Pennsylvania
Department of
Environmental Protection

COMMENT AND RESPONSE DOCUMENT

Water Quality Standards
Triennial Review

25 Pa. Code Chapter 93
53 Pa.B. 6170 (October 7, 2023)
Environmental Quality Board Regulation #7-577
(Independent Regulatory Review Commission #3383)

Water Quality Standards – Triennial Review

The Environmental Quality Board (Board) adopted the proposed rulemaking for Pennsylvania's tenth triennial review of water quality standards at its July 11, 2023 meeting. On September 6, 2023, the Department of Environmental Protection (Department) submitted a copy of the proposed rulemaking to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the Senate and House Environmental Resources and Energy Committees for review and comment in accordance with section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)).

The proposed rulemaking was published in the *Pennsylvania Bulletin* on October 7, 2023 (53 Pa.B. 6170) with a 45-day public comment period that closed on November 21, 2023. The Board held one virtual public hearing on November 14, 2023 for the purpose of accepting comments on the proposed rulemaking. Comments were received from 105 commentators, including testimony from 19 witnesses at the public hearing.

This document includes the comments received through testimony at the public hearing, the written comments received during the public comment period, and IRRC's comments. For the purposes of this document, comments of similar subject matter are grouped together and responded to accordingly. Most comments are summarized; comments copied verbatim are identified by quotation marks.

A list of the commentators including name, affiliation (if any), and location can be found in Appendix A. The commentator list also includes identification numbers for each comment submission, which are referenced in parentheses following each comment in this document.

No commentators requested a copy of the final-form rulemaking.

Copies of Comments

Copies of all comments received by the Board during the public comment period are posted on the Department's eComment website at the following link:

https://www.ahs.dep.pa.gov/eComment/ViewComments.aspx?enc=DN064MT8R38NKyiRv2iU7O0BbpuJUkhMDrSjTaFtAzw%3d.

Additionally, copies of all comments received by the Board on this rulemaking are posted on IRRC's website at the following link:

https://irrc.state.pa.us/regulations/RegSrchRslts.cfm?ID=3396.

1. **Comment:** IRRC submitted the following comments:

"In this proposed regulation, the Board is revising water quality standards for the Commonwealth as part of its triennial review of water quality standards. Commenters have concerns about certain criteria proposed by the Board.

• In Table 5, the Board proposes to add a human health criterion of 0.3 micrograms per liter (mg/l) for 1,4-dioxane. The American Chemistry Council (ACC) asserts that this criterion is based on 'the default assumption that there is no dose of the substance that does not present an increased cancer risk – no matter how small the increase.' ACC notes that both Health Canada and the World Health Organization recommend a drinking water level of 50 mg/l. Similarly, the Pennsylvania Chamber of Business and Industry contends that the Board 'has not provided sufficient justification for moving the regulation of 1,4-[d]ioxane from what was formerly a stream segment specific standard in Chapter 16, Appendix A, Table 1A to a statewide [Ambient Water Quality Standard] in Chapter 93, Table 5.'

• Three Rivers Waterkeeper, citing multiple articles related to the harmful impacts of certain chemicals, opposes less stringent criteria for metolachlor, formaldehyde, acetone, resorcinol, and chloroform, stating, 'Without scientific proof that the less stringent standards will not harm public health and our environment via acute and chronic exposure, standards should not be less stringent.'

We ask the Board to explain the reasonableness of revisions to the above criteria in the final regulation and how the criteria protect the public health, safety, and welfare.

Other commenters ask the Board to consider adopting additional criteria.

• The U.S. Environmental Protection Agency (EPA), Region III, recommends the Board adopt nutrient criteria for the protection of lakes and reservoirs derived using the models found in the 2021 document *Ambient Water Quality Criteria to Address Nutrient Pollution in Lakes and Reservoirs*.

• The EPA encourages the Board to adopt the EPA's 2001 recommended criterion for methylmercury for the protection of human health.

• The EPA asks the Board to consider revising its aquatic life criteria for aluminum, copper, and selenium to be consistent with the EPA's recommendations.

• PennFuture asks the Board to protect aquatic life in Pennsylvania's waters from discharges of chloride, asserting that elevated levels of chloride are toxic to aquatic life in freshwater environments, and that chloride can negatively affect the fish and insect community structure, diversity, and productivity, even at lower levels.

We ask the Board to explain how the final regulation protects public health, safety, and welfare as relates to these criteria." **(1)**

Response: The water quality criteria in the proposed regulation and unchanged in the final-form regulation are reasonable to protect the public health, safety and welfare because the Department developed the water quality criteria using the best available peer-reviewed science and current recommendations from the United States Environmental Protection Agency (EPA). The science used by EPA to develop the national recommendations for criteria includes evaluations of available scientific data on the effects of the pollutants such as effects on public health and welfare, aquatic life and recreation. Additionally, the Department followed its regulations for developing the criteria, as described in Chapters 93 and 16, which are part of the Commonwealth's approved program to implement to the Federal Clean Water Act.

Regarding the comments from the American Chemical Council relating to 1,4-dioxane, please see the response to Comment #7.

Regarding the comments from the Pennsylvania Chamber of Business and Industry relating to 1,4-dioxane, please see the response to Comment #8.

Regarding the comments from the Three Rivers Waterkeeper relating to metolachlor, formaldehyde, acetone, resorcinol, and chloroform, please see the response to Comment #9.

Regarding the comments from the EPA relating to criteria for nutrients, methylmercury, aluminum, copper and selenium, see response to Comment #3.

Regarding the comments from PennFuture relating to chloride, please see the response to Comment #4.

2. **Comment:** IRRC submitted the following comments:

"Section 93.7. Specific water quality criteria; Section 93.8c. Human health and aquatic life criteria for toxic substances; Section 93.8e. Special criteria for the Great Lakes System. – Implementation.

In Sections 93.7(a), 93.8c(c), and 93.8e(b.1), the Board proposes to add language that clarifies the duration periods for the aquatic life criteria in Table 3, Table 5, and Table 6, respectively. In order to evaluate the impact of implementation of the revised criteria, the EPA requests that the Board provide the following additional information:

- Pennsylvania's current method for averaging data points when evaluating monitoring data for assessment purposes;

- A rationale for not also proposing to adopt the frequency component of aquatic life criteria in this triennial review;

- Absent the adoption of the frequency component, what the Department will use for a maximum allowable frequency of exceedance of the criterion maximum concentration (CMC) and criterion continuous concentration (CCC); and

• A rationale for having different durations for the CMC and the CCC for the aquatic life water quality criteria for acrylonitrile, chlordane, 4,4-DDT, alpha-endosulfan, and beta-endosulfan.

We will review the Board's response to the EPA relating to the impact of implementation of the revised criteria as part of our determination of whether the final-form regulation is in the public interest." **(1)**

Response: Regarding the EPA's request for additional information, please see the response to Comment #5.

3. **Comment:** The EPA submitted comments recommending Pennsylvania adopt nutrient criteria for lakes and reservoirs, human health criteria or swimming advisories for microcystins and cylindrospermopsin, and criteria for methylmercury, aluminum, copper, selenium. **(2)**

   Response: For each triennial review, EPA provides suggestions on what priorities a state should focus on for future reviews. EPA's breadth of comments relates not only to what was proposed in the regulation (Annex A), but also applies to Pennsylvania's program, overall, to protect waters of the United States.

