



## Division of Surface Water Response to Comments

**Rules:** Water Quality Standards Program Rules, OAC Chapter 3745-1:  
OAC 3745-1-32: Ohio river standards.  
OAC 3745-1-33: Water quality criteria for water supply use designations.  
OAC 3745-1-34: Water quality criteria for the protection of human health [fish consumption].

### **Agency Contact for this Package:**

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Ohio EPA held an interested party review comment period from April 2, 2019 to May 3, 2019 regarding three Water Quality Standards Program rules. This document summarizes the comments and questions received during the associated comment period.

Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. The name of the commenter follows the comment in parentheses.

Comment 1: It is unclear how the assumptions embedded in USEPA's 304(a) criteria reflect state-specific conditions. When the USEPA updated the Human Health Ambient Water Quality Criteria document in 2015, assumptions regarding consumption rates, bioaccumulation factors, health toxicity values, and relative source contributions were revised. These highly conservative revisions are not state specific and represent human health risks for a narrow range of the general population. In this rulemaking, Ohio EPA has applied these assumptions to Ohio's human health water quality criteria, likely resulting in highly conservative criteria without explanation. (Association of Metropolitan Wastewater Agencies)

Response 1: Section 304 (a) of the Clean Water Act requires U.S. EPA to develop and revise the ambient water quality criteria that will protect and maintain designated uses. U.S. EPA updated 94 criteria in 2015 to reflect the latest scientific information and EPA

policies, such as updates to exposure factors. In accordance with 40 CFR §131.11 [b], states have three options when developing WQC and submitting them to U.S. EPA for approval: (1) adopt the U.S. EPA nationally-recommended criteria; (2) modify these criteria to reflect site-specific conditions; or (3) develop other "scientifically defensible" criteria. These draft rules reflect the updated national recommended criteria.

U.S. EPA's recommended criteria are based on the latest toxicological and exposure data that have been externally peer reviewed and vetted through the scientific community and the general public prior to publication. Although they are not Ohio-specific, all facets of the U.S. population exposure data are considered when selecting exposure assumptions.

In response to these comments, Ohio looked for state or region-specific data for exposure factors used in the human health 1 route and 2 route exposure criteria calculations and from the extremely limited data available, using state or region-specific values in the AWQC calculations would only minimally change the output (the water quality criteria). For example, based on NHANES 2017 obesity data, the nation as a whole has an obesity percentage of 35.3%, and Ohio has an obesity percentage of 34.2% which is a relatively insignificant difference. No Ohio-specific data on drinking water consumption rates could be located. For the total fish consumption rate in adults 21+, U.S. EPA used the 90th percentile of fish consumption for the nation, which equates to about 22.0 g/day. Ohio is split into three categories in the study that U.S. EPA used to derive this number<sup>1</sup> (Midwest, great lakes, and inland Midwest). The averages of these numbers indicate that Ohioans consume about 75.32% of the national average. Though this sounds like a considerable difference, in the equation to calculate the actual criterion, this final criterion is only slightly different for the 2-route exposure numbers. Again, there are not enough robust data to draw any conclusions, these are just Ohio's preliminary assumptions from the limited data available.

Furthermore, while it is true that U.S. EPA updated some exposure factors in their 2015 methodology, the Agency would argue that they are not "highly conservative revisions," as they are based on a very robust data set collected by the Center for Disease Control. The mean body weight for adults 21 years of age or older changed from 70 kg (~154 lbs) to 80 kg (~176 lbs) which is a roughly 14% increase; the drinking water intake rate was changed from 2.0 L/day to 2.4 L/day (~20% increase); and the fish consumption rate was changed from 17.5 g/day to 22.0 g/day (~26% increase) over the course of fifteen years and the result of both changes only minimally affects the criteria. For example, the equation for calculating the criteria for non-carcinogens includes the body weight as part of the numerator and the intake is part of the denominator. Thus, the increase in intake is somewhat off-set by the increased body weight. Again, the Agency would like to point out that these numerical input changes are based on actual scientific data, not just randomly selected, and that the 90<sup>th</sup> percentile for all adults over the age of 21 years of age is not a "narrow range of the general population". Human health criteria are designed to be conservative because, again they are out in place to protect the general population and sensitive populations (the elderly, young children, pregnant women, etc.). "304(a) criteria do not reflect consideration of economic impacts of the technological feasibility of meeting the criteria in ambient water... [It is the WQS that] ultimately provides a basis for controlling discharges or releases of pollution into ambient waters." *USEPA 2000 methodology*.

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<sup>1</sup> <https://www.epa.gov/fish-tech/reports-and-fact-sheets-about-fish-consumption-and-human-health>

Ohio EPA does not intend to make changes to the draft rules based on this comment. For further information/explanation of U.S. EPA's methodology, please see: <https://www.epa.gov/wqc/2015-epa-updated-ambient-water-quality-criteria-protection-human-health>.

