



Interim Response to Comments

December 2010

Rule: OAC 3745-1 (Water quality standards rules)

Agency Contact for this Package

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Ohio EPA made available for review and comment draft changes to 18 water quality standards rules in OAC 3745-1 in August 2008. In December 2010, the Agency is making updated draft rules available for review and comment. This document identifies the comments and questions received to date on the draft rules. Some of the comments and questions are addressed in this document. The others will be addressed at the end of the 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 comments and questions are grouped by topic and organized in a consistent format. The name of the commenter follows the comment in parentheses.

General Comments

Comment 1: Greater Cincinnati Water Works is a public drinking water purveyor serving nearly 1.2 million people in the Greater Cincinnati Area. Thank you for the opportunity to comment on the WQS revisions. Our comments are prepared with an intended spirit of cooperation between the regulatory and regulated entities so that we can collectively meet our obligation of protecting public health, safety, and welfare. As a drinking water supplier we are concerned about the vulnerability of our source water (Ohio River) to contaminants of public health concerns such as:

1. Pathogenic microorganisms (e.g., Cryptosporidium, Giardia, viruses, etc.) including those that are resistant to chlorination.
2. Emerging contaminants such as Endocrine Disrupting Compounds (EDCs), Pharmaceuticals and personal care products (PPCPs).

In addition, several of these contaminants are regulated under the Safe Drinking Water Act (SDWA) through the National Primary Drinking Water Regulations (NPDWR). For the first time, in the history of the SDWA, the extent of water treatment for *Cryptosporidium* is dictated by the source water concentrations. Higher the source water concentration, the higher level of treatment required. This could be a very expensive ordeal and our customers will have to bear the burden of paying for such a treatment. Therefore, protecting our source water from such contaminants is one of our highest priorities. Source Water Protection is an integral part of the "Multi Barrier Treatment" concept.

We believe that there is a clear disconnect between the Safe Drinking Water Act and the Clean Water Act. Therefore when you consider the revisions to your Water Quality Standards, we strongly recommend you to consider the following:

1. Designated use for domestic water supply and their concerns.
2. Adequate distance, mixing, and dilution of the POTW and other discharges where there are downstream drinking water intakes. We strongly disagree with your 500 yard distance rule. It is rather impossible for water utilities to react and take necessary treatment actions to any unforeseen circumstances such as raw or partially treated wastewater bypasses, etc. due to such a short distance and travel time in water bodies such as the Ohio River.
3. Adequate numeric and narrative standards for the discharged contaminants, such that the downstream drinking water utilities will not have spend enormous money to treat for such contaminants. We believe this is a cost shifting approach.
4. Stringent and timely notification requirements to the downstream water utilities of any upsets, deviations from the NPDES permit requirements, etc.

Our specific comments are below. (Ramesh D. Kashinkunti, Greater Cincinnati Water Works)

Response 1: This comment remains under consideration.

Comment 2: The Fact Sheet states "water quality standards are state regulations or rules that protect lakes, rivers or streams and other surface water bodies from pollution". Traditional ditching will not protect water quality as stated in several of OEPA documents. Providing drainage improvements with concepts utilizing 2 stage channel design or modern practices will allow drainage, flood storage and consider pollutant removal. (Brian Prunty, Stark Soil and Water Conservation District)

Response 2: Except as otherwise noted below and in other responses, the comments from Mr. Prunty are still under consideration within the context of either the WQS rules or the Rural Drainage Manual.

Mr. Prunty provided extensive commentary on the August 2008 set of draft rules. The comments focused on draft rule changes that address how Water Quality Standards interface with Ohio's petition ditch laws. Ohio EPA has drafted rule changes on this subject as a result of our participation on the Rural Drainage Advisory Committee. This was a workgroup convened in 2006 by the Ohio Federation of Soil and Water Conservation Districts and the Ohio Department of Natural Resources, Division of Soil and Water Conservation. This workgroup documented the deteriorating condition of agricultural drainage improvements across the State and the need to provide more technical assistance on petition requests, including the protection of water quality. To help meet this need Ohio DNR has drafted a document entitled the Rural Drainage Manual that provides voluntary guidelines for local drainage project staff and engineers. Among other things the Rural Drainage Manual recommends how to properly consider the WQS regulations and available water quality information in the evaluation of petition ditch projects. Some of the Mr. Prunty's comments deal with information in the draft Rural Drainage Manual.

A number of different comments made by Mr. Prunty repeat the themes that the WQS rules for drainage ditches are not protective of water quality and the idea that the regulations should mandate specific drainage practices to protect water quality. Ohio EPA has not revised the draft rules to address these comments but the Agency has endeavored to clarify that while waters designated as Upland Drainage and Water Conveyance serve drainage purposes, these waters must also maintain a level of water quality that support aquatic life. Any water with a drainage use will also be subject to either the Base Aquatic Life use or another aquatic life use.

The Agency does not agree with the idea that WQS regulations should include specific drainage ditch design practices. But, as explained in the previous paragraph, it is important to stress that any watercourse with a drainage use must also protect water quality. The Rural Drainage Manual is the crosswalk between the WQS rules and the design of new drainage projects. This presentation of voluntary guidelines for drainage project is appropriate given the fact that the majority of petition ditch work carried out today does not need authorization under Sections 404 and 401 of the Clean Water Act. For situations where drainage projects place fill in surface waters of the State the person responsible for the project must obtain authorization for the work under State and federal law. The Agency will utilize this regulatory authority to impose more influence regarding ditch design specification. The Agency has drafted several new rules that cover stream impacts such as ditch projects and acceptable techniques for

stream mitigation design (see rule 3745-1-56 and the rules in Chapter 3745-32).

Comment 3: The Fact Sheet states "Local Governments & businesses that operate waste water treatment facilities could see changes in discharge permit limits as a result of these rules". I agree with changes in Phosphorus being below (1) but allowing changes for drainage use designations that continue current ditching practices will not lower pollutant loads in surface waters. Current agricultural ditching practices will contradict stiff rules on WWT facilities. Then Ohio EPA will not meet their goals in maintaining and restoring water quality. (Brian Prunty, Stark Soil and Water Conservation District)

Response 3: This comment remains under consideration.