   The request to consider the addition of criteria not included in the proposed rulemaking is outside the scope of this rulemaking and cannot be addressed in the final-form rulemaking. In the proposed Annex A, the Department did not modify existing criteria or add new criteria for nutrients, aluminum, copper, methylmercury, microcystins and cylindrospermopsin.

   States are not expected to review and update all EPA section 304(a) criterion recommendations in a state's triennial review period. EPA's comments are only recommendations, and States are not obligated to adopt those criteria during the current triennial review. Most states, including Pennsylvania, have limited time and resources available to review and update criteria during each triennial review cycle. Given limited resources, the Department selects specific water quality criteria to update in each triennial review cycle based on a variety of factors that may include public input, issues concerning public health and safety, criteria complexity, the presence of the substance statewide in surface waters and other related factors.

   The Department has begun to prioritize and work on many of the criteria listed in the comment including copper, methylmercury and aluminum. These are complex criteria that require significant time and resources to evaluate and develop into rulemaking recommendations to the Board.

   Furthermore, the general water quality criteria in § 93.6 are applicable in all surface waters of the Commonwealth. These narrative water quality standards provide protection to all water uses and water users from any substance or pollutant that does not have a numeric criterion listed in Chapter 93, Tables 3 or 5.

4. **Comment:** As provided in 2018 comments, the commentator "once again call[s] on the board to protect aquatic life in Pennsylvania's waters from discharges of chloride. EPA

originally established national aquatic life criteria for chloride in 1988. It took until 2010—over 20 years—for EQB to propose a rulemaking to adopt these criteria, but even then, no final standard was adopted. In 2012, EQB proposed a different set of equation-based criteria for chloride that would account for the effect of the hardness and sulfate concentration on chloride toxicity, but later withdrew that proposal to allow DEP to conduct further studies. Despite the completion of additional toxicity studies and refinement of the Pennsylvania-specific equations during the development of the 2016 triennial review regulatory package, 'the Department is not recommending a specific chloride criterion with this proposed rulemaking.' (47 Pa.B. 6609, 6612 (October 21, 2017)). Acceding to that recommendation, the Board deferred proposing aquatic life criteria for chloride.

One reason given at the time for the further delay was EPA's publication in December 2016 of a new draft field-based method for developing aquatic life criteria for specific conductivity. But DEP has now had over five years to review that draft methodology document and should have by this point developed the necessary aquatic life criteria for Pennsylvania.

We know, and DEP knows, that 'elevated levels of chloride are toxic to aquatic life in freshwater environments,' and that chloride can negatively affect the fish and insect community structure, diversity, and productivity, even at lower levels. And we know that Pennsylvania streams are impacted by 'freshwater salinization syndrome,' which is a long-term increase in concentrations of major ions and metals in fresh water attributed to the application of road salt. One 20-year study of six streams in southeastern PA showed the detrimental impact this can have not only on the chemical health of our streams, but also on the water infrastructure and municipal water supplies. Community science monitoring of chloride throughout Pennsylvania shows just a small snapshot of the prevalence of high levels of chloride in our surface waters, with results showing over a quarter of the waters tested have harmful and toxic levels of chloride. Conductivity is also a reported problem in some of the critical special protection headwaters of the state, where watershed organizations have found high levels of chloride that result in year-round impacts. Inevitably, studies will be necessary to determine relationships and impacts more precisely. But while those studies are being undertaken, chlorides from gas production wastewater, mine drainage, industrial facilities, road salts, and water softeners continue to remain unchecked with devastating impacts on the aquatic biological communities in Pennsylvania's waters.

Pennsylvania's adoption of aquatic life water quality criteria for chloride is long overdue. We appreciate the efforts of the Department and the Board to develop and refine such criteria, but we can no longer wait for these necessary protections. We are disappointed to learn that another triennial review has come without the necessary aquatic life criteria for chloride or specific conductivity. The DEP and EQB must not let yet another triennial review pass without Pennsylvania having criteria in place to protect the aquatic life of Pennsylvania waters from the toxic effects of chloride." **(8)**

Response: The request to consider the addition of chloride criteria is outside the scope of this rulemaking and cannot be addressed in the final-form rulemaking. In the proposed Annex A, the Department did not modify existing criteria or add new criteria for chloride.

The Department continues to apply its osmotic pressure criterion in Chapter 93, Table 3 to protect aquatic life from harmful exposures to ions, such as chloride, and to evaluate the available science and recommendations with respect to the development of chloride criteria. The Department is aware of and closely following EPA's ongoing work to update the National criteria recommendations for chloride and sulfate.

The toxicity of specific ion pollutants is frequently dependent upon other water quality characteristics, including the concentrations of other ion pollutants. These complex interactions can lead to challenges in the development of water quality criteria. EPA has been conducting laboratory studies and is working to update its numeric aquatic life criteria recommendations for chlorides and sulfates. EPA has communicated that they anticipate publication of these draft criteria recommendations in the near future, possibly within the next year. The Department will continue to monitor the science and to work toward the development of aquatic life criteria for chlorides.

In addition, as stated in the response to Comment #10, the general water quality criteria in § 93.6 may be implemented in permits to protect surface waters by prohibiting substances attributable to point or nonpoint source discharges in concentrations or amounts sufficient to be harmful to the protected water uses or to human, animal, plant or aquatic life.

5. **Comment:** The EPA commented that "Pennsylvania is proposing to add duration components for its numeric aquatic life water quality criteria in Tables 3, 5 and 6. Generally, unless otherwise specified, Pennsylvania is proposing the adoption of a one-hour average duration for criteria maximum concentrations, and a four-day average for criteria continuous concentrations, and this is typically consistent with EPA's recommended average durations. In order to discern how this proposed revision will impact the implementation of Pennsylvania's aquatic life criteria, EPA requests that Pennsylvania provide the following information:

    - Pennsylvania's current method for averaging data points when evaluating monitoring data.
    - A rationale for not also adopting the frequency component of aquatic life criteria in this triennial review.
    - Absent the adoption of the frequency component, what Pennsylvania will use for a maximum allowable frequency of exceedance of the criteria maximum concentrations (CMC) and criteria continuous concentrations (CCC).
    - A rationale for having different durations for the CMC ("instantaneous") and the CCC (24 hour average) for the aquatic life water quality criteria for acrylonitrile, chlordane, 4,4-DDT, endosulfan and beta-endosulfan." **(2)**

    Response:

    Pennsylvania's current method for averaging data points when evaluating monitoring data

    The Department's current methods for averaging data points when evaluating monitoring data are generally described in the Department's *Assessment Methodology for Streams and Rivers* (Shull and Whiteash 2021), available at

https://files.dep.state.pa.us/water/drinking%20water%20and%20facility%20regulation/waterqualityportalfiles/methodology/2021%20methodology/assessment_book_2021.pdf.

A rationale for not also adopting the frequency component of aquatic life criteria in this triennial review

The Department intends to add clarifying language to Chapter 93 for the criteria frequency component that currently applies to the aquatic life criteria in the next triennial review. The Department will need to simultaneously modify Chapter 96, which addresses water quality standards implementation. Changes to the frequency component will be presented in the next triennial review, which the Department is currently developing.

Absent the adoption of the frequency component, what Pennsylvania will use for a maximum allowable frequency of exceedance of the criteria maximum concentrations (CMC) and criteria continuous concentrations (CCC).