Comment 2: U.S. EPA Default Criteria Input Variables Were Not Evaluated by Ohio EPA

OUG notes that Ohio EPA has not evaluated the relevance of U.S. EPA's updated HHC (finalized in 2015) for Ohio waters. A justification is needed that assesses the appropriateness of the U.S. EPA criteria input variables to Ohio waters. These input variables include: (1) a presumed drinking water intake level of 2.4 liters per day, for a lifetime exposure of 70 years; (2) a daily fish consumption rate of 22 grams per day, specific for locally-caught fish, which does not include consumption of marine fish that are typically purchased in grocery stores or fish markets; and (3) a presumed relative source contribution ("RSC") of 0.2. The conservative RSC value assumes that no more than 20% of the chemical-specific reference dose is attributed to consumption of water and ingestion of fish. Other sources of exposure (e.g., dermal and inhalation) are thus granted a higher proportion of exposure. OUG notes that U.S. EPA has, previously, approved state-specific RSC values of up to 0.8 for various chemical compounds. OUG thinks that, if the U.S. EPA HHC are adopted by Ohio EPA, a default RSC value of 0.5 should be set as the default value, with the caveat that less stringent RSC values could be approved pending a technical demonstration. In short, Ohio EPA cannot simply propose to adopt nationally-recommended U.S. EPA HHC without evaluating each input variable in terms of appropriateness to Ohio surface waters and sources of exposure.

OUG notes that in Section 14.c of the Business Impact Analysis - Common Sense Initiative ("CSI"), Ohio EPA states that "[most] facilities should not be impacted by these updated water quality criteria." OUG requests that Ohio EPA provide a justification of this statement, including an analysis of changes in water quality-based effluent limits ("WQBELs") and potential treatment costs that would result after adoption and implementation of the U.S. EPA criteria.

With regard to the proposed changes to Ohio Adm. Code 3745-1-34 (WQC for the protection of human health - fish consumption), OUG is opposed to the proposed criterion of 100 µg/L for manganese. The proposed criterion has no basis in the protection of human health via fish ingestion. C.S. EPA, 2002 (National Recommended Water Quality Criteria: 2002 - Human Health Criteria Calculation Matrix, EPA-822-R-02-012, U.S. EPA Office of Water) indicates that this 2-route criterion "...is not based on toxic effects, but rather is intended to minimize objectionable qualities such as laundry stains and objectionable tastes in beverages." OUG requests that this criterion be deleted as it has no basis in actual human health effects. There is no relationship between laundry stains and fish consumption protection. (OUG)

Response 2: Please see response number 1 above, response number 5 below, and Appendix 1 for details on the cost analysis.

Ohio EPA does not have enough data to justify a default RSC value of 0.5. U.S. EPA's default RSC value is 0.2 unless there is enough data to prove that the RSC of a

chemical is greater (up to 0.8). Ohio cannot set an arbitrary default value of 0.5 without the data to back it up.

Ohio EPA acknowledges the error for manganese fish consumption value and will strike it from the rule.

Comment 3: AOMWA suggests that Ohio EPA consider development of state-specific human health criteria based on sound science using the best available data and risk information. Ohio must develop criteria that are protective of the designated uses but is not required to use the same assumptions used in the national criteria or specifically adopt the national criteria. In its published BIA Ohio EPA states "revisions were necessary to bring consistency between state regulations, ORSANCO PCS, and federal water quality criteria." AOMWA submits that mere consistency is not sufficient justification for this rule change. While Ohio EPA indicates economic impacts are site specific, they could be very significant especially in the event additional treatment is required.

As directed through the Common Sense Initiative and stated in Ohio EPA's BIA it is incumbent upon the state to establish the proper balance between the water quality goals and the costs to society of attaining those goals. AOMWA encourages Ohio EPA to ensure its economic evaluation is thorough so it can adequately assess and transparently strike this balance. (AOMWA)

Response 3: Please see response number 1 above.

Ohio EPA has not made substantial updates to these criteria since 2002. Several iterations of updated federal water quality criteria have been published since, and Ohio maintains that revisions are, in fact, necessary and the most effective way for Ohio to update the criteria is to bring consistency between ORSANCO PCS, Federal recommended criteria, and State regulations.

Ohio EPA mailed hard copy letters to all 151 of the potentially impacted dischargers in the state informing them of the rulemaking and potential to negatively impact them. Ohio EPA did not receive any comments from any dischargers (other than GCWW, below who asked us to add a WQC) to indicate that they object to these changes or that they may incur costs from these changes.