Comment 4: As Ohio EPA's Water Quality Standards continue to become more stringent over time, it becomes more difficult for permitted dischargers to monitor for new parameters and meet stricter effluent limits. To help dischargers achieve and maintain permit compliance, we respectfully encourage Ohio EPA to develop/strengthen training programs for the operation and maintenance of wastewater treatment plants and collection systems and for the management of wastewater analytical laboratories, and provide additional funding opportunities to help construct system upgrades that may be necessary to meet more stringent limits. (John McManus, Clermont County Water & Sewer District)

Response 4: This comment remains under consideration.

Rule 3745-1-01 Purpose and applicability.

Comment 5: 3745-1-01(A)(4) You cannot maintain the overall objectives of the Clean Water Act (to restore nation's waters) when you will allow upland drainage practices to be ditched without mandating 2 stage channel, over widening or self forming design. The OEPA fact sheet The Importance & Benefits of Primary Headwater Streams states that PHW streams make up over 80% of surface miles of streams and explains the benefits of protecting these streams. Yet the Rural Drainage Manual and drainage use designation allows these historically channelized upland water courses to be ditched with traditional trapezoidal or one side clean out methods. This will not allow your agency to restore the chemical, physical, and biological integrity of the nation's waters. By not holding them to any standards or criteria then how will your goals be met. (Brian Prunty, Stark Soil and Water Conservation District)

Response 5: This comment remains under consideration.

Comment 6: 3745-1-01(B) Allowing traditional ditching to occur without mandating 2 stage channel design will not provide for the protection of fish, shell fish and wildlife. Creating a new designated use "upland drainage" will promote traditional ditching practices and prevent recovery or restorations. Impact on small modified water courses will impact downstream and lead to nonattainment downstream. By writing off whether a water course is not attainable you are relieving the surrounding land uses to continue their environmental destruction without recourse of their actions. This is bias compared to watersheds such as the Cuyahoga that has seen major changes since the 1970's and it is continually seeing more stringent environmental stormwater rules within its watershed. As stated in the Ohio EPA NSP website "**Physical alterations** are changes made to a stream channel or stream banks and include activities such as the conversion of headwater streams into drainage ditches, constructing levees and dams, and straightening a stream to encourage improved drainage. **Physical alterations** also include activities such as removing trees along a river bank or installing rock rip-rap on a river bank to prevent erosion.

The primary causes of nonpoint source impairment in Ohio streams are habitat alteration, hydro-modification to stream channels, sediment and excessive nutrients. Streams in agricultural areas of Ohio appear most frequently to be impaired by physical alterations, such as ditching, and impairments caused from excessive sediment and nutrients." Allowing such physical alterations to occur then the Ohio EPA is not performing their duty in addressing Nonpoint Source Pollution as acknowledged on their website. (Brian Prunty, Stark Soil and Water Conservation District)

Response 6: This comment remains under consideration.

Comment 7: 3745-1-01 (C)(3)(a) "Water quality better than that needed to protect existing uses must be maintained unless, after public notification and participation, lower water quality is deemed necessary to allow important economic or social development (existing uses must be protected)."

Comments: Maintaining water quality better than that needed to protect existing sets unrealistic goals for water quality. (How much better?) "Water quality at a level equal to that needed to protect existing uses..." would be a more logical wording of this rule. Also, the lowering of water quality for purposes such as state and national security, cultural development, public safety, and maintenance of existing infrastructure should also be deemed important. (Timothy M. Hill, ODOT)

Response 7: Maintaining existing water quality, if that water quality is better than needed to protect existing uses, is a requirement in federal regulations (40 CFR 131.12). The intent is to recognize the inherent benefit of high water quality and to allow lowering of that water quality only after public participation and a demonstration of need. The second part of the comment regarding

purposes for allowing the lowering of water quality remains under consideration.

Rule 3745-1-02 Definitions.

Comment 8: 3745-1-02 (B) Definitions. OEPA should provide a definition for the following terms. The definitions should describe how the following terms relate to waters of the state and waters of the U.S.:

- artificial bed and bank
- bank
- base aquatic life use
- bed
- channel
- upland drainage
- water body(ies)
- water conveyance
- water course

(Timothy M. Hill, ODOT)

Response 8: This comment remains under consideration.

Comment 9: 3745-1-02 (B)(48) "Historically channelized watercourse". Will this definition apply to ditches that also have a defined bed and bank (i.e., captured stream or petition ditches)? Clarifying this definition is critical as it is incorporated into the upland drainage designation 3745-1-07 (G) (1), and may have far reaching implications towards the regulation of roadway drainage ditches that do not possess bed and bank (non-stream drainages). (Timothy M. Hill, ODOT)

Response 9: The term historically channelized watercourse is defined in section 6111.12 of the Ohio Revised Code and is restricted in its application to only those locations where drainage improvements have been made in the past using the provision of Ohio's petition ditch laws. Therefore, the determination of what waters meet this definition must rely upon the records maintained at county offices of all past petitions for drainage improvements. The Agency believes that most roadway drainage ditches along major highways would not be HCWCs. However, it is certainly possible that some roadway drainage ditches along township, county and state routes may be part of a larger drainage network that was previously built through the petition ditch laws and thus by law is a HCWC.

Comment 10: "Snags" should be defined as a ditch maintenance term stating what is allowed and should specify critical and subcritical flows within that definition. The snags that are proposed to be removed do they impact the flow regime during critical flows or only during subcritical flows. Debris is critical for habitat as stated in QHEI and HHEI. There should be some compromise based on critical and subcritical flow criteria. As stated in the

Rural Drainage Manual all snags can be removed and it doesn't specify critical and subcritical flows. (Brian Prunty, Stark Soil and Water Conservation District)

Response 10: This comment remains under consideration.