While the Department understands that the aquatic life criteria in Chapter 93 contain magnitudes, durations and frequencies, the only component that is currently expressed in the regulations are the criteria magnitudes. When the Department adopts EPA's criteria recommendations developed under section 304(a) of the Federal Clean Water Act (CWA), the Department generally adopts the entire recommendation (that is, all three of the criteria components) whether or not each component is specified in Chapter 93. For all aquatic life criteria not based on an EPA recommendation, the Department develops its criteria in accordance with the EPA's 1985 aquatic life criteria development guidelines, which includes "standard" durations of 1-hour and 4-day and an exceedance frequency of no more than once every 3 years on the average. The Department is not adopting new criteria duration components in this rulemaking. Rather, the Department is simply adding language to the regulations to clarify the existing duration components that already apply to each of the aquatic life criteria.

A rationale for having different durations for the CMC ("instantaneous") and the CCC (24 hour average) for the aquatic life water quality criteria for acrylonitrile, chlordane, 4,4-DDT, endosulfan and beta-endosulfan

The criteria durations for acrylonitrile, chlordane, 4,4-DDT, endosulfan and beta-endosulfan are based on EPA section 304(a) criteria recommendations. (33 U.S.C. § 1314). On final rulemaking, the note for Acrylonitrile in Table 5, that referred to duration, is deleted because the appropriate durations are one-hour average (CMC) and four-day average (CCC). EPA section 304(a) criteria recommendations for the protection of aquatic life contain 3 criteria components: a magnitude, a duration, and a frequency. EPA last published national recommendations for these other 4 substances in 1980, which included criteria frequencies of 24-hours and instantaneous. The Board adopted each of these EPA criteria recommendations in their entirety and without modification to any of the 3 criteria components during a previous rulemaking. EPA Region 3 subsequently reviewed and approved these criteria as part of the Commonwealth's water quality standards. The Board is not amending the criteria frequencies for any of these substances during this triennial review rulemaking. Rather, it is

adding clarifying language to Chapter 93 that specifically states the current criteria frequencies as they were previously adopted.

6. **Comment:** "EPA is pleased that Pennsylvania is adopting revised aquatic life criteria for cadmium, and new aquatic life criteria for tributyltin and carbaryl. EPA is also supportive of Pennsylvania's proposal to adopt new and revised water quality criteria for the protection of human health. Specifically, Pennsylvania proposes to revise human health criteria based on new scientific information and data for the following parameters: chloroform, chlorophenoxy herbicide (2,4-D), acetone, barium, boron, formaldehyde, methyl ethyl ketone, metolachlor, resorcinol, 1,2,3- trichloropropane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and xylene. Pennsylvania also is proposing to add a 1,4-dioxane water quality criterion for the protection of human health." **(2)**

   Response: The Department acknowledges this comment and appreciates EPA's support.

7. **Comment:** The commentator notes that as "documented in the Department's April 2022 rationale document, the proposed [1,4-dioxane (1,4-DX)] criterion of 0.3 micrograms per liter (µg/L) is based on the assessment of potential cancer risk conducted by the US Environmental Protection Agency (USEPA) as part of its Integrated Risk Information System (IRIS) originally published in 1988 and confirmed in 2013. The USEPA assessment applies a default linear non-threshold (LNT) assumption for a genotoxic mode of action (MOA) in characterizing the cancer risk from 1,4-DX exposure after concluding that the cancer MOA has not been established for the substance.

   Based on the available evidence, however, the application of the default genotoxic MOA is inappropriate since 1,4-DX is neither directly genotoxic nor mutagenic. Moreover, there is ample evidence supporting use of threshold models for assessing cancer risk from exposure to 1,4-DX. This conclusion is based on numerous reports demonstrating that tumors observed in laboratory animal tests only occur after exposure to 1,4-DX exceeds a threshold. This evidence has been recognized by authoritative bodies worldwide, including both Health Canada, the European Union, and the World Health Organization (WHO).

   There is no information suggesting that 1,4-DX is bioactivated to reactive intermediate metabolites capable of directly impacting DNA to produce mutations. This conclusion is supported by extensive testing with *in vitro* assay systems with prokaryotic organisms, non-mammalian eukaryotic organisms, mammalian cells, and most in vivo genotoxicity assays. Instead, 1,4-DX's metabolism is well-documented to proceed to a stable, nongenotoxic/non-mutagenic metabolite, 2-hydroxyethoxyacetic acid (HEAA). Metabolism studies confirm, moreover, that while 1,4-DX is readily metabolized and quickly eliminated from the body the metabolic pathway becomes saturated at higher exposure levels of 1,4-DX. The available evidence demonstrates that toxicity occurs only after the clearance pathway becomes saturated and the parent compound accumulates in the blood and target tissues.

   Although 1,4-DX has been reported to evoke multiple tumors, the increased tumor incidence tends to occur at the highest dose only, and all reported incidences are consistent with a threshold-based, non-mutagenic MOA. This finding is supported by extensive histopathology for both liver and nasal tissue providing a robust set of key events – pre-cancerous changes

consistent with mitogenesis leading to genotoxicity and cytotoxicity and a threshold MOA for 1,4-DX-induced tumors. Chronic and subchronic studies in laboratory animals exposed to levels above metabolic saturation have consistently demonstrated a threshold response of pre-neoplastic events and subsequent tumor formation after chronic exposure.

Although some of the metabolism information was available to USEPA for its 2020 evaluation under the Toxic Substances Control Act, a considerable amount of new and relevant information has been published since that time. The commentator encloses a list of recent publications and urges the Department to consider before it finalizes a human health criterion for 1,4-DX."

During testimony provided at the public hearing, the commentator stated that this newer information had led authoritative bodies from around the world, including WHO, to recommend a drinking water level of 50 µg/L. **(3, 31)**

Response: The Department develops human health criteria in accordance with its water quality standards regulations and policy, including Chapters 93 and 16 and EPA guidance, as amended and updated.

The Department's criteria development policy for carcinogens is described in 25 Pa. Code § 16.33, wherein subsection (c) states, "*The Department accepts the evaluation and extrapolation modeling used by the EPA to quantitate the carcinogenic risk of particular chemicals. Cancer risk level criteria are, therefore, adaptations of EPA's cancer potency (slope) factors. Criteria based on cancer risk levels are average lifetime exposure values*." Section 16.33(f) describes the guidelines used by the Department in establishing criteria for carcinogens, including the following:

(1) The determination as to whether a substance is a carcinogen will be its identification by EPA.

(2) For toxics for which (cancer potency) slope factors have been developed as evidenced by listing on IRIS the Department will either use the EPA developed criteria or will develop criteria based upon these potency factors using the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (EPA 2000).

Since EPA published a cancer slope factor for 1,4-dioxane in IRIS, which was last updated in 2013, the Department followed its policies to develop the final criterion.

With respect to newer scientific understanding of the toxic effects, in 2020, EPA reviewed the available data for 1,4-dioxane as part of its evaluation under the Toxic Substances Control Act and reconfirmed their position on an MOA (mode of action) for 1,4-dioxane. In the 2020 evaluation, EPA concluded that "*there is insufficient information to support a specific MOA for any of the tumor types associated with 1,4-dioxane exposure. There was a high degree of uncertainty in any of the MOA hypotheses considered in this evaluation (e.g., mutagenic MOA or threshold response to cytotoxicity and regenerative hyperplasia for liver tumors). Linear extrapolation is the default approach when there is uncertainty about the MOA. 1,4-Dioxane is a multi-site carcinogen and may have more than one MOA*." (EPA 2020)

In addition to EPA's recent evaluation, toxicologists with the New Jersey Drinking Water Quality Institute (DWQI) Health Effects Subcommittee recently evaluated 1,4-dioxane for the development of a drinking water maximum contaminant level (MCL) and responded to similar comments from, and additional studies provided by, the same commentator in 2021. DWQI toxicologists provided responses to those comments, which included some of the additional studies that were submitted to the Department as part of this comment on the triennial review (such as, Chappell et al. 2021 and Lafranconi et al. 2021). While the commentator cites to reports demonstrating effects occurring only after reaching certain threshold levels (that is, levels exceeding metabolic saturation), DWQI toxicologists noted there are available studies demonstrating tumor development at exposure levels below metabolic saturation. DWQI's responses to similar comments include, but are not limited to, the following:

- Liver tumors occurred in female rats at doses below those at which metabolism is saturated (Kano et al., 2009). As stated by EPA Office of Chemical Safety and Pollution Prevention (OCSPP) (2020), liver tumors in male rats occurred at inhalation concentrations well below those at which metabolism is saturated (Kasai et al., 2009), indicating 1,4-dioxane causes liver tumors in the absence of metabolic saturation.
- Increased levels of the serum liver enzyme ALT, indicative of hepatic toxicity, occurred at much lower doses in the 2 year study by the Japanese Bioassay Research Center 1998 (lowest observed adverse effect level (LOAEL) – 2,000 ppm) than in the 13 week study by Lafranconi et al. 2021 (LOAEL – 25,000 ppm).
- The increase in ALT was much greater at 2,000 and 8,000 ppm in the 2 year study than at 25,000 ppm in the 13 week study (ALT data from the 2 year study was reported in JBRC 1998 not Kano et al. 2009).
- The study design by Lafranconi et al. 2021 cannot establish MOA for tumor formation since the occurrence of tumors cannot be evaluated in a 13-week study.
- EPA OCSPP's review of an earlier unpublished report of the Lafranconi et al. 2021 study noted: "*The evidence in this unpublished report is not sufficiently specific to provide support for a specific MOA. While the study may identify thresholds for specific effects evaluated in the study, a 90-day study that does not include tumor endpoints is not able to demonstrated that the key events in question are necessary precursors of liver tumor formation."*
- EPA OCSPP also concluded: "*MOA for nasal tumors has not been established. Additionally, nasal tumor occurred after oral and inhalation exposure and occurred throughout the nasal cavity suggesting that they occur as a systemic effect, and not a portal of entry effect."* They also stated that *"1,4-dioxane caused several types of rare nasal tumors that were not reported in historical controls in rats or mice and are unlikely to occur through a cytotoxic MOA*."

The Department agrees with EPA's and DWQI's observations and conclusions. In addition, the Department reviewed the newer studies provided by the commentator (Lafranconi et al. 2023, Chen et al. 2022, Wang et al. 2022, Cho et al. 2022, and Charkoftaki et al. 2021). These studies either do not add new data (that is, they were analyses of previously published

study data) or consist of short-term studies that were completed in 90 days or less (that is, 1 week to 3 months). As EPA and DWQI noted above, such short-term studies cannot establish MOA for tumor formation since the occurrence of tumors cannot be evaluated in a 13-week (or less) period of exposure.

The WHO recommendation for 1,4-dioxane of 50 micrograms per liter (µg/L) was developed in 2004 as a safe drinking water guideline. There is no National Primary Drinking Water Regulation for 1,4-dioxane, but EPA has published a drinking water health advisory level for 1,4-dioxane of 35 µg/L based on cancer risk of 1×10^{-4}. Health advisory documents provide technical information on chemical and microbial contaminants that can cause human health effects and are known or anticipated to occur in drinking water. Health advisory values/levels identify the concentration of a contaminant in drinking water at which adverse health effects and/or aesthetic effects are not anticipated to occur over specific exposure durations (such as, 1 day, 10 days, a lifetime). EPA's Office of Water also advises consideration of a more conservative cancer risk level (1×10^{-5} or 1×10^{-6}) if it is considered more appropriate for exposure-specific risk assessment. (See EPA's 2018 Edition of the Drinking Water Standards and Health Advisories Tables).

8. **Comment:** An industry trade association comments that "[f]eedback from the employer community has generally focused on DEP's proposed standard for one compound in particular, 1,4-Dioxane, and concern that DEP has not provided sufficient justification for a statewide [ambient water quality standard (AWQS)] for 1,4-Dioxane, including because only 2.3 percent of third Unregulated Contaminant Monitoring Rule (UCMR) samples are greater than 0.30 ug/L. In short, employers contend that DEP should continue to regulate this pollutant on a stream-specific and site specific basis. Other data referenced by DEP, gathered by UGSG [sic], DEP, and [the Delaware River Basin Commission (DRBC)] show limited detections, and such detections are generally confined to portions of the Southeast Region and select stream segments in the DRBC. It is not clear whether these water sources are even used as an intake for drinking water.

   In 2012, DEP proposed a 1,4-Dioxane AWQC of 0.35 ug/L statewide. At the time, there was a regulatory site-specific water quality criterion identified for the West Branch of the Perkiomen River, in relation to the Bally Groundwater Superfund site, of 3 ug/L. After comment by various stakeholders, including the [commentator], the Department recommended to withdraw the proposed statewide 1,4-Dioxane standard, and committed to develop site-specific criteria, as needed, using the best available science.

   The comments regarding 1,4-Dioxane included a recommendation that the Department first survey levels present in groundwater, drinking water and surface to determine if 1,4-Dioxane levels are concerning. In response to this recommendation, the Department chose to withdraw the rule and agreed to continue to use site specific criteria. See, for example, PADEP's Rationale for the Development of Ambient Water Quality Criteria Human Health Protection, 1,4-Dioxane. In addition, when the Department withdrew its recommendation for 1,4-Dioxane in 2013, the EQB requested the Department collect additional data and report back to the Board.

The timing of EQB's recommendation coincided with data being gathered regarding 1,4-Dioxane included in the UCMR3 published in May of 2012, requiring community water systems to monitor for 1,4-Dioxane between 2013 and 2015. Specifically, between 2013 and 2015, there was sampling at approximately 362 public water supplies facilities/locations in Pennsylvania, with results reported in 2017. Only 20 of the 362 water supplies/locations (5.5 percent) had any detections exceeding the proposed standard of 0.3 ug/l in groundwater, surface water or mixed water supplies, and only about 2.3 percent of all samples showed any detections above the 0.3 ug/l proposed AWQC limit (PADEP stated 'approximately 3 percent of the sample results being above 0.35 ug/L')." These limited and often inconsistent detections above the proposed standard, based on a 70-year exposure assumption for drinking water, are far less than the rate of 1,4 Dioxane detection observed nationally. The detections in Pennsylvania also appear to be limited to relatively few water sources.

DEP did not propose inclusion of a 1,4-Dioxane ambient water quality standard in the triennial water quality standards based on this data reflecting such a low detection rate. Similarly, based on the low detection rate in the data collected nationally in UCMR3, the USEPA chose to not regulate 1,4-Dioxane through an MCL or ambient water quality criterion based on a drinking water standard. By contrast, New Jersey had a rate of 17.2 percent in its PWS [(public water supplies)] tested systems detecting Dioxane with levels over 0.35 ug/L (and likely more facilities over 0.30 ug/L), well above the national rate. As a result, New Jersey chose to regulate 1,4-Dioxane through a groundwater standard.

The DEP's proposal also disregards whether surface water is in fact used as a source of intake for drinking water. Along these lines, the Department states that it also reviewed data from the Water Quality Portal [(WQP)] to characterize observed concentrations in waters (e.g., ambient surface water). These monitored values may or may not represent locations used as a source for drinking water and can be analyzed to characterize the observed ranges of 1,4-Dioxane concentrations in ambient surface water. The data within the WQP shows approximately 145 lines of data, with only 5 lines of data showing detections (3.4 percent) with respect to recoverable dioxin. The detections are limited to a well in Franklin County near Dennis Creek (USGS-400057077443201) and Park Creek near Horsham Wastewater near Warminster, PA. An additional data set for volatile 1,4 Dioxane, taken by DRBC and PADEP contains approximately 82 lines of data, primarily geared towards the Southeast PA and northward and primarily related to an effort to track down potential 1,4 Dioxane sources in areas with elevated concentrations. These address waters from Chester Creek, Crum Creek, Darby Creek, Frankford Creek, Lehigh River from Allentown to Phillipsburg, Neshaminy Creek, Pennypack Creek, Poquessing Creek, Ridley Creek, Schuylkill River. DEP acknowledges approximately 100 samples for 1,4-Dioxane in the WQP and states the samples were primarily collected within the Lehigh River Basin. Clearly, all of these sources are on the far eastern side of the Commonwealth, primarily within DRBC jurisdiction and/or the Southeast Region and in the Lehigh River basin. In the volatile 1,4-Dioxane data set, 56/82 samples exceeded a 0.3 ug/L value, which is not surprising given DEP's and DRBC's knowledge about and targeting of these select waterways. Such narrowly targeted results should not drive a statewide restriction.

Accordingly, the [commentator] contends that the Department has not provided sufficient justification for moving the regulation of 1,4-Dioxane from what was formerly a stream

segment specific standard in Chapter 16, Appendix A, Table 1A to a statewide AWQC in Chapter 93, Table 5. DEP has not established that 1,4-Dioxane is likely to occur in drinking water and public water systems throughout the State at sufficient frequency and concentrations to create a public health concern. DEP has not established that 1,4-Dioxane is present in surface water at sufficient frequency and concentrations to impact drinking water and public water systems throughout the State. Nor has DEP established that regulation of 1,4-Dioxane using a statewide surface water AWQC results in a meaningful health risk reduction associated with drinking water." **(6)**

Response: In 2013, the Board withdrew its proposed criterion so that the Department could collect additional data on sources and discharges of 1,4-dioxane in Pennsylvania. The Board specifically requested the Department collect additional wastewater effluent data. As a result, the Department implemented additional monitoring requirements upon issuance or reissuance of individual NPDES permits when facility discharge flow exceeded 0.1 million gallons per day (MGD) and the concentration of 1,4-dioxane in the discharge exceeded 10 µg/L. Facilities with discharges of equal to or less than 0.1 MGD were required to monitor and report for 1,4-dioxane if the concentration in the discharge exceeded 100 µg/L. Following these guidelines, the Department issued 23 NPDES permits with permit effluent limitations for 1,4-dioxane. The 23 permitted facilities are located in five out of six Department regions and include permitted discharges of treated effluent from landfills, wastewater treatment plants, power generating stations and other industrial facilities.

Section 101(a)(3) of the CWA declares the National policy that the discharge of toxic pollutants in toxic amounts be prohibited (33 U.S.C. § 1251(a)(3)). Section 303(c)(2)(B) of the CWA (33 U.S.C. § 1313(c)(2)(B)) directs states to adopt numeric criteria for toxic pollutants. The Department's regulation of 1,4-dioxane is in accordance with these requirements and is based on its presence in statewide permitted discharges of treated wastewater effluent rather than on observed water column concentrations in surface waters.

Furthermore, the National Safe Drinking Water Program is a distinct program with its own laws and regulations. The UCMR is specific to this program and was established for the purpose of identifying emerging pollutants that may require regulation under the Federal Safe Drinking Water Act. MCLs are specific to the Safe Drinking Water Program and are not the same as water quality standards. By contrast, the criteria developed for this rulemaking apply to wastewater discharges.

In Pennsylvania, the Potable Water Supply use is a statewide protected water use. Since the use is protected statewide, the potable water supply criteria in Chapter 93 apply to all surface waters whether or not the surface water is a source for public water suppliers regulated under the Safe Drinking Water Act. The Federal CWA and Pennsylvania Clean Streams Law require the Board to consider and protect all current and future uses of the Commonwealth's surface waters, including their use as a potable water supply.

9. **Comment:** The commentator opposes the "less stringent criteria for metolachlor and ask[s] for reconsideration. A study done on the relationship between metolachlor and crayfish found that crayfish exposed to 80 [parts per billion] (ppb) (ug/L) metolachlor (high sublethal concentrations) could interfere with 'their ability to receive or respond to social signals',

impacting their behavior. Additionally, a study on the effects of metolachlor on human liver cells showed '72-h exposure to 50 [ppb] metolachlor significantly inhibited growth of these cells compared to untreated controls.' A level of 50 ppb (ug/L) is far below the proposed criteria of 700 ug/L."

The commentator opposes the less stringent criteria for formaldehyde and asks for reconsideration. "[A] study showing the evaluation of the health impact of lowering the formaldehyde occupational exposure limit for Quebec workers determined that a safe level for all workers is 0.75 ppm (750 ug/L), which is lower than the proposed criteria of 1000 ug/L. Thus, standards should meet both environmental and public health standards that don't exceed known exposure amounts that are harmful."

"Human and organism health are incredibly important aspects of these guidelines. [The commentator] hopes [the Board] will take this into account when finalizing the new standards."

In addition to formaldehyde and metolachlor, the commentator opposes the less stringent criteria for acetone, resorcinol, and chloroform. "Without scientific proof that the less stringent standards will not harm public health and our environment via acute and chronic exposure, standards should not be less stringent. Protecting our people and the environment should be prioritized over industrial ease to pollute our environment." **(14)**

Response: Since the Department is not updating or adopting aquatic life criteria for metolachlor, the commentator's reference to a study on crayfish is not relevant to this rulemaking. In addition, the commentator referenced a study on liver cell response to metolachlor. The purpose of that study was to evaluate potential modes of action (that is, the functional or anatomical changes that occur when a living organism is exposed to a substance), which have not yet been determined for metolachlor. This study does not outweigh the collective peer-reviewed available data used by the EPA and the Department to establish the current water quality criteria recommendation for metolachlor. The commentator also referenced additional information regarding occupational exposure to formaldehyde; however, the focus of that study was to evaluate inhalation routes of exposure, which is not relevant to the development of human health water quality criteria (that is, the oral route of exposure). With respect to any human health criterion, the Department relies on sound science (see criteria rationale documents) and must follow all applicable laws, regulations, and guidelines when developing criteria.