Comment 4: States Are Not Required to Adopt U.S. EPA's HHC  
U.S. EPA issues nationally-recommended HHC pursuant to Section 304(a) of the Clean Water Act; states use these as the starting point for deriving WQC in their respective Clean Water Act water quality standard regulations. On page 3 of the CSI, it is stated that the proposed revision to Ohio WQC regulations are needed to satisfy 40 CFR §131.11. However, U.S. EPA regulations (40 CFR §131.11 [b]) are clear that states have the three options when developing WQC and submitting them to U.S. EPA for approval: (1) adopt the U.S. EPA nationally-recommended criteria; (2) modify these criteria to reflect site-specific conditions; or (3) develop other "scientifically defensible" criteria. (OUG)

Response 4: Please see response number 1 above.

Although Ohio EPA is aware that there are options when updating the water quality criteria rules, we must satisfy our regulatory obligation for triennial review under the Clean Water Act and the State of Ohio requires review of rules every five years.

OUG also points out that states have three options when developing criteria, and as previously stated, Ohio EPA is adopting U.S. EPA's national recommended criteria and will not develop state specific criteria for several reasons including lack of data, lack of resources and because US EPA's criteria recommendations have already been extensively vetted through peer and public review and comment.

- Comment 5: AOMWA requests that the Ohio EPA provide the following information to impacted stakeholders in order to allow for an adequate review of the proposed changes:
1. A more comprehensive assessment of these pollutants, including the relative contribution of various sources (e.g., atmospheric deposition, geological, etc.);
  2. The supporting documentation (including the factors for determining the USEPA's Human Health Criteria reflect conditions in Ohio) associated with adoption of the USEPA recommended human health criteria;
  3. Justification for adopting MCLs as ambient water quality criteria;
  4. Explanation for the selection of carcinogenicity risk factors for the various pollutants;
  5. Clarification as to the basis of the updated human health criteria for each of the pollutants considered in this rulemaking;
  6. Explanation of the need to apply criteria developed for the Ohio River statewide, for criteria based on the ORSANCO standards;
  7. Justification for the application of ORSANCO's bacteriological criteria when the future of ORSANCO's PCS is being debated; and
  8. A more thorough analysis of the economic impacts associated with meeting these criteria. (AOMWA)

Response 5: From US EPA's response to comments on the 2015 update:

*US EPA recommends ambient water quality criteria based on sound science and policies that have been thoroughly vetted publicly. The exposure and toxicity inputs used to derive the AWQC follow the approach described in US EPA's the 2000 Methodology (USEPA 2000a) -*

*<https://www.epa.gov/wqc/methodology-deriving-ambient-water-quality-criteria-protection-human-health-2000-documents>.*

*AWQC for the protection of human health are designed to minimize the risk of adverse effects occurring to humans from chronic (lifetime) exposure to substances through the ingestion of drinking water and consumption of fish obtained from surface water. Following the 2000 Methodology, EPA used a combination of median values, mean values, and percentile estimates for the parameter value defaults to calculate its updated AWQC. EPA's assumptions afford an overall level of protection targeted at the high*

*end of the general population (i.e., the target population or the criteria-basis population) (USEPA 2000a). This approach is reasonably conservative and appropriate to meet the goals of the CWA and the 304(a) criteria program (USEPA 2000a).*

Ohio EPA notified 151 dischargers with limits or monitoring requirements for these parameters by mail of our intent to update this rule. A weblink and contact information was given, as well as the deadline for comments. None of these potentially impacted dischargers commented on this rulemaking.

1. US EPA's ambient water quality criteria were derived according to established policy and procedures, all of which have been through public and peer review and comment. Please see the following link for all supporting documentation:

<https://www.epa.gov/wqc/2015-epa-updated-ambient-water-quality-criteria-protection-human-health>

U.S. EPA also provides a list of the relative source contributions used for each chemical when they calculated the criteria for that chemical. In order for the relative source contribution value to be anything other than the default value of 0.20, there must be a sufficient amount of reputable data to draw any conclusion regarding an alternative relative source contribution.

2. All supporting documentation used to derive recommended water quality criteria is available on U.S. EPA's website (see above web link). There are not enough available data to determine state specific standards for Ohio. Please see response 1.

3. MCLs are being proposed as a WQS within 500 yards of a public water supply intake which is standard practice. These MCLs are put in place to protect the treatment technology at the drinking water treatment plant, and because it is unfair for Ohio EPA not to impose limits at the intake, and to require a higher level of treatment downstream in order to meet the criteria.

4. See response 17 below.

5. See response 1 above.

6 and 7. On June 13, 2019, ORSANCO approved a revision to the PCS that maintains the PCS for the Ohio River mainstem while providing states the option to utilize the PCS in their environmental programs as needed to protect the Ohio River. Thus, ORSANCO standards will remain in rule as necessary.

8. Ohio EPA notified 151 dischargers with limits or monitoring requirements for these parameters by mail of our intent to update this rule. A weblink and contact information was given, as well as the deadline for comments. None of these potentially impacted dischargers commented on this rulemaking.