Comment 11: 3745-1-02 (B) (85) "Stream". The terms "channel", "bed", "bank" and "artificial bed and bank" should be clearly defined in Rule 2. Identification of an artificial stream because of the presence of an "artificial bed and bank" may result in features traditionally not considered streams to now be identified as such. (Timothy M. Hill, ODOT)

Response 11: This comment remains under consideration.

Comment 12: "Historically channelized watercourses" should only be based on drainage areas that have public record and eliminate visual observations in the definition. I have personally seen many recovered streams that have visual observations of side cast spoil banks or have been modified but recovered and now fall under Rosgen's E channel. (Brian Prunty, Stark Soil and Water Conservation District)

Response 12: This comment remains under consideration.

Rule 3745-1-03 Analytical methods and availability of documents.

No comments have been submitted on this rule.

Rule 3745-1-04 Criteria applicable to all waters.

No comments have been submitted on this rule.

Rule 3745-1-07 Beneficial use designations.

Comment 13: Just over three years ago the Ohio Federation of Soil and Water Conservation Districts and ODNR-DSWC formed the Rural Drainage Advisory Committee to recommend a means to better support construction and maintenance of drainageway systems, and to achieve a high level of environmental stewardship in drainage programs and projects. This committee reached consensus on a broad set of recommendations in September of 2007 and published the Rural Drainage Systems report in early 2008. One significant recommendation that came forward from this committee was to develop a protocol for environmental review to meet local, practical drainage needs and meet clearly laid out requirements of state and federal water quality related laws. As OEPA was a significant contributor to this committee, ODNR-DSWC is hopeful and confident that the draft Water Quality Standards as proposed by OEPA will meet the goals as set forth by this committee.

The section of the draft rules that impacts drainage or petition ditch type projects is quite similar to three tables that were previously developed by OEPA with input from ODNR-DSWC and the Rural Drainage Advisory Committee. In an effort to determine the impact these rules may have on drainageway improvement projects throughout Ohio, ODNR-DSWC performed a drainage review in five counties to analyze potential impacts. The counties reviewed included: Defiance, Delaware, Madison, Seneca, and Wyandot. A report that summarizes these results and was developed by ODNR-DSWC is attached to this letter. The final recommendations that were developed as a result of these reviews are shown directly below and should be considered as ODNR-DSWC comments to OEPA draft rules for Ohio's Water Quality Standards.

Final Recommendations/Comments for OEPA Draft Rules for Ohio Water Quality Standards

In summary, 60 of 203 projects reviewed or approximately 30% require resource agency consultation or implementation of an alternative design method. In an effort to minimize the combined social, economical and environmental impacts of the draft water quality standards with respect to drainage improvement projects, especially those associated with low gradient, rural and row-crop agricultural situations (e.g. County Petition Ditch and Conservation Works of Improvement projects), ODNR-DSWC recommends the following items be taken into consideration prior to finalizing the proposed rules.

- As part of this review, ODNR-DSWC performed site visits to visually inspect the resource characteristics and erodibility of channels with less than 2000 acres of watershed and gradients in the range of 0.3% to 1.0%. It was observed that channels with smaller watersheds (typically less than 1500 acres) and with grades in the range of 0.3% to 0.6% did not exhibit the resource characteristics or erodibility concerns to warrant additional oversight. To assure adequate protection of stream resources while still providing an efficient review process, ODNR-DSWC recommends changes to the gradient restrictions for channels. As proposed by OEPA, channels with less than 2000 acres of watershed that have a gradient that exceeds 0.3% require resource agency consultation. For watersheds with less than 2000 acres, ODNR-DSWC recommends the following categories be established.

Resource Agency Consultation Only Required When:

- Watersheds are < 2000 acres & Gradients exceed 0.3%
- Watersheds are < 1500 acres & Gradients exceed 0.4%
- Watersheds are < 1000 acres & Gradients exceed 0.6%

- For projects where the biological data is significantly downstream of the project and a tiered aquatic life use designation has been assigned as a result of this data, it is recommended that resource agencies outline what process will be utilized to determine the impact this downstream data will have on developing design specifications.
- It is recommended that the process by which county drainage programs will be required to consult with resource agencies for outlier projects should be further outlined. Resource agencies will also need to consider staff availability for performing these consultations and assign appropriate resources to assure adequate response times.
- The process by which county drainage programs are to develop and submit NOIs and SWPPPs should be outlined.

ODNR-DSWC appreciates the efforts and cooperation that Ohio EPA staff has shown in developing these draft rules. By modifying these rules as has been suggested and outlined above, ODNR-DSWC is confident these rules provide a protocol that: 1) allows drainage projects to continue, 2) focuses environmental requirements on projects in larger watersheds, and 3) increases the likelihood of building healthier drainageways in smaller watersheds. (David Hanselmann, ODNR)

Response 13: The draft rule was revised based upon these comments. See 3745-1-07(G)(1)(b).

Comment 14: 3745-1-07 (D)(2)" .. All water bodies are designated for general water based recreation year round." A definition of "water bodies" should be provided in 3745-1-02. (Timothy M. Hill, ODOT)

Response 14: The term "water bodies" means the same as the term "surface waters of the state," which is defined in rule 3745-1-02.

Comment 15: Paragraph (E). After reading the proposed revisions, it is our understanding that all "unlisted" waters of the state, regardless of size, would receive a "Base Aquatic Life" use designation, and that chemical criteria currently associated with the Warmwater Habitat (WWH) use will apply. Potentially drainage ditches, swales and similar channels could receive this designation.