The Department develops human health criteria in accordance with Chapters 93 and 16 along with EPA's *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (2000). As explained in the Department's rationale document that accompanies this rulemaking, the human health criteria in this proposed rulemaking had not been reevaluated in many years. Acetone and formaldehyde were last evaluated in 2000. Metolachlor was evaluated in 2008 and resorcinol in 2013. Since that time, new data and information has become available. This new information includes updated exposure input values for body weight, drinking water intake, and fish consumption as well as new reference dose information. The updated criterion for chloroform is consistent with EPA's current section 304(a) human health criterion recommendation.

It is important to recognize that criteria recommendations may become more or less stringent as scientific understanding of specific pollutants and criteria development methodologies change over time. The criteria are based on the latest science, regulations, and criteria development guidance and are protective of human health. Additional information on the development of these criteria recommendations is provided in the Department's criteria rationale documents that accompany this rulemaking.

10. **Comment:** The commentators thank the Board for improving aquatic life and human health criteria for many dangerous pollutants like cadmium, formaldehyde and xylene, among others. The commentators state it is unfortunate that the Board chose not to update aquatic life and human health criteria for many other dangerous pollutants that regularly pollute waterways such as fecal coliform, chloride, chlorine, and methyl tertiary-butyl ether (MtBE). This is particularly relevant to zones 3, 4 and 5 of the Delaware Estuary, which make up the majority of Philadelphia and Delaware County's portion of the Delaware River riverfront. Pollutants like fecal coliform, MtBE, and many others have contaminated this portion of the Delaware River for decades because of the large concentration of fossil fuel storage facilities, wastewater treatment centers and sewage and waste incinerators in this comparatively small section of the Delaware River.

    While the commentators applaud the Board for updating aquatic life and human health criteria for a significant amount of pollutants across the Commonwealth of Pennsylvania, individual waterways continue to be contaminated by unique pollutants and pollution sources that must be directly addressed. The commentators urge the Department and DRBC to study the individual pollutants discharged by industrial facilities that are most responsible for preventing Zones 3, 4, and 5 of the Delaware Estuary from achieving universally strong fish reproduction and then propose standards to reduce those pollutants. This is critical to ensuring the continued improvement of water quality and protection of the health of impacted residents and aquatic life in this section of the Delaware River. **(5, 19-22)**

    Response: The Board acknowledges and appreciates the commentators' support for the aquatic life and human health criteria updates in this rulemaking.

    In addition to the numeric water quality criteria, Chapter 93 also contains general water quality criteria in § 93.6. These narrative water quality standards protect surface waters by prohibiting substances attributable to point or nonpoint source discharges in concentrations or amounts sufficient to be harmful to the protected water uses or to human, animal, plant or aquatic life. As part of the Department's NPDES permit application processes, point source dischargers are required to provide information regarding the quality of their wastewater effluent. The Department may use this information to regulate any substance that has a reasonable potential of violating the Commonwealth's water quality standards, including § 93.6.

11. **Comment:** The commentator is in full support of the Department and the Board setting 17 new human health and aquatic life criteria being put forth this round which will begin to restrict critical toxins jeopardizing our waterways that are long overdue – the Board is proposing updated and new aquatic and human health criteria for cadmium, carbaryl, tributyltin, acetone, barium, boron, chloroform, formaldehyde, methyl ethyl ketone,

metolachlor, resorcinol, 1,2,3-trichloropropane, 1,2,4- trimethylbenzene, 1,3,5-trimethylbenzene, 1,4-dioxane, chlorophenoxy herbicide (known as 2,4-D) and xylene. These criteria are consistent with existing EPA policies and again long overdue. **(38)**

Response: The Board acknowledges and appreciates this supportive comment.

12. **Comment:** The commentator thanks the Board for improving aquatic life and human health criteria for many dangerous pollutants like cadmium, formaldehyde, and xylene. **(41)**

    Response: The Board acknowledges and appreciates this supportive comment.

13. **Comment:** The EPA commented "[in] 2015 when EPA revised the Federal WQS [(water quality standards)] regulations at 40 CFR 131, 40 CFR 131.15 was added. That provision states 'If a State intends to authorize the use of schedule of compliance for water quality-based effluent limits in NPDES permits, the State must adopt a permit compliance schedule authorizing provision. Such authorizing provision is a water quality standard subject to EPA review and approval under section 303 of the CWA and must be consistent with sections 502(17) and 301(b)(1)(C) of the Act.' Pennsylvania's compliance schedule authorizing provision is found in its National Pollutant Discharge Elimination System (NPDES) regulations at 25 Pa. Code §92a.51. This triennial review provides Pennsylvania with an opportunity to align its compliance schedule authorizing provisions with its WQS regulation. Pennsylvania should consider adopting a new provision in its WQS regulation authorizing the use of compliance schedules that references the existing NPDES-related compliance schedule language in permitting regulations at 25 Pa. Code §92a.51." **(2)**

    Response: First, the request to consider adding a compliance schedule provision was not included in the proposed rulemaking and is outside the scope of this rulemaking. The Board agrees that a compliance schedule authorization provision for water quality-based effluent limitations is a water quality standard. To that end, the Board recently amended the compliance schedule provisions in Chapter 92a (see 53 Pa.B. 3309 (June 24, 2023)) and submitted that final-form rulemaking to EPA Region 3 Water Quality Standards for their review and approval pursuant to section 303(c) of the CWA. EPA subsequently approved the Department's submission. Therefore, the compliance schedule provisions are now part of this Commonwealth's EPA-approved water quality standards program. As such, the Board does not see utility in duplicating the same regulation in Chapter 93.

Comments on the Delaware Estuary

Note: The Board received public comments on the Delaware Estuary that are outside the scope of this rulemaking and cannot be addressed in the final-form rulemaking. The proposed regulation (Annex A) did not include changes to the current designated uses of the Estuary in § 93.9(e) and (g). Those comments have been summarized and responded to below.

14. **Comment:** EPA notes for this triennial review, Pennsylvania is proposing to maintain the current non-101(a)(2) designated uses for aquatic life and recreation in the urban Delaware Estuary. The EPA acknowledges this decision and is highly supportive of ongoing

collaboration among a workgroup of coregulators – including representatives from the Department, Delaware Department of Natural Resources and Environmental Control, New Jersey Department of Environmental Protection, DRBC and EPA – to review and, where necessary, revise these water quality standards in close coordination to ensure consistent regulatory action across jurisdictional boundaries. The Department is an important member of the coregulator workgroup. The EPA encourages Pennsylvania to continue collaborating on our collective efforts to evaluate and, where necessary, revise the water quality standards for aquatic life and recreation in the urban Delaware Estuary. **(2)**

Response: The proposed regulation (Annex A) did not include a change to the designated uses of the Delaware Estuary. The Board acknowledges this comment and appreciates the EPA's support.

15. **Comment:** The EPA notes that to "the extent that previous Use Attainability Analyses (UAAs) considered safety as factor in determining Pennsylvania's Water Contact Sports (WC) designated uses, EPA believes there is a clear distinction between WQS and safety considerations. WQS are provisions of state, territorial, or authorized tribal law approved by EPA (or provisions established by EPA in Federal law) that describe the desired condition of a water body and the means by which that condition will be protected or achieved. At their core, WQS form a legal basis for controlling pollutants entering the water body. Physical hazards such as boat traffic, turbulent flows, or the presence of legacy infrastructure, are not regulated WQS. Further, the designation in WQS regulations of a recreational use for a waterbody does not mean that other, non-water-quality-based hazards are not present, or that specific waters should be used for recreation. Instead, the designation of recreational uses serves as acknowledgement that the water quality of a waterbody is, or should be, generally safe for recreation. Given this disconnect and the fact that virtually every waterbody in the United States could present some degree of danger to recreational users, physical hazards do not play a significant role in determining appropriate WQS. Removing or failing to designate primary contact recreation uses solely due the presence of physical hazards is not appropriate." **(2)**

    Response: While physical safety hazards may have been included in the UAA determinations that were finalized and approved by EPA many years ago, the Department understands that it is the current position of EPA that physical safety hazards, such as boat traffic, turbulent flows and legacy infrastructure, are not included in the six factors that may be used to justify a less restrictive water use as part of a UAA. The Department generally agrees with EPA's current position and would not use these hazards to support a less restrictive water use in future UAA determinations.

16. **Comment:** The commentator "supports the continued exclusion of Water Contact Sports (WC) use from the designated uses for river miles 108.4 to 81.8 of the Delaware Estuary. Available water quality and safety data do not support changing this exclusion.

    In June 2023, [the commentator] submitted a comprehensive recreational safety study to DEP. The Delaware River Recreation Safety Study identifies maritime, hydraulic, and shoreline hazards in the tidal Delaware River from river miles 108.4 to 81.8 and the tidal Schuylkill River between the Fairmount Dam and the Delaware River confluence. This

report details safety considerations that may arise from primary contact recreation activities (e.g., swimming, wading, paddle sports, and jet-skiing) taking place in a location with such hazards.

In 2022, [the commentator] completed a detailed analysis of near-shore and center channel bacteria monitoring in river miles 108.4 to 81.8 of the Delaware Estuary. This combined dataset includes 11,570 fecal indicator bacteria samples collected from 1999-2021 by DEP, DRBC, EPA, USGS, [Philadelphia Water Department (PWD)], Water Center at Penn, Schuylkill River Greenways, and Bartram's Garden. [The commentator] analyzed geometric mean by agency, site, and year and found that E. coli results consistently exceeded DEP's water quality criterion (126 colony forming units/100 ml) for WC use during the swimming season (May 1 through September 30).

In the Triennial Review # 9 final rulemaking published in the PA Bulletin on July 11, 2020, DEP concluded 'the WC use remains excluded from the designated uses for river miles 108.4 to 81.8 because of continuing significant impacts from combined sewer overflows (CSO), and hazards associated with commercial shipping and navigation.' [The commentator] wants to understand DEP's reasoning for why this justification was not included in this proposed rulemaking. [The commentator] believes this language is still applicable and recommends that it be included in the final rulemaking."

The commentator fully supports the long-term vision for achieving swimmable water quality in river miles 108.4 to 81.8 of the Delaware Estuary. **(12)**

Response: While the Department appreciates the commentator's support in achieving the WC use in the Delaware Estuary, the Department generally agrees with the EPA's position that physical safety hazards are not an acceptable factor that States may use to justify a less restrictive water use when completing a UAA. Based on EPA's position, which interprets the federal regulation for UAA, the language used in the preamble for the Department's 9th triennial review was not repeated in the preamble to the proposed rulemaking, and as stated in the response to Comment #15, the Department would not use these hazards to support a less restrictive water use in future UAA determinations.

The Department continues to work collaboratively with the EPA, DRBC, New Jersey, Delaware, and other stakeholders to collect and evaluate water quality data and determine the appropriate recreational uses for the lower Delaware River basin.

17. **Comment:** Regarding the exceptions for fishable/swimmable waters for the Delaware Estuary as described in the proposed triennial review, the commentator appreciates that the previous reference to a safety or hazards study has been removed because such a study is not part of a water quality evaluation. **(4, 33)**

    Response: The Board acknowledges this comment.

18. **Comment:** Many commentators request the Department designate the 27-mile stretch of the Delaware River (Estuary) for primary contact recreational water use in the water quality standards. In addition to general support for improving water quality so the public may enjoy recreating on and near the Delaware River and Estuary, commentators: note that several fish

species are now successfully reproducing in that section of the river; express concern that people are already using the Delaware Estuary for sports recreation and need to be protected from sewage and wastewater; assert that setting the standard will, in turn, limit pollution to improve the water quality of the Estuary; and state that clean water is a right and necessity. Some commentators note that cities on the Delaware River are addressing their combined sewer overflows that contribute to the water pollution in the Estuary and an exception should not be allowed for this pollution to continue. **(4, 5, 7-11, 13, 15-30, 32, 34-105)**

Response: The Department has evaluated, and continues to evaluate, the available water quality data and information for the Delaware Estuary as required under 40 CFR 131.20(a).

The primary reason for the removal of the WC use was the presence of high levels of levels of bacteria and fecal contamination. The sources and activities that led to these unsafe levels of bacteria, such as CSOs, continue to exist today in these zones of the Delaware River.

The Department has reviewed the available water quality data for Zones 2, 3, and 4 and determined that there is not sufficient new information to demonstrate the WC use is attainable. In many portions of these zones, the recorded levels of fecal bacteria and E. coli exceed the Commonwealth's bacteria water quality criteria in § 93.7, Table 3, and therefore, do not support attainment of the WC use.

In 2024, the Department collaborated with the DRBC to collect additional bacteria monitoring data with a focus on capturing the variability of water quality conditions and contamination sources along with sampling conducted in the areas most likely to be used for wading, kayaking or swimming. Sampling design, data collection, and an assessment of Zones 3 and 4 will be implemented according to the Department's *Water Quality Monitoring Protocols for Surface Waters* (Lookenbill and Whiteash 2021) and *Water Quality Assessment Methodology for Surface Waters* (Shull and Whiteash 2021). The Department will be training and assisting DRBC staff, as needed, to ensure successful completion of monitoring protocols training and/or quality assurance audits. Once the bacteriological data collection has been completed, the data will be made available to the public through the National Water Quality Monitoring Council Water Quality Portal. This initial data collection effort will target areas within Zones 3 and 4 where primary WC recreation is likely occurring and where the ongoing restoration efforts of various agencies, organizations and businesses have likely resulted in improvements to water quality. Taking this targeted approach enables the Department to focus its limited resources on those areas where the water quality data is likely to support restoration of the WC use. The Department plans to evaluate additional areas of Zones 3 and 4 as time and resources allow with the ultimate goal of reassessing the entire Delaware Estuary and restoring the WC use to additional areas where appropriate.

19. **Comment:** In December 2017, EPA Region III called on the Department to reconsider the exclusion of this 27-mile stretch from a primary contact recreation designation: "EPA believes that this conclusion needs to be reconsidered since…. Long term control plans (LTCP) are now under development or in place for the CSOs in this portion of the river. In addition, recreation which results in contact with the water is occurring in this portion of the river. The Department should initiate an effort with DRBC and the other member states to revise the applicable standards to include designated use protection for water

contact/swimming." The commentators ask the Department to explain in detail what developments have been made on data and analyses regarding the Delaware River's water quality regarding this 27-mile stretch. **(15, 36, 37)**

Response: In EPA's comments submitted on this proposed rulemaking, EPA acknowledges the Department's decision to reaffirm the removal of the use and is highly supportive of the ongoing collaboration with DRBC and the other coregulators to ensure consistent regulatory action across jurisdictional boundaries. EPA encourages the Department continue to collaborate and report on progress achieved by the coregulator workgroup.

While the Department agrees that physical safety hazards do not align with the six factors that may be used to adopt a less restrictive water use (see the response to Comment #15), the removal of the WC use was primarily due to the presence of high levels of bacteria and fecal contamination in the river. In cooperation with the coregulator States and EPA, DRBC completed a comprehensive UAA in 1989, which demonstrated the water quality in Zones 3 and 4 did not support primary contact recreation. The Department utilized this UAA to support removal of the WC use from these Zones during Pennsylvania's 4th triennial review in 1992 (see 24 Pa.B. 832 (February 12, 1994)).

See also the response to Comment #18. Based on the available data and information, the WC use is not likely to be attained in near future. CSO abatement is a long-term and ongoing activity requiring considerable infrastructure modifications and investment. Following the implementation of LTCPs, a reevaluation of water quality will be needed to determine whether the water quality standards have been achieved.

As described in the response to Comment #18, the Department collaborated with the DRBC in 2024 to collect additional bacteria monitoring data with a focus on capturing the variability of water quality conditions and contamination sources along with sampling conducted in the areas most likely to be used for wading, kayaking or swimming. Section 2.2.2.2.1 of DRBC's *Water Resources Program FY 2023-2025* (2022) contains a detailed description of DRBC's near-term (5 years) and long-term (+5 years) activities relating to enhanced recreation and recreational designated uses. DRBC and the coregulator states share a combined goal of designating primary contact recreation (that is, WC use) as the applicable recreational use for Zones 3 and 4.

20. **Comment:** Many commentators raised issues relating to environmental justice and the development of action plans to address contributing sources of pollution. Commentators noted that the environmental justice communities in Chester and the City of Philadelphia are located in the section of the Delaware Estuary without the designated recreation use and deserve to have the same water quality protections. Some commentators suggested the Department develop a comprehensive plan to lay out steps and responsibilities in order to reach the primary contact goal in a reasonable time period. **(4, 5, 9, 10, 15, 16, 19-22, 30, 33, 34, 36, 37, 40, 41, 54)**

Response: The Department's Office of Environmental Justice fulfills a critical role ensuring that the Pennsylvanians most at risk from pollution and other environmental impacts have a voice in the decision-making process. The Department acknowledges the comments received

expressing concerns regarding the water quality of the Delaware Estuary. The Department also agrees that the collaborative work by coregulating agencies is absolutely essential to the continued water quality improvements and meeting the shared goal of redesignating primary contact recreation for the Delaware Estuary. The Department will continue to prioritize this collaborative work to ensure that a redesignation will align with the requirements of the Federal CWA and Pennsylvania Clean Streams Law.

Under the Federal CWA and Pennsylvania Clean Streams Law, the Department develops water quality standards following the best available science and information. Every state program must include designated (protected) water uses, the water quality criteria necessary to protect those uses, and an antidegradation policy. While some flexibility does exist and is currently being implemented in permitting and other implementation programs, the continued water quality improvements are evidence that improvements are being made.

The Department is committed to continue towards the goal of restoring the primary contact recreation use for the Delaware Estuary in collaboration with the coregulating agencies for this interstate waterway. This includes the commitment to ensure progressive and protective measures continue to be implemented through the Department's regulatory programs and additional bacteria sampling in 2024 and subsequent years (see the response to Comment #18 above for details on this sampling strategy). Previous data is currently available to the public through eMapPA and the National Water Quality Portal. Ongoing data collection efforts that will attempt to better capture the variability of instream conditions and sources of contamination. Once the data has been reviewed and analyzed following the Department quality assurance protocols, it will be available to the public. In addition, collaborative work already exists through DRBC's Water Quality Advisory Committee, which includes EPA, the coregulator States, environmental groups, PWD and other stakeholders.

21. **Comment:** Three commentators highlighted the economic importance of the Delaware Estuary and of clean water, including improved property values, attracting new investments, recreational activities on the water and within the watershed, and supporting agricultural practices, public water supplies, and thermoelectric power generation. **(28, 29, 36)**

Response: The Department generally agrees that clean water provides economic value to present and future generations in the form of clean water supplies for a multitude of human and animal uses, robust aquatic communities, and a variety of recreational opportunities. The Department, DRBC, and the other coregulating agencies share a combined long-term goal of designating primary contact recreational uses for Zones 3 and 4 of the Delaware Estuary.

Under 40 CFR 131.20(a), states must re-examine any waterbody segment with water quality standards that do not include one or more of the uses in section 101(a)(2) of the CWA (33 U.S.C. § 1251(a)(2)) to determine if new information has become available. If such new information indicates that the section 101(a)(2) uses are attainable, the State will revise its standards accordingly. The Department continues to meet this requirement with each triennial review and examines any new water quality data and related information that has become available since the previous triennial review. As part of this triennial review, the Department determined that not enough new information has become available to indicate the WC use is attainable. See also the response to Comment #18.

22. **Comment:** Some commentators reference the protection of recreational existing uses for the Delaware Estuary and assert that since people are already recreating in the zones of the Estuary without the WC designated use, their activity evidences that the WC use is attainable. **(4, 8, 13, 33, 38, 39)**

    Response: The Department is actively working with the EPA, DRBC, New Jersey, Delaware, and other stakeholders to collect and evaluate water quality data and to determine the appropriate recreational uses for the lower Delaware River basin.

    The Department has determined there is not sufficient new information to demonstrate the WC use is attainable.

23. **Comment:** The commentator applauds the Board for updating aquatic life and human health criteria for a significant amount of pollutants across Pennsylvania, but notes that individual waterways continue to be contaminated by unique pollutants and pollution sources that must be directly addressed. **(41)**

    Response: In addition to the numeric water quality criteria, Chapter 93 also contains the general water quality criteria in § 93.6. These narrative water quality standards protect surface waters by prohibiting substances attributable to point or nonpoint source discharges in concentrations or amounts sufficient to be harmful to the protected water uses or to human, animal, plant or aquatic life. As part of the Department's NPDES permit application processes, point source dischargers are required to provide information regarding the quality of their wastewater effluent. The Department may use this information to regulate any substance that has a reasonable potential of harming human, animal, plant or aquatic life in violation of the Commonwealth's water quality standards, including § 93.6.

24. **Comment:** The commentator notes that EPA will be taking action to set more accurate and protective dissolved oxygen standards through Federal rulemaking to help protect aquatic life including the Atlantic sturgeon and nine other fish species that live and reproduce in the main stem Delaware River around Philadelphia. The commentator supports this triennial rulemaking passing promptly but requests the Department consider dissolved oxygen improvements for the tidal main stem Delaware around Philadelphia and Camden and urges the Department to make these changes in the next triennial review period. **(38)**

    Response: The Department recognizes and supports EPA's efforts to develop water quality standards in the Delaware Estuary. EPA possesses the knowledge and resources necessary to develop protective water quality criteria in this interstate water for the Federally-endangered Atlantic and shortnose sturgeon. The Department continues to work with EPA, New Jersey and Delaware to ensure the Delaware Estuary receives the appropriate level of protection.

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