Since receiving these comments, Ohio EPA has looked into the potential costs associated with these revised criteria thoroughly and has identified two potential sources of additional cost to regulated entities – costs due to treatment upgrades, and

costs for more advanced chemical testing. The Agency does not believe that any significant treatment upgrades will be needed to meet limits based on the new criteria. Ensuring compliance with these lower numbers will require some dischargers to do additional, low-level testing for a few parameters. Ohio EPA projects that these new costs will run from \$0 - \$400 per year per facility; the specific cost will depend on the sampling frequency required by the permit, the number of discharge points tested at the facility, and whether or not the facility is already using one or more of these advanced analytical techniques. Please see the attached cost analysis document for more information.

Comment 6: On behalf of its members, NCASI appreciates the opportunity to comment on the Division's proposed revisions to human health-based water quality criteria (HHWQC) for surface waters in Ohio. NCASI and others have undertaken extensive technical study of the methods used by USEPA to derive national recommendations for HHWQC and has collaborated with Arcadis to compile and summarize this information as it relates to the 2015 criteria update prepared by USEPA. We are providing this extensive technical material as an attachment to these comments. This information will support a decision to more carefully consider development of HHWQC appropriate for waters of Ohio during the current triennial review.

NCASI conducts research and technical studies on behalf of forest products companies across the US, and its members represent nearly 90% of pulp and paper and two-thirds of wood panels produced nationwide. Most forest products facilities operating in Ohio are NCASI members. NCASI has been an active participant at the state and federal levels in technical and scientific aspects of water quality criteria development for many years.

These comments relate specifically to the Division's proposal to consider revisions to HHWQC during the current triennial review cycle. NCASI has collaborated with Arcadis to compile a significant amount of technical information regarding the 2015 criteria update prepared by USEPA. The technical information is contained within the report titled Derivation of human health ambient water quality criteria: review of key scientific and technical assumptions and approaches, second edition, which is being submitted with these comments. The current edition has been updated to include additional information on bioaccumulation factors, including material that is designed to help states develop BAFs that better reflect local water quality conditions (rather than relying on BAF estimates derived using information on PCBs in the Great Lakes as do the EPA 2015 default criteria). The remainder of the document details technical issues for fish consumption rates (FCR), relative source contributions (RSC), approaches to inputting parameter values, and other issues related to the development of HHWQC.

NCASI and its members support the Division's desire to carefully consider the scientific underpinnings of EPA's 2015 criteria recommendations and evaluate alternatives that may provide an improved basis for managing surface waters in Ohio. We hope that the Division will carefully review the technical information we are providing and consider using a more appropriate scientific basis for deriving HHWQC that are appropriate for waters in Ohio. To that end, we will be pleased to meet with you to more thoroughly review the matters of science detailed in our report. (NCASI)

Response 6: Ohio EPA appreciates the time and detail of NCASI’s submitted paper and comments, however Ohio EPA does not intend to adopt state-specific criteria at this time.

Comment 7: OMA requests clarity on the numeric criteria imposed by the draft rule amendments. Are the criteria Ohio EPA is proposing to adopt within OAC 3745-1-32, -33, and -34 consistent across the board with U.S. EPA’s 2015 updated chemical criteria, ORSANCO’s 2015 Pollution Control Standards, and MCLs promulgated under the Safe Drinking Water Act? The OMA would appreciate more information on whether Ohio EPA considered the unique conditions and characteristics of Ohio’s waters in particular when developing these proposed criteria. Furthermore, did Ohio EPA evaluate the population likely to be consuming this water, or organisms from these waters, in Ohio in particular? The OMA requests further clarity on the agency’s justification for these proposed numeric criteria in particular and whether they are uniquely suited to Ohio’s waters in particular. (OMA)

Response 7: Please see response number 1 above and the table in the fact sheet (copied below) explaining which criteria were chosen:

| RULE (OAC)        |                      | MCL | ORSANCO<br>VALUE | U.S. EPA VALUE       |
|-------------------|----------------------|-----|------------------|----------------------|
| <b>3745-1-32:</b> |                      |     |                  |                      |
| INTAKE            | More stringent of... | X   | X                | X [fish + DW value]  |
| ELSEWHERE         | More stringent of... |     | X                | X [fish + DW value]  |
| <b>3745-1-33:</b> |                      |     |                  |                      |
| OHIO RIVER        | More stringent of... | X   | X                | X [fish + DW value]  |
| LAKE ERIE         | More stringent of... | X   |                  | X [fish + DW value]  |
| <b>3745-1-34:</b> |                      |     |                  |                      |
| OHIO RIVER        | More stringent of... |     |                  | X [fish only value]  |
| LAKE ERIE         | More stringent of... |     |                  | X [fish only value]* |

\* 3745-1-34, Lake Erie values: U.S. EPA’s 1 route exposure values are only used if they are more stringent than the Great Lakes Initiative (GLI) numbers in 40 C.F.R. Part 132.

Ohio EPA will add a spreadsheet to our website with more detail when these rules are Original Filed with JCARR.

Comment 8: Other State Activities in Adopting U.S. EPA HHC  
OUG notes that two adjacent states have chosen not to initially adopt the U.S. EPA 2015 HHC. The West Virginia Department of Environmental Protection recently received instructions from the West Virginia State Legislature to delay adoption of the 2015 U.S. EPA HHC until a thorough analysis of the appropriateness of the U.S. EPA criteria to West Virginia waters be evaluated. Similarly, the Kentucky Division of Water has determined that an evaluation of the U.S. EPA criteria be conducted by a multi-stakeholder group, in terms of relevance to waters in the Kentucky Commonwealth. Lastly, OUG points out that U.S. EPA Region 10 recently approved the adoption of HHC, and other WQC, proposed by the Idaho Department of Environmental Quality (letter from Chris Hladick [U.S. EPA Region 10] to John Tippetts ["Idaho DEQ"] dated April 4, 2019. Some of the Idaho DEQ HHC deviated significantly from U.S. EP A's 2015 updated criteria. (OUG)

Response 8: Comment noted.

Comment 9: The OMA appreciates the assessment in the Common Sense Initiative Business Impact Analysis of the potential impacts of these draft rule amendments on the business community. However, the OMA notes that the potential impacts of these draft rule amendments to the business community have the potential to be highly significant, particularly if more stringent permit limitations or permit limitations for entirely new criteria are imposed through NPDES permits directly or through more stringent indirect discharge limitations on discharges sent to POTWs. The majority of Ohio's current limitations are less stringent than the draft revisions. Consequently, additional treatment technology may be required to be installed, monitoring requirements may be heightened, and costs to operate and maintain infrastructure will go up.

The OMA is concerned that these potential impacts have not been well quantified. The discussion in the Business Impact Analysis gives little guidance in this regard, stating that "permit limits are dependent on a multitude of factors and may not always be directly correlated to this specific type of water quality criterion, therefore the impact on stakeholders is somewhat varied and difficult to estimate." Has Ohio EPA evaluated the costs that industry will face when meeting these draft criteria (both direct and indirect dischargers), and the other social costs or benefits of their adoption? Has Ohio EPA evaluated whether, even with installation of additional treatment technology, the draft revisions to the criteria could be achieved? The OMA requests clarity in this regard, and additional clarity on how Ohio EPA intends to implement these rules when drafting permit limits, in order to give the business community a greater understanding of these potential impacts. (OMA)

Response 9: NPDES permits are reviewed every five years. During permit review and renewal, new permit limits may be necessary depending on changes to the criteria. See response 11 for options during renewal.

Ohio EPA has evaluated the costs that the industry will face when meeting these criteria. As stated above, Ohio EPA has looked into the potential costs associated with these revised criteria thoroughly and has identified two potential sources of additional cost to regulated entities – costs due to treatment upgrades, and costs for more advanced chemical testing. The Agency does not believe that any significant treatment upgrades will be needed to meet limits based on the new criteria. Ensuring compliance with these lower numbers will require some dischargers to do additional, low-level testing for a few parameters. Ohio EPA projects that these new costs will run from \$0 - \$400 per year per facility; the specific cost will depend on the sampling frequency required by the permit, the number of discharge points tested at the facility, and whether or not the facility is already using one or more of these advanced analytical techniques. Please see the attached cost analysis document for more information.

Comment 10: In addition to being incredibly significant to individual dischargers, these impacts could also be widespread. The agency has estimated at least 151 permitted dischargers that could be negatively affected by these draft rule amendments, affecting industries across the state. Could the agency explain further how this number was derived? (OMA)