Clermont County does not feel WWH chemical criteria are appropriate for these types of "streams." The WWH criteria were developed with the protection of various fish and macroinvertebrate species in mind, many of which would not be found in these channels even if the chemical criteria were met. For example, Ohio EPA's proposed OMZM and OMZA criteria for cadmium are taken directly from the Final Acute and Final Chronic Values calculated for cadmium in U.S. EPA's "2001 Update of Ambient

Water Quality Criteria for Cadmium." According to this document, the Final Acute Value (FAV) is based on the Genus Mean Acute Values for four fish genera, including *Oncorhynchus* (Coho and Chinook salmon, rainbow trout), *Morone* (striped bass), *Salvelinus* (brook trout, bull trout) and *Salmo* (brown trout). In addition, the FAV was lowered further to protect the rainbow trout. The Final Chronic Value was based on sensitivity data for 16 genera, 10 of which are fish. Criteria for other parameters are similarly calculated. These criteria are not appropriate in small streams that cannot support a healthy fish population, not to mention cold water species.

Additionally, if these streams do not meet the WWH chemical criteria (which is likely, particularly during wet weather), and therefore their designated use, a TMDL would be required. Undoubtedly, Ohio EPA does not have the resources to develop TMDLS for all such waterbodies. (John McManus, Clermont County Water & Sewer District)

Response 15: This comment remains under consideration.

Comment 16: 3745-1-07 (E)(2) "The designation of base aquatic life use shall apply to all water bodies that are not otherwise designated under the tiered aquatic life use system...." The terms "water bodies" and "base aquatic life use" should be defined in Rule 02. The designation of "all water bodies" at a minimum attaining "base aquatic life use", which is stated in Fact Sheet Attachment 1 as being equivalent to warmwater habitat, will greatly overestimate or exaggerate the aquatic life use of many impaired waters in the state. The extent of the overestimation is also dependant on the definition of "water body". Please consider adding a statement confirming that the "base aquatic life use" is determined by chemical standards not through biological criteria. (Timothy M. Hill, ODOT)

Response 16: This comment remains under consideration.

Comment 17: 3745-1-07 (F)(4) Table 7-2. Northern two-lined salamander (*Eurycea bislineata bislineata*) and Southern two-lined salamander (*Eurycea bislineata cirrigera*) should be removed from this table of salamander indicators. These species have been regularly found in streams totally void of canopy cover and warmer headwater streams. Also, the rosyside dace (*Clinostomus funduloides*) is very closely related to the reddsides dace and yet is not listed as a coldwater species. The rosyside dace lives in very similar habitat as the southern redbelly and reddsides dace (small, clear, perennial headwater streams with steep gradient). ODOT recommends that the rosyside dace also be included in this table of cold water fauna. (Timothy M. Hill, ODOT)

Response 17: This comment remains under consideration.

Comment 18: 3745-1-07 (F)(8) "Lake Habitat". At this time it is unclear how the antidegradation rule will apply to this new classification of tiered aquatic life uses. (Timothy M. Hill, ODOT)

Response 18: This comment remains under consideration.

Comment 19: Paragraph (F)(9). In the Fact sheet, it is stated that Class III streams are "generally equated to Coldwater Habitat" (CWH). It has been our experience in reviewing numerous streams across the State every year, that many headwater streams could be classified as Class III Primary Headwater Habitat (PHWH) by assessing the habitat features (HHEI), macroinvertebrate residents at the family/order level (HMFEI), or by the presence of northern or southern two-lined salamanders. Often these streams do not harbor taxa traditionally characteristic of the CWH designation. Describing all Class III PHWH streams as CWH is misleading, and greatly skews what the expected biotic community of a given stream will be. Additionally, equating Class III PHWH streams with the CWH designation affords these streams extra protections as if they were as rare or unique as CWH.

As currently defined, Class III PHWH streams appear to be fairly common within Ohio, and they are not unique aquatic resources like CWH or EWH streams. According to Ohio EPA's Field Evaluation Manual for Ohio's Primary Headwater Streams, V 1.0 (2002), Class III Primary Headwater Habitat (PHWH) Streams represent 16% of the total estimated stream miles in Ohio while all of the named streams (ODNR, USGS blue lines) in Ohio account for only 12% of estimated stream miles. If all Class III PHWH streams are equated with CWH, then CWH would not be a unique or rare stream habitat type (since they are approximately 16% of all Ohio Stream) and should not be afforded special protections or considerations (such as the increased mitigation ratios proposed in the Draft Stream Mitigation Rules).

While assessing streams throughout the state, ODOT biologists have made the following observations. First, water quality appears to be the driving force behind whether a stream is capable of supporting PHWH cold water fauna. While in-stream habitat features can certainly play a role in water quality, we have observed spring fed, man-made roadside drainage ditches with few or no Class III habitat features that meet the biological criteria of a Class III PHWH streams. This would lead us to believe that the composition and quality of the biological community is more directly related to water quality than habitat characteristics, and that the HHEI may be based on somewhat spurious correlations between habitat and biota. Second, it appears to us that some of the taxa associated with the Class III designation (specifically northern and southern two-lined salamanders) may be more tolerant of water quality and habitat impairments than others. While these taxa do require permanent flow to successfully reproduce

within a stream, water quality and temperature can be somewhat less than what is typically associated with CWH. This was often observed in southeastern Ohio where many of the PHWH streams support two-lined salamanders despite the presence of water quality impairments (such as siltation and minor amounts of acid mine drainage inputs) and very few other "cool water" adapted taxa may persist.

While it is recognized that Class III PHWH streams provide perennial flow, the proposed level of protection afforded to these streams is greatly disproportionate to other more unique resources (such as EWH or CWH streams). This requirement would also result in costly, excessive permit processes, which often times may not have viable alternatives. As such, it is strongly suggested that OEPA clearly communicates how and when Class III Headwater Streams are equivalent to CWH. If Ohio EPA continues to propose to associate and protect Class III PHWH streams the same as streams with the CWH designation, we believe some effort should be made to further segregate the Class III PHWH use designation into two categories, "cool water" PHWH streams and those that are truly "cold water" PHWH streams. By doing so, less sensitive "cool water" Class III PHWH streams could have similar mitigation ratios as more common stream types (such as those associated with the WWH use designation), while "cold water" Class III PHWH streams could have similar mitigation ratios as less common stream types (such as those associated with the CWH use designation). Since a primary goal of protecting these Class III PHWH streams appears to be the protection of downstream aquatic life uses, another option may be to apply stricter protections and mitigation ratios to Class III streams within the watersheds of CWH or EWH streams, and less penalizing ratios where downstream uses are less reliant on water temperature (WWH, MWH, and LRW designations). (Timothy M. Hill, ODOT)

Response 19: Ohio EPA has considered these comments. Paragraph (E) of the draft stream mitigation rule (3745-1-56) establishes four stream mitigation categories. Class III primary headwater habitat streams are placed in stream mitigation category 3 along with Warmwater Habitat streams.

Comment 20: 3745-1-07 (F)(9)(d)(iii)(c) "If impacts cannot be avoided, then the project applicant must demonstrate that class III primary headwater habitats are locally and regionally abundant as part of an overall mitigation plan, submit a viable watershed management plan that ensures their protection."

This statement is vague and could possibly result in an excessive bureaucratic and potentially unlawful burden on an applicant. ODOT questions whether it should be the responsibility of the applicant to develop a watershed management plan for an entire watershed, when the applicant is likely affecting a very small component. This is of special concern when the applicant cannot control the watershed management and may be

unaware of other current or planned impacts in the watershed. We suggest the sentence be rewritten as "If impacts cannot be avoided, then the project applicant must demonstrate that class III primary headwater habitats are locally and regionally abundant in the project area." (Timothy M. Hill, ODOT)

Response 20: This comment remains under consideration.

Comment 21: 3745-1-07 (F)(9)(d)(iv)(b) "Modified primary headwater habitats may include, but are not limited to, streams dominated by native species and..."

We suggest that Modified primary headwater habitats are those streams dominated by non-native species. (Timothy M. Hill, ODOT)

Response 21: This comment remains under consideration.

Comment 22: 3745-1-07(F)(9)(d). The primary Headwater Habitat Evaluation Index (HHEI) is required to designate a primary headwater class: Class I, II, or III. Class III headwaters are considered high quality based on the interaction of groundwater and the presence of cold water fauna. In the draft rules, the assignment of primary headwater class shall be done (understood: confirmed by Ohio EPA) at the time of project review (application review). We respectfully submit an option to assign (confirm) a primary headwater class be available in the rules before the time of project review. Ohio EPA would note the previously verified class designation during the project review process. A change in stream designation to a Class III stream during project review would have significant negative effects, primarily in project development and costs. Considering project development, assignment of a Class III stream could obligate applicants to modify their project after investing significant time and financial resources. According to 3745-1-07 (F)(9)(d)(iii)(c), "if impacts to Class III primary headwater habitat streams cannot be avoided, then the project applicant must demonstrate that Class III primary headwater habitats are locally and regionally abundant and, as part of an overall mitigation plan, submit a viable watershed management plan that ensures their protection." Accordingly, there is a significant cost associated with potential project redesign, information collection, and mitigation. Early confirmation of a stream class would provide information critical to the project development process and reduce the potential for impacts to these high quality streams, which appears to be one purpose of this proposed rule. The option for pre-application stream class determination should be available and specified in the rules.

In 3745-1-07 (F)(9)(d)(iii)(a) it states that Class III primary headwater streams **are** fed by groundwater and support cold water fauna (read: required characteristics to be Class III). In 3745-1-07 (F)(9)(d)(iii)(b) a list of characteristics is provided some or all of which **may be** typical of Class

III streams. It is unclear if Ohio EPA has the ability to designate a stream as Class III based on one or more of these characteristics without meeting both criteria in (a). If this is the case, this should be specifically stated in the regulations. (Gregory K. Eastridge, HzW Environmental Consultants, LLC)

Response 22: This comment remains under consideration.

Comment 23: Paragraph (G). For the same reasons discussed in our comments about "Base Aquatic Life" use, WWH aquatic life criteria should not apply to "streams" that would receive "Upland Drainage" and/or "Water Conveyance" use designations. (John McManus, Clermont County Water & Sewer District)

Response 23: This comment remains under consideration.

Comment 24: 3745-1-07 (G) "Drainage use designations"

Definitions for "upland drainage", "water conveyance", and "water course" should be provided in Rule 02. From the information provided in this rule, it appears that roadside ditches are not included in this use designation, rather the farm drainage ditches common in NW Ohio are what OEPA is referring to as "upland drainages". Clarification should be provided. (Timothy M. Hill, ODOT)

Response 24: This comment remains under consideration.

Comment 25: 3745-1-07(G) Drainage use designations: The drainage practices should be more stringent than shown in the Rural Drainage Manual, which defaults to traditional methods that have a track record of failing for over the past 100 years and require more maintenance than new designs. The practices have to change with the times and studies have shown other modern practices, such as but not limited to, 2 stage and self forming channels perform better than the traditional methods trapezoidal or one side clean outs that are proposed in the drainage manual. Majority of the ditch maintenance projects will fail under traditional methods and only go over and beyond if required or the owner is subsidized. (Brian Prunty, Stark Soil and Water Conservation District)

Response 25: This comment remains under consideration.

Comment 26: 3745-1-07(G) General Comments: Every heading for all use designations have named specific watershed at the beginning, except for drainage use designation. Since the definition of "Historically Channelized Watercourses" states based on drainage areas that have public record, do the homework and request all ditch maintenance programs submit their records by a certain date to be listed just like the other use designations

have a list of specific watersheds or courses. (Brian Prunty, Stark Soil and Water Conservation District)

Response 26: This comment remains under consideration.

Comment 27: 3745-1-07(G) General Comments: If you are going to create this new bias use designation for agricultural areas create some water quality responsibility for the ditch maintenance programs. There should be some form of chemical, biological and bacteria criteria. They should be mandated to create self forming, 2-stage channels or over wide channels when maintenance occurs, especially on smaller watershed. The Rural Drainage Manual from ODNR admits there are environmental impact from traditional ditching methods and there are better alternative methods. You should be protecting these smaller drainage areas (3.1 square miles) since they are the majority of stream surface miles. These benefits are not accomplished through one sided cleanouts or trapezoidal dredging. The Ohio EPA, ODNR, US EPA, Center of Watershed Protection and many other organizations can provide studies and records pointing that traditional ditching methods have not worked and they impact the watershed downstream. Studies should be provided or submitted to the OEPA for downstream quantity and quality impacts when allowing drainage improvements. The Governmental and university studies on the dead zones and soluble phosphorus levels in Lake Erie point directly to agricultural land use, ditching and subsurface tiles from the Western Lake Erie Basin. Nitrogen loads in the Mississippi River Basin are connected to agricultural land use and field tiles draining crop fields. The article **Reducing Nitrogen Loading to the Gulf of Mexico from the Mississippi River Basin: Strategies to Counter a Persistent Ecological Problem** by William Mitsch, John Day, Gyles Randall and many others, state re-establishing both flood storage and wetlands through the methods of high flow wetlands or intercepting field tiles will result in nitrogen reductions. The US EPA's National Management Measure to Control NPS from Hydromodifications states that channelization and channel modification is number one cause for hydromodification Nonpoint Source Pollution. By removing the habitat and vegetation you will not have biology in channels. By cleaning the ditches out, the routing time for surface water is shorten and impacts or floods downstream. Ohio EPA's Division of Surface Water: Nonpoint Source websites states "protecting the best and restoring the best" and this will not be accomplished by adopting the new drainage use designation. If you choose to keep the Drainage use designation, then mandate restoration through 2 stage, over-wide, natural or self-forming designs. These modern or alternative designs will assist or increase nutrient assimilative capacity and this will increase water quality. I ask Division of surface water to consider their own statement:

The Division of Surface Water is responsible for **restoring and maintaining the quality** of Ohio's rivers and streams. The goal of Ohio's

surface water program, restoration and maintenance of Ohio's water resources, reflects the national water quality objective as contained in the Federal Clean Water Act (CWA).

When reviewing the 3745-1 rule changes and addressing public comments. Thomas Jefferson once said "I am not an advocate for frequent changes in laws and constitutions, but laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy as civilized society to remain ever under the regime of their barbarous ancestors."

When looking at water quality or degradation there is strong science, facts and theories that show past and current choices will depend on the quality of our watersheds. I feel it is time to wash ourselves from the barbaric times and is time for the institutions to advance with the progress of the human mind. (Brian Prunty, Stark Soil and Water Conservation District)

Response 27: This comment remains under consideration.

Comment 28: 3745-1-07(G)(1)(a) Many of these historic modified water bodies have been wetland impacts from the pioneers or producers or have been streams that have been modified to follow property boundaries or increase land available for agricultural purposes. When performing ditch maintenance, better designs must be utilized to provide a benefit for water quality. (Brian Prunty, Stark Soil and Water Conservation District)

Response 28: This comment remains under consideration.

Comment 29: 3745-1-07 (G)(1)(a): "Upland drainage: These are water bodies constructed in the upland areas of watersheds to drain the landscape of excess water during wet periods."

ODOT questions this definition and whether an upland drainage should be identified as a water body or as a specific feature at all. If it's not a stream with specific morphological criteria, how can an upland drainage be objectively indentified? OEPA should provide instruction on how to delineate these features. If identified, consider naming it a feature instead of a water body. Also, feature should then be defined in Rule 02. (Timothy M. Hill, ODOT)

Response 29: This comment remains under consideration.

Comment 30: 3745-1-07(G)(1)(b)(ii) Have a gradient less than .30%. When asked where this number came from there was no scientific background to explain this figure. Ohio EPA Representative stated they just picked it. This figure was pulled from the air and not from geomorphic theories, Leopold or Rosgen formulas. (Brian Prunty, Stark Soil and Water Conservation District)

Response 30: New stream gradient values, based upon a review of ditch design records and recommended by Ohio DNR, have been included in the revised draft rule (see comment and response # 13).

Comment 31: 3745-1-07(G)(1)(b)(iii) Drain less than 3.1 square miles. As stated before this is considered headwater streams or primary headwater streams and these ecosystems or water courses are important to preserve due to connections between floodplains, wetlands, seeps and baseflow. Majority of surface water miles are headwater streams and modifying these ecosystems impact larger stream creating a domino effect for water quality. (Brian Prunty, Stark Soil and Water Conservation District)

Response 31: This comment remains under consideration.

Comment 32: 3745-1-07(G)(2)(a) Water conveyance: Traditional ditching methods only remove flooding onsite by accelerating how fast water will go down stream. They do not look or study downstream, which are usually more urbanized, to see the affect they are creating. By mandating 2 stage channel designs or other equivalent designs you will solve flooding and water quality issues. Most urban areas are developed on main stem floodplains where it is extremely costly to try to re-establish flood plain when this can be developed in upland drainage courses of the rural areas and be extremely beneficial for both water quantity and quality. (Brian Prunty, Stark Soil and Water Conservation District)

Response 32: This comment remains under consideration.

Comment 33: Paragraph (G)(2). The use "water conveyance" seems to describe the same feature commonly referred to by the USACE and the regulated community as a "captured stream". OEPA should take into consideration the existing and commonly used terminology that is available to describe these features. Using existing terms would alleviate confusion that would be incurred by the regulated community. Fact Sheet Attachment 2 states that these features will be subject to an "abbreviated antidegradation review". It is ODOT's concern that without further definition of these features, it is unclear when review within the antidegradation portion of an application to impact such waters would be necessary. Currently these are features that are not determined as such by the jurisdictional determination process conducted by the USACE. Is it OEPA's intention to require an "OEPA waters of the state determination" in addition to the USACE jurisdictional determination? A clear and precise definition and the process

for determining what constitutes waters of the state, including these new "drainage uses", should be made part of the new rules and made available for comment. (Timothy M. Hill, ODOT)

Response 33: The Agency has prepared new and revised draft rule content that address some of the issues made in this comment, most notably rule 3745-32-04. This rule and rule 3745-1-56 should provide a better explanation of the antidegradation review process and which situations have "abbreviated reviews." Other parts of this comment remain under consideration.

Comment 34: 3745-1-07(G)(3) There will be no chemical, bacteria or biological criteria for drainage use designations. There should be standards for drainage use designations. Ohio EPA requires dry weather screening to occur in the MS4 program to identify illicit discharges or connections which is criteria for drainage systems. Agricultural land use have modified stream channel with no connection to floodplain for water quality affect. They apply manure to fields which usually have subsurface drainage tile and transport contaminated runoff by surface or subsurface increasing bacteria and nutrient loads into their watersheds. By allow traditional ditching methods nutrient assimilation will not occur. (Brian Prunty, Stark Soil and Water Conservation District)

Response 34: Under the draft rules, all surface waters of the state will have, at a minimum, an aquatic life use designation and a recreation use designation. Although there are no numeric criteria assigned to the drainage use designations, the aquatic life and recreation criteria will apply to waters designated drainage use.

Comment 35: 3745-1-07 (H) "Navigation"

It is not clear why the rivers and harbors listed under this rule do not include all rivers and harbors within Ohio that are under the jurisdiction of Section 9 and 10 of the Rivers and Harbors Act of 1899. Each USACE district maintains a list of those waters that are subject to this rule. OEPA is advised to seek these lists and include those waters in this rule to maintain consistency between regulatory programs. (Timothy M. Hill, ODOT)

Response 35: This comment remains under consideration.

Rule 3745-1-31 Lake Erie standards.

Note: The revisions to this rule are removed from this rule package. They will proceed through the rulemaking process independently.

Comment 36: I agree with the Ohio Lake Erie Commission and Ohio Environmental Protection Agency that open-lake disposal of dredge material in Ohio

waters of the western Lake Erie basin should be limited, and strongly support the adoption of OAC 3745-1 (C).

Lake Erie is vitally important to my family and to Ohio's environment and economy. It supplies drinking water to 11 million people, 3 million of whom live in Ohio.

Lake Erie also supports the largest sport fishery in the Great Lakes and the one of the largest commercial freshwater fisheries in the world, underpinning a \$1 billion sport fishing industry. The Lake Erie shoreline contributes \$9.45 billion a year in tourism and travel revenue to the Ohio economy. Lake Erie is a critical resource for humans and wildlife and is worth protecting and improving.

Sediment is a major water pollutant and is considered to be one of the top causes of water quality impairment. No other Great Lake states allow open-lake disposal unless it is clean sand (the dredge material in the Toledo Harbor is not sand - it is clay silt).

Therefore, I support a prohibition of open-lake disposal in excess of 50,000 cubic yards by 2011. (E-mails from 265 people)

Response 36: This comment remains under consideration.

Comment 37: Introduction

Audubon Ohio is the Ohio program of the National Audubon Society. We deliver Audubon's programs to our 14,000 members and 18 chapters, and to many constituent groups, in Ohio. We operate from a state office in Columbus; field offices in Cleveland and Mansfield; and the Aullwood Audubon Center and Farm near Dayton. We are also constructing the Grange Insurance Audubon Center, an 18,000 square foot nature education center that will open in Columbus next year. We have 28 employees in Ohio.

Audubon Ohio has a longstanding interest in protecting and restoring Lake Erie, the Western Lake Erie Basin, and the accompanying shoreline. Audubon Ohio takes the position that it is critical to regulate the water quality of these critical ecosystems that are vital to the birds, wildlife and humans that utilize Lake Erie and the shallow Western Lake Erie Basin.

Lake Erie Standards – OAC 3745-1-31 (C)

Audubon Ohio is submitting comments in strong support of the adoption of Ohio Administrative Code (OAC) 3745-1-31 (C) restricting open lake disposal of dredge materials.

Within the Great Lakes navigation system, the waters of the Toledo Harbor on Lake Erie are shallow and consequently, the most heavily dredged. For nearly 20 years, the United States Army Corp of Engineers (USACE) has placed approximately two-thirds of the sediments dredged annually into the open waters of Lake Erie. The remaining one-third of the sediments, which are defined by the USACE as contaminated (sediments including heavy metals and other point source pollutants), are placed in nearby Confined Disposal Facilities (CDFs) which have been reserved for this purpose.

The least contaminated soils, approximately 600,000 cubic yards annually, are disposed in the open lake three and a half miles northwest of the Toledo Harbor lighthouse. The contaminated sediments are disposed of at the Toledo Harbor Facility 3, Grassy Island (Island 18) and Toledo Harbor Facility 3 Extension).

Over the last 20 years, the OEPA, through its 401 certification process, provided temporary approval of open-lake disposal with the requirement that alternatives be developed due to the environmental impacts. In 1987, the Ohio Environmental Protection Agency (OEPA), with the support of the United States Protection Agency (USEPA), made the determination that open-lake disposal of sediment from the Toledo Harbor was an unacceptable practice.

In 1991, the Buffalo District of the USACE made a federal standard determination that sediments dredged lake-ward from Lake Mile 5 were not contaminated, and therefore, suitable for open water disposal. Within the USACE regulations, the federal standard is the least costly disposal alternative that is structurally sound and satisfies applicable environmental regulations. The OEPA does not concur with the USACE's determination that the sediments dredged lake-ward from Lake Mile 5 are clean and thus, the USACE's determination is incorrect as open-lake disposal of the sediment would not satisfy applicable environmental regulations.

The USACE has developed a Great Lakes Testing Manual that is intended to determine whether sediment is clean based on the concentration of point source contaminants such as heavy metals. OEPA does not concur as the agency recognizes that sediment itself, and associated phosphate and nitrates, are also contaminants and have major impacts on the Toledo Harbor. The amount of dredged sediment material that is currently open-lake disposed – on the average 600,000 cubic yards annually – results in significant pollutant loading to the Western Lake Erie Basin.

Sediment is a major water pollutant and is considered to be one of the top causes of water quality impairment. Suspended sediment reduces sunlight from penetrating the water column causing reduction in plankton and aquatic plant growth. High concentrations of suspended sediment can abrade, thus damaging fish gills and destroying the protective mucous

covering the eyes and scales and increasing the risk of infection and disease. As sediment settles out of the water column, fish eggs, benthic organisms and high quality bottom substrate are covered creating major impacts to the ecosystem. The huge amount of sediment leading also increases the amounts of nutrients and phosphates that are deposited in the Toledo Harbor. As Dr. Jeffrey Reutter, Director of Sea Grant, stated in a letter addressed to the Director of the Ohio Department of Natural Resources (ODNR) dated November 26, 2007 – the most important problem facing the Lake Erie ecosystem at present is Harmful Algae Blooms, a form of blue-green algae that produces the toxin microcystin that can be a significant human health issue. Open-lake disposal of sediments increases loading of nutrients and contaminants that make the Dead Zone and harmful algal blooms worse. In addition, the treatment of drinking water requires that sediment be removed. In recent years, the Toledo Water Treatment Plant has seen an increase in the number of times that the raw Lake Erie water that is drawn in for treatment contains large amounts of very fine particles of sediment. The elimination process of this sediment is costly and increases treatment costs to meet USEPA requirements. No other Great Lake states allow open-lake disposal unless it is clean sand (the dredge material in the Toledo Harbor is not sand – it is clay slit).

The OEPA maintains that the sheer volume of sediments placed into open waters impacts lake ecology by reducing water clarity for an extended time and redistributing pollutants. Former Governor Bob Taft stated in a February 2004 letter to Michigan Governor Jennifer Granholm that placing dredged material in such a shallow part of Lake Erie “where it can spread by wind and current action is counterproductive to our efforts to restore this Great Lake”. In the Lake Erie Protection and Restoration Plan of 2008, Priority Nonpoint Source Pollution, the Ohio Lake Erie Commission states that critical actions for the years 2009-2011 should be to develop water quality criteria for the western Lake Erie basin that would result in a prohibition of open-lake disposal in excess of 50,000 cubic yards by 2011.

Conclusion

Audubon Ohio agrees with former Governor Taft, the OLEC and OEPA that open-lake disposal of dredge material in Ohio waters of the western Lake Erie basin should be limited, and strongly support the adoption of OAC 3745-1 (C). We look forward to future opportunities to work with the OEPA to promote our shared objective of protecting and restoring water quality and the ecological integrity of the Lake Erie and Western Lake Erie Basin for the benefit of all citizens of Ohio, and the birds and wildlife that reside in and cross our borders. (Vicki Deisner, Audubon Ohio)

Response 37: This comment remains under consideration.

Comment 38: I wish to address the proposed changes to the WQS that significantly limit the volumes which can be disposed of by open lake disposal post January 1, 2011.

The Toledo-Lucas County Port Authority has been a leading advocate of sustainability throughout the U.S. and continues to promote that objective in all respects. We are good environment stewards and we are constantly looking for opportunities to enhance the role and to promote the message. We do so, wherever possible, based on the sound application of science.

It is accepted that on an annual basis the Maumee River deposits into the federal waterways of Toledo Harbor an average of 1.3 million cubic yards of sediments. In order to maintain the federal channels to standard that same amount would have to be averaged annually by the Army Corps of Engineers (ACE) in its dredging effort. The Army Corps has not exceeded 800,000 CY of dredging in Toledo Harbor for a decade at least. Currently the ACE's dredging is at a rate below 500,000 CY and most of that is being open lake disposed.

The Maumee River also deposits very substantial volumes onto its riverbeds outside of the federal waterways in areas that require dredging in order to maintain safe navigation between the federal waterways and the locations along the River and in Lake Erie where vessels berth. The volume of private dredging required is not exactly known however it does not exceed the federal waterways dredging needs. None of the private dredgings are open lake disposal.

It is apparent that limiting open lake disposal to a maximum of 50,000 CY will mean the ACE will be forced to change its disposal methods radically. Instead of disposing of up to an annual average of about 500,000 CY open lake it will be reduced tenfold to 50,000 CY. The ACE does not have in existence now or achievable in the short term, sufficient CDF or alternative upland capacities to otherwise dispose of 450,000 CY or greater. The ACE's in-river dredging is already significantly limited by insufficient disposal capacity in its CDF's.

Annual Dredging of the federal waterways in Toledo's Harbor is absolutely essential to keeping our Harbor open to effectively support Ohio's economic recovery. Without that dredging the closing of the Harbor is inevitable in the short term. We already have a backlog of sediments needing to be dredged exceeding 3 million CY in our federal waterways.

Ohio's ports contribute \$6.5 B to Ohio's economy annually and the great port of Toledo is responsible for much of that. Maritime transportation is the most efficient (cost effective) and environment friendly means of moving raw materials and goods. The Global economy is forcing all people

worldwide to further enhance their respective transportation systems, not to make them more expensive, less efficient and less environment friendly.

We urge consideration be given to all of the best interests of our communities and the global environment. It would make no sense to undermine our economy and do net damage to our natural environment as a whole simply to respond to a narrow environmental concern. We appreciate that the time for open lake disposals is disappearing and is already gone in areas where it is not essential. We suggest that consideration be given to phasing out the practice in a manner supported by science and prudent economic planning. This is not a simple matter.

Please consider doing that, including initiating an initial graduated phase-in yet to be determined, possibly starting in 2011. (Warren D. McCrimmon, Toledo-Lucas County Port Authority)

Response 38: This comment remains under consideration.

Rule 3745-1-32 Ohio river standards.

Comment 39: OEPA is now officially adopting ORSANCO Pollution Control Standards. They should include the words 'most current version' (Ramesh D. Kashinkunti, Greater Cincinnati Water Works)

Response 39: Rather than incorporate the ORSANCO Pollution Control Standards by reference, the revised draft rule contains those water quality criteria in the ORSANCO PCS that are more stringent than the statewide WWH criteria. Whenever ORSANCO changes their PCS, Ohio EPA will revise this rule to be consistent with it, if necessary. