cancer classification was D, "not classifiable as to human carcinogenicity", under the 1986 Cancer Guidelines. Based on a new critical study, the revised classification is "likely to be carcinogenic to humans" under the 2005 Cancer Guidelines (USEPA, 2024d). Therefore, EPA set the potential MCLG to zero (USEPA, 2024d).

Because of a possible change in the MCLG for 1,2,4-trichlorobenzene, EPA considered whether analytical feasibility is likely to be a limitation if the Agency were to consider lowering the MCL to (the potential MCLG). During SYR 4, EPA evaluated SYR 4 MRL data and MDL values for approved methods (USEPA, 2024b). EPA did not receive PT data for 1,2,4-trichlorobenzene during the current review cycle. The SYR 4 ICR dataset contains MRL values for 417,203 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L.

Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000013 to 0.0002 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00013 to 0.002 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to 0.0005 mg/L (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for 1,2,4-trichlorobenzene to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-39 shows the results of the occurrence and exposure analysis for the current MCL and the EQL. The occurrence and exposure analysis shows that average concentrations did not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the EQL of 0.0005 mg/L for up to 15 of 52,201 systems (0.03 percent), serving 126,201 of 274.6 million people (0.05 percent).

Table 2-39. Number and Percent of Systems with Mean Concentrations Exceeding 1,2,4-Trichlorobenzene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.07 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	15	12	0.03%	0.02%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.07 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	126,201	124,668	0.05%	0.05%

Source: USEPA, 2024a

a. Percentages are based on the 52,201 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,593,060 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for 1,2,4-trichlorobenzene, EPA does not believe a revision to the NPDWR for 1,2,4-trichlorobenzene is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 1,2,4-trichlorobenzene is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and

- The burden on States and the regulated community to implement any regulatory change that resulted.

2.66. 1,1,1-Trichloroethane

a. *Background*. EPA published the current NPDWR for 1,1,1-trichloroethane on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG and an MCL of 0.2 mg/L. EPA based the MCLG on a RfD of 0.035 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* In 2007, the Agency updated its health effects assessment of 1,1,1-trichloroethane (USEPA, 2007). This assessment considered relevant studies on the toxicity of 1,1,1-trichloroethane including developmental and reproductive toxicity. The assessment updated the RfD from 0.035 mg/kg-day to 2 mg/kg-day (USEPA, 2007). During prior SYR cycles, the Agency could not determine that a revision to the NPDWR would provide a meaningful opportunity for cost savings to public water systems or their customers, and decided that any revision would be a low priority activity for the Agency because of competing workload priorities, the administrative costs associated with rulemaking, and the burden on States and the regulated community to implement any regulatory change (75 *FR* 15500, USEPA, 2010e; USEPA, 2016a). During SYR 4, the Agency's literature search did not identify any additional health risk information. Therefore, the RfD of 2 mg/kg-day remains the appropriate basis for health protection and the current review of whether the potential MCLG remains a low priority activity. Based on the RfD of 2 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages) and an RSC of 20 percent, EPA established a potential MCLG of 10 mg/L (USEPA, 2024d).

EPA evaluated the results of the occurrence and exposure analyses for 1,1,1-trichloroethane to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to achieve cost savings for PWSs and their customers while maintaining, or improving, the level of public health protection (USEPA, 2024c). Although the Agency obtained and evaluated the finished water occurrence data for 1,1,1-trichloroethane, its usefulness is limited for determining potential cost savings to PWSs and their customers because the Agency does not know which systems are treating for this contaminant. As an alternative, the Agency evaluated available data on source water quality and conducted a qualitative assessment of treatment cost savings.

Table 2-40 provides summary data for contaminant occurrence based on maximum sample values for the locations included in the NAWQA data. Although the degree to which these occurrence rates represent national drinking water source occurrence is uncertain, the information shows no occurrence at threshold levels of interest. This information indicates that any resulting NPDWR change would affect systems that rely on source water at less than 0.1 percent of the NAWQA locations.

Table 2-40. Number and Percent of NAWQA Locations with 1,1,1-Trichloroethane Detections and Threshold Exceedances

Occurrence Result	Surface Water	Ground Water	Total
Total locations	1,747 (100%)	19,608 (100%)	21,355 (100%)
All samples are nondetects [a]	1,653 (94.6%)	18,944 (96.6%)	20,597 (96.5%)
At least one detection	94 (5.4%)	664 (3.4%)	758 (3.5%)
Maximum concentration exceeds current MCL (0.2 mg/L)	1 (0.1%)	9 (<0.1%)	10 (<0.1%)
Maximum concentration exceeds potential MCLG (10 mg/L)	0 (0%)	0 (0%)	0 (0%)

Source: USEPA, 2024c (national data from 1991 to 2021; estimates based on maximum sample values at each location).
a. The detection limits range from 0.00002 to 0.2 mg/L.

The BATs and SSCTs for 1,1,1-trichloroethane have other beneficial effects, e.g., reduction of other co-occurring contaminants, precursors for DBPs, or other common impurities. Therefore, if EPA were to consider a higher level, the Agency does not know how many PWSs that are currently treating to comply with the existing MCL of 0.2 mg/L would be likely to discontinue treatment that is already in place (USEPA, 2024c). Also, the Agency does not know to what extent affected systems might be able to reduce costs given that capital costs are not recoverable. However, the Agency recognizes that there may be opportunities to achieve operational cost savings if these systems are able to re-optimize current treatment.

Given these considerations, the Agency believes that any resulting revision is not likely to provide a meaningful opportunity for cost savings.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for 1,1,1-trichloroethane, EPA does not believe a revision to the NPDWR for 1,1,1-trichloroethane is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 1,1,1-trichloroethane is likely to provide a meaningful opportunity for cost savings to public water systems and their customers. Taking into consideration the low occurrence of this contaminant in source waters, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.67. 1,1,2-Trichloroethane

a. *Background*. EPA published the current NPDWR for 1,1,2-trichloroethane on July 17, 1992 (57 *FR* 31776, USEPA, 1992). The NPDWR established an MCLG of 0.003 mg/L. EPA based the MCLG on a RfD of 0.004 mg/kg-day and a cancer classification of C, "possible human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of 1,1,2-trichloroethane as well as non-cancer

related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

Although there is no change in the MCLG, the current MCL is based on a PQL of 0.005 mg/L. Therefore, EPA reviewed whether there is potential to revise the PQL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Twenty-two PT studies had concentrations below the current PQL of 0.005 mg/L. One of these studies had a passing rate less than 75 percent; it had a limited sample size (10 or fewer laboratories). Therefore, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 419,764 samples. Over 80 percent of these values are less than or equal to the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL, which is also less than the current MCLG value. The MDLs of approved methods range from 0.00001 to 0.0001 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.0001 to 0.001 mg/L. The MRL data and the MDL multiplier results support using the MCLG of 0.003 mg/L as an EQL (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for 1,1,2-trichloroethane to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-41 shows the results of the occurrence and exposure analysis for the current MCL of 0.005 mg/L and the EQL of 0.003 mg/L. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any of the systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the MCLG of 0.003 mg/L for up to 2 of 52,200 systems (<0.01 percent), serving 50 of 274.6 million people (<0.01 percent).

Table 2-41. Number and Percent of Systems with Mean Concentrations Exceeding 1,1,2-Trichloroethane Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.003 mg/L (EQL/MCLG)	2	2	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.003 mg/L (EQL/MCLG)	50	50	<0.01%	<0.01%

Source: USEPA, 2024a

a. Percentages are based on the 52,200 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,593,032 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCL for 1,1,2-trichloroethane, EPA does not believe a revision to the NPDWR for 1,1,2-trichloroethane is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for 1,1,2-trichloroethane is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.68. Trichloroethylene

a. *Background*. EPA published the current NPDWR for trichloroethylene on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG of zero based on a cancer classification of B2, "probable human carcinogen". The NPDWR also established an MCL of 0.005 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of trichloroethylene as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for trichloroethylene is based on a PQL of 0.005 mg/L. The Agency considered whether changes in the analytical feasibility of trichloroethylene might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). Twenty-two PT studies had concentrations below the current PQL of 0.005 mg/L, all of which had passing rates above 75 percent. Therefore, the PT data indicate potential to lower the PQL (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 475,446 samples. Over 80 percent of these values are less than or equal the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000012 to 0.00019 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00012 to 0.0019 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for trichloroethylene to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-42 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for 22 of 52,222 systems (0.04 percent) serving 730,055 people (0.27 percent of 274.6 million people). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for up to 297 systems (0.57 percent) serving 12.8 million people (4.65 percent).

Table 2-42. Number and Percent of Systems with Mean Concentrations Exceeding Trichloroethylene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.005 mg/L (MCL)	22	22	0.04%	0.04%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	297	242	0.57%	0.46%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.005 mg/L (MCL)	730,055	730,055	0.27%	0.27%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	12,755,926	11,211,710	4.65%	4.08%

Source: USEPA, 2024a

a. Percentages are based on the 52,222 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,596,206 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

The NPDWR for trichloroethylene was previously identified as a candidate for regulatory revision (75 *FR* 15500, USEPA, 2010e). The most recent EPA IRIS assessment for trichloroethylene was finalized after the SYR 2 review results were published. EPA notes that the cancer risk level at the current MCL is 1×10^{-5} (USEPA, 2011). This corresponds with 10 excess lifetime cancer cases per 1 million people. At a concentration of 0.5 µg/L, the risk is 1 excess lifetime cancer case per 1 million people. The implied number of baseline cancer cases, therefore, is unlikely to exceed 120 total cases over a 70-year exposure period (an annual average of 1.7 cases). Thus, revising the trichloroethylene MCL further downward would result in relatively small health risk reductions among the exposed population. Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for trichloroethylene is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.69. Uranium

a. *Background*. EPA published the current NPDWR for uranium on December 7, 2000 (65 *FR* 76708, USEPA, 2000).The NPDWR established an MCLG of zero based on a cancer classification of A, "known human carcinogen". As noted in final rule (65 *FR* 76708, USEPA,

2000), uranium has also been identified as a nephrotoxic metal (kidney toxicant) and EPA derived a drinking water equivalent level of 20 µg/L as a noncancer health endpoint for kidney toxicity. The NPDWR also established an MCL of 30 µg/L, which is higher than the feasible level of 20 µg/L and the level associated with kidney toxicity. In December 2000, EPA exercised its discretionary authority to set an MCL at a level higher than feasible (SDWA Section 1412(b)(6)), based on the finding that "benefits do not justify the costs at the feasible level (20 µg/L) and that the net benefits are maximized at a level (30 µg/L) that is still protective of health with an adequate margin of safety" (65 *FR* 76708, USEPA, 2000).[9]

b. *Technical Reviews.* During the health effects literature review for the SYR 3 cycle, the Agency identified new information that indicates it may be appropriate to update the health effects assessment for uranium (IARC, 2012; WHO, 2012; and ATSDR, 2013). Therefore, during SYR 3, EPA nominated uranium for a new health effects assessment. EPA is assessing the health risks resulting from exposure to uranium under the IRIS program (USEPA, 2024g). Because the new assessment will not be completed during the SYR 4 cycle, the MCLG remains zero (USEPA, 2024d).

Although the current MCL is higher than the MCLG, EPA did not evaluate whether there is new information indicating that it is feasible to revise the MCL. The MCL is based on benefit-cost analysis, which could be affected by the outcome of a health effects assessment.

c. *Review Result.* The Agency does not believe a revision to the NPDWR for uranium is appropriate at this time because uranium has an ongoing health effects assessment (USEPA, 2024d). As noted previously, the uranium MCL is based on the SDWA benefit-cost analysis provision (Section 1412(b)(6)) and the health effects assessment is important for reviewing the benefits associated with the basis of the MCL.

2.70. Vinyl Chloride

a. *Background*. EPA published the current NPDWR for vinyl chloride on July 8, 1987 (52 *FR* 25690, USEPA, 1987). The NPDWR established an MCLG of zero based on a cancer classification of A, "known human carcinogen". The NPDWR also established an MCL of 0.002 mg/L, based on analytical feasibility.

b. *Technical Reviews.* As part of the SYR 4 process, EPA conducted a health assessment search to identify relevant data on the carcinogenicity of vinyl chloride as well as non-cancer related health effects. EPA did not identify any new information that might affect the current MCLG (USEPA, 2024d).

The current MCL for vinyl chloride is based on a PQL of 0.002 mg/L. The Agency considered whether changes in the analytical feasibility of vinyl chloride might lead to a lower MCL. During SYR 4, EPA evaluated PT data, SYR 4 MRL data, and MDL values for approved methods (USEPA, 2024b). No PT studies had concentration below the PQL despite approved newer

[9] After the December 7, 2000, final regulation, two trade associations and several municipal water systems challenged EPA's standard for uranium by claiming that the Agency did not use the best available science when finalizing the standard. In February of 2003, the DC Circuit Court of Appeals upheld EPA's regulation for uranium (as well as combined radiums, and beta particle and photon emitters).

methods having lower MDLs. Therefore, the PQL assessment outcome is inconclusive (USEPA, 2024b). The SYR 4 ICR dataset contains MRL values for 424,050 samples. Over 80 percent of these values are less than or equal to the modal MRL of 0.0005 mg/L. Thus, an EQL could be set equal to the modal MRL (USEPA, 2024b). The MDLs of approved methods range from 0.000007 to 0.00018 mg/L. Applying a multiplier of 10 results in possible EQL values ranging from 0.00007 to 0.0018 mg/L. The MDL multiplier analysis supports an EQL less than the PQL. Therefore, EPA set the EQL equal to the MRL mode (USEPA, 2024b).

EPA evaluated the results of the occurrence and exposure analyses for vinyl chloride to determine whether a revised MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-43 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG. The occurrence and exposure analysis shows that average concentrations exceed the current MCL for 1 of 52,021 systems (<0.01 percent) serving 45 of 274.5 million people (<0.001 percent). Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG for 24 systems (0.05 percent) serving 307,275 people (0.11 percent).

Table 2-43. Number and Percent of Systems with Mean Concentrations Exceeding Vinyl Chloride Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 0.002 mg/L (MCL)	1	1	<0.01%	<0.01%
Number (%) of Systems with Mean Concentrations > 0.0005 mg/L (EQL)	24	18	0.05%	0.03%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.002 mg/L (MCL)	45	45	<0.01%	<0.01%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.0005 mg/L (EQL)	307,275	118,948	0.11%	0.04%

Source: USEPA, 2024a

a. Percentages are based on the 52,021 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 274,471,872 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of a possibly lower PQL (and therefore a possibly lower MCL), EPA does not believe a revision to the NPDWR for vinyl chloride is appropriate at this time. The occurrence and exposure analysis based on possible changes in analytical feasibility indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

2.71. Xylenes (Total)

a. *Background*. EPA published the current NPDWR for total xylenes on January 30, 1991 (56 *FR* 3526, USEPA, 1991c). The NPDWR established an MCLG and an MCL of 10 mg/L. EPA based the MCLG on a RfD of 2 mg/kg-day and a cancer classification of D, "not classifiable as to human carcinogenicity".

b. *Technical Reviews.* During SYR 4, EPA derived a potential MCLG using an updated RfD of 0.013 mg/kg-day based on a Health Canada Guidelines for Canadian Drinking Water Quality (Health Canada, 2014). The updated RfD is based on a more recent critical study (USEPA, 2024d). Based on an RfD of 0.013 mg/kg-day, an adjusted DWI-BW ratio of 33.8-mL/kg-day for the general population (all ages), and an RSC of 20 percent, EPA established a potential MCLG of 0.076 mg/L, rounded to 0.08 mg/L (USEPA, 2024d).

Analytical feasibility does not pose any limitations for the current MCL and would not be a limiting factor for the potential MCLG decrease under consideration. EPA evaluated the results of the occurrence and exposure analyses for total xylenes to determine whether a revised MCLG/MCL would be likely to result in a meaningful opportunity to improve the level of public health protection (USEPA, 2024a). Table 2-44 shows the results of the occurrence and exposure analysis for the current MCL and the potential MCLG set equal to 0.08 mg/L based on the new health effects information. The occurrence and exposure analysis shows that average concentrations do not exceed the current MCL for any systems in the analysis. Note that these results are based on the subset of monitoring data provided in response to the SYR 4 ICR and do not necessarily reflect MCL violations, which are based on annual average concentrations at entry points. Average concentrations exceed the potential MCLG of 0.08 mg/L at 23 of 46,720 systems (0.05 percent) serving 34,728 of 256.3 million people (0.01 percent).

Table 2-44. Number and Percent of Systems with Mean Concentrations Exceeding Xylene Thresholds and Corresponding Estimates of Population Served[a]

Item and Threshold	Non-detect values = 1/2 MRL	Non-detect values = Zero	Non-detect values = 1/2 MRL	Non-detect values = Zero
Number (%) of Systems with Mean Concentrations > 10 mg/L (MCL)	0	0	0%	0%
Number (%) of Systems with Mean Concentrations > 0.08 mg/L (potential MCLG)	23	23	0.05%	0.05%
Sum (%) of Population Served by Systems with Mean Concentrations > 10 mg/L (MCL)	0	0	0%	0%
Sum (%) of Population Served by Systems with Mean Concentrations > 0.08 mg/L (potential MCLG)	34,728	34,728	0.01%	0.01%

Source: USEPA, 2024a

a. Percentages are based on the 46,720 systems in the SYR 4 ICR dataset that reported results for this contaminant. These systems serve 256,321,003 million people. Columns show results for different assumptions for non-detection results, i.e., MRL values, were replaced with either ½ x MRL or zero before calculating system mean concentrations.

Since the occurrence analysis indicates that any revision to the MCL is unlikely to provide a meaningful opportunity to improve the level of public health protection, it was not necessary to perform any additional reviews such as treatment feasibility.

c. *Review Result.* Although there are new data that support consideration of whether to revise the MCLG/MCL for xylenes, EPA does not believe a revision to the NPDWR for xylenes is appropriate at this time. In making this decision, the Agency considered whether any possible revision to the NPDWR for xylenes is likely to provide a meaningful opportunity to improve public health protection. Taking into consideration the low occurrence of this contaminant, EPA has decided that any revision to the NPDWR would be a low priority activity for the Agency, and, thus, is not appropriate to revise at this time because of:

- Competing workload priorities;
- The administrative costs associated with rulemaking; and
- The burden on States and the regulated community to implement any regulatory change that resulted.

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