- Response 10: Ohio EPA receives data each month from permitted facilities through eDMR (discharge monitoring reports). This database also contains information about which facilities have limits for which parameters, and any monitoring requirements they may have also. DSW pulled information from that database about facilities with monitoring requirements or permit limits for all of the parameters that would become more stringent because of the updated water quality criteria. Ohio EPA determined that there are 151 permittees potentially affected, with 60 of these 151 already having limits for one or more of these chemicals, and the remaining 91 dischargers with only monitoring requirements.
- Comment 11: Lastly, the OMA further seeks a better understanding of the ways in which the agency will work with permittees to reduce these potentially significant impacts. Does Ohio EPA intend to impose timelines for achieving these limits through insertion of schedules of compliance into NPDES permits? What sort of timelines would the agency generally impose in these instances? What other methods does Ohio EPA intend to use to work with affected parties? (OMA)
- Response 11: Updated water quality criteria are not necessarily the permit limits in each permit, and permittees would only be affected if the waste load allocation indicates stricter limits or monitoring requirements. Such changes would only happen during a five year renewal cycle; thus, permittees will have ample time for adjustments. The same is also true of criteria become less stringent (for example, 1,1 dichloroethylene) Ohio EPA does intend to integrate schedules of compliance for facilities that would need one in order to meet these limits. The timeline of these schedules depends on the amount of work that a facility would need to do to achieve the new limit. For example, if a facility simply needed to increase the chemical feed to meet their permit limit, their compliance schedule would be shorter than another facility that needs to more substantial treatment. The maximum amount of time allowed for a schedule of compliance to be met is 5 years. If additional treatment would cause substantial financial hardship, an entity may also apply for a variance from the water quality standard, however these are only granted in specific instances as noted in rule OAC 3745-1-38. Ohio EPA's Office of Compliance Assistance and Pollution Prevention (OCAPP) can assist industries with permit compliance.
- Comment 12: OUG Recommendations  
OUG recommends that Ohio EPA, in conjunction with stakeholders, further evaluate the appropriateness of adopting U.S. EPA's 2015 HHC to Ohio waters. OUG thinks that a more extensive cost impact analysis must be conducted for potentially-affected facilities. (OUG)
- Response 12: See responses 1 and 5 (#8), as well as the attached cost analysis.
- Comment 13: The proposed criteria do not contain an ammonia standard. The ORSANCO Pollution Control Standards include an ammonia standard in order to protect drinking water utilities' ability to maintain proper disinfection. High levels of ammonia will react with chlorine and make it impossible for utilities to maintain free chlorine as a disinfectant. Please incorporate ORSANCO's ammonia standard of 1 mg/l, applicable at the drinking

water intake. This will help to protect drinking water utilities on the river. (Greater Cincinnati Water Works)

Response 13: Ohio EPA needs to research this further and will consider adopting an ammonia criterion for public water supply designations in a future rulemaking.

Comment 14: The value for 2,3,7,8 Tetrachlorodibenzo-p dioxin seems to have the wrong units for the proposed criteria number. Should the units be micrograms/l? (GCWW)

Response 14: Yes, thank you for your comment. The units will be changed.

Comment 15: As a general comment, Ohio EPA needs to identify the basis of the proposed criteria changes for each of the three categories indicated above. (OUG)

Response 15: See response number 7 above.

Comment 16: With regard to the proposed changes to the WQC for the Ohio River (Ohio Adm. Code 3745-1-32), the agency is proposing to adopt the more stringent of the following: (1) the maximum concentration level ("MCL") per the Safe Drinking Water Act; (2) the ORSANCO human health criterion; and (3) U.S. EPA's 2-route human health criteria. Some of the proposed revised criteria are more stringent than existing criteria applicable to the Ohio River, while some of the proposed criteria are less stringent. OUG asks for clarification regarding this change. (OUG)

Response 16: See response number 7 above.

Comment 17: In many cases, the USEPA 2015 Human Health Ambient Water Quality Criteria are based on a carcinogenicity of 10<sup>-6</sup> risk. The USEPA has indicated that alternative risk levels may be used, including a 10<sup>-5</sup> risk level. Ohio EPA selected the same risk factor as USEPA (10<sup>-6</sup> risk) in at least 34 instances and used a lower risk factor (10<sup>-5</sup>) in at least 30 cases. Regardless of the risk factor selected, the updated criteria are significantly more stringent than Ohio's existing criteria and no basis for the selected risk factors is provided. (AOMWA)

Response 17: Ohio EPA used our state's risk factor of 10<sup>-5</sup> for all parameters that are based on a carcinogenic endpoint. This is indicated by footnote 5 in all of the draft rules. If the parameter's most stringent endpoint was a non-carcinogenic endpoint, the number was simply taken directly from U.S. EPA (or ORSANCO) and put in the rule. The risk factor chosen for each criterion is not the reason that Ohio's draft criteria became more stringent than the current criteria. The draft criteria are more stringent because Ohio EPA has not adopted new or updated human health water quality criteria since 2002 and criteria have been recommended by U.S. EPA multiple times since Ohio's last adoption.

Comment 18: In at least 28 instances, Ohio EPA appears to have selected criteria that are not consistent with the USEPA 2015 Human Health Criteria. These criteria are most likely based on the ORSANCO PCS or other MCLs; however, Ohio EPA has not provided

rationale (on a pollutant specific basis) as to the selection of the applicable criterion.  
(AOMWA)

Response 18: Thank you for the comment. Ohio EPA will add a spreadsheet to our website with more detail when these rules are Original Filed with JCARR.

**- End of Response to Comments -**

**Attachment 1:**

Ohio EPA has identified two potential sources of additional cost to regulated entities – costs due to treatment upgrades, and costs for more advanced chemical testing. The Agency does not believe that any significant treatment upgrades will be needed to meet limits based on the new criteria. Therefore, no new cost.

Ensuring compliance with these lower numbers will require some dischargers to do additional, low-level testing for a few parameters. Ohio EPA projects that these new costs will run from \$0 - \$400 per year per facility; the specific cost will depend on the sampling frequency required by the permit, the number of discharge points tested at the facility, and whether or not the facility is already using one or more of these advanced analytical techniques.

In breaking down costs, Ohio EPA first filtered out pollutants that would not drive additional costs because the new human health numbers were higher than other regulatory standards that would drive permit conditions. These would include pollutants that have lower aquatic life water quality standards than the new human health criteria and pollutants that have lower treatment technology standards (BAT/NSPS) than the new human health criteria. Note that some BAT values were lower only for the basins.

| <b>Table 1. Pollutants Where Aquatic Life WQS are lower than Human Health Criteria</b> |                     |  |                    |
|--|---------------------|--|--------------------|
|  |                     |  |                    |
| <i>Ohio River</i>  | <i>Ohio River</i>   |  | <i>Lake Erie</i>   |
| <i>Mainstem</i>  | <i>Basin</i>        |  | <i>Basin</i>       |
| Acenaphthene   | Acenaphthene        |  | Benzene            |
| Anthracene   | Anthracene          |  | Chlorobenzene      |
| Barium   | Antimony            |  | Cyanide, free      |
| Chlorobenzene  | Barium              |  | 2,4-Dimethylphenol |
| 1,2-Dichlorobenzene  | Benzene             |  | Toluene            |
| 1,4-Dichlorobenzene  | Bromoform           |  |                    |
| 1,3-Dichloropropene  | Chlorobenzene       |  |                    |
| Diethylphthalate   | Cyanide, free       |  |                    |
| Dimethylphthalate  | 1,2-Dichlorobenzene |  |                    |
| 2,4-Dimethylphenol   | 1,4-Dichlorobenzene |  |                    |
| Ethylbenzene   | 2,4-Dichlorophenol  |  |                    |
| Fluoranthene   | 1,3-Dichloropropene |  |                    |
| Fluorene   | Diethylphthalate    |  |                    |
| Methyl Bromide   | Dimethylphthalate   |  |                    |
| Phenol   | Ethylbenzene        |  |                    |
| Pyrene   | Fluoranthene        |  |                    |
| 2,4,6-Trichlorophenol  | Fluorene            |  |                    |

|      |                       |  |  |
|------|-----------------------|--|--|
| Zinc | Isophorone            |  |  |
|      | Methylene Chloride    |  |  |
|      | Nitrobenzene          |  |  |
|      | Phenol                |  |  |
|      | Pyrene                |  |  |
|      | Selenium              |  |  |
|      | Toluene               |  |  |
|      | 2,4,6-Trichlorophenol |  |  |
|      | Zinc                  |  |  |

| <b>Table 2. Pollutants Where BAT/NSPS are Lower than Human Health Criteria</b> |                             |
|--|-----------------------------|
| Acenaphthene   | 2-Chlorophenol (ORB)        |
| Anthracene   | Dibutylphthalate (ORB)      |
| Chlorobenzene  | 1,2-Dichloroethane (ORB)    |
| Chloroform   | 1,1-Dichloroethylene        |
| 1,2-Dichlorobenzene  | 1,2-Dichloropropane (ORB)   |
| 1,4-Dichlorobenzene  | 2,4-Dinitrophenol (ORB)     |
| trans-1,2-Dichloroethylene   | Nitrobenzene (ORB)          |
| 2,4-Dimethylphenol   | Tetrachloroethylene (ORB)   |
| Ethylbenzene   | 1,1,2-Trichloroethane (ORB) |
| Fluorene   | Trichloroethylene (ORB/LEB) |
| Phenol   |                             |
| Toluene  |                             |
| 1,1,1-Trichloroethane  |                             |

An additional set of pollutants was removed from consideration because there are not sufficient monitoring requirements in NPDES permits to provide data for analysis (in many cases, none). Ohio EPA does not expect that new monitoring and limits will be required for these pollutants based on the low detection frequency of these pollutants in NPDES application testing data, and Ohio EPA effluent sampling.

| <b>Table 3. Pollutants not monitored in NPDES Permits</b> |                              |
|---|------------------------------|
| Benzidine   | alpha -Hexachlorocyclohexane |
| Bis(2-chloro-1methylethyl) ether                          | beta-Hexachlorocyclohexane   |
| Bis(2-chloromethyl) ether                                 | gamma-Hexachlorocyclohexane  |

|  |   |  |                            |
|--|---|--|----------------------------|
|  | Bis(2-chloroethoxy)ethane               |  | Isophorone                 |
|  | Chlordane                               |  | Methoxychlor               |
|  | 2,4-D                                   |  | 3-Methyl-4-chlorophenol    |
|  | 4,4'-DDD                                |  | N-Nitrosodiethylamine      |
|  | 4,4'-DDE                                |  | N-Nitrosodibutyl amine     |
|  | 4,4'-DDT                                |  | N-Nitrosodipyrrolidine     |
|  | 3,3'Dichlorobenzidene                   |  | Pentachlorobenzene         |
|  | Dinitrophenols                          |  | Silvex                     |
|  | Endrin aldehyde                         |  | 1,2,4,5-Tetrachlorobenzene |
|  | alpha-Endosulfan                        |  | Toxaphene                  |
|  | beta-Endosulfan                         |  | 2,4,5-Trichlorophenol      |
|  | Endosulfan sulfate                      |  | 2,4,6-Trichlorophenol      |
|  | Hexachlorocyclohexane - technical grade |  |                            |

To assess potential treatment costs of the remaining parameters, Ohio EPA first looked at whether the new criteria would generate new, lower limits through the wasteload allocation process. If so, the Agency looked at the facility's reported discharge data for 2011-19 to determine whether the new limits would be met. Ohio EPA reviewed information for all organic chemical facilities that directly discharge to waters of the state, and also looked at other dischargers that had limits for the chemicals not excluded using the methods above. For the following seven pollutants, at least one discharger had more restrictive wasteload allocations using the new criteria:

- 1,2,4-Trichlorobenzene
- 2,4-Dinitrotoluene
- Benzo(a)pyrene
- Bis(2-ethylhexyl)phthalate
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- Vinyl Chloride

The analysis for 1,2,4-trichlorobenzene showed that only 1 discharger out of 13 would have lower limits under this rule. Compliance with the new standard cannot be determined because the test methods currently used by the discharger are not sufficiently sensitive to determine compliance; however, highly chlorinated organic chemicals are not commonly used, and have historically been used/generated at relatively few plants. This is also true for hexachlorobenzene, hexachlorobutadiene and hexachloroethane (although more facilities will have lower limits for these pollutants). It is not expected that facilities will have compliance issues with these chemicals. The only facility that has a history of using similar chemicals has not shown significant detections (1 detection in 46 samples for hexachlorobenzene) and test quantification levels have generally been good for this facility. Ohio EPA does not expect compliance issues for these chemicals.

A similar situation exists with benzo(a)pyrene. This chemical is typically associated with tar manufacturing and processing and is not commonly detected in NPDES effluents. While seven of the nine facilities reviewed by Ohio EPA would have lower limits for benzo(a)pyrene, four of the seven use test methods capable of testing these new limits and have not found any detections. Ohio EPA does not believe that the remaining three facilities with lower limits will have any different results.

One facility would have more restrictive limits for 2,4-dinitrotoluene. The limit change is relatively small, from 87 ug/l to 69 ug/l. This facility has not detected this chemical and will be able to meet the new limit.

Similarly, neither of the two facilities facing lower limits for vinyl chloride would experience compliance issues.

Several facilities have discharge limits for bis(2-ethylhexyl)phthalate. The new WQS for this chemical would cause lower limits at 9 of 23 facilities. It appears that seven of the nine facilities meet the new limits currently; the remaining two plants are expected to meet the new limits as they implement good sampling protocols. Bis-2EHP is a common contaminant from automatic sampler tubing; Ohio EPA has recommended collecting samples manually for phthalate parameters to eliminate this issue. The Agency believes that there are some dischargers that have not adopted this practice and may still be getting occasional detections of bis-2EHP in the effluent as a result.

#### Analytical Costs

Testing for these pollutants are typically done using scans that test for large groups of pollutants at one time. For organic pollutants, these are done in 2 groups: (1) easily volatile chemicals (easily evaporated), and (2) less easily evaporated chemicals (semi-volatiles). Most dischargers testing these chemicals do 1-2 scans per year. Scans for volatile compounds cost \$75-100 per scan; semi-volatiles cost \$150-200 per scan.

Some of the ten pollutants specifically evaluated for treatment cost increases above will require more sensitive analyses to detect the new standards. Federal NPDES rules require that permittees use test methods sufficiently sensitive to quantify discharge limits or wasteload allocation values. For limits that are less than the lowest quantification limit for that pollutant, Ohio law requires that the discharger use the most sensitive test method available (ORC 6111.13). To test for these pollutants at very low levels, permittees may need to run samples using low-level methods, which will result in additional testing costs. Based on a short survey of commercial laboratories, using these methods amounts to an additional run of the sample at the same cost as the general method. About half of permittees appear to be using low-level methods currently. The remaining ten permittees will face extra costs of \$100-400 per year based on how many samples they are required to do per year, and how many extra method runs have to be performed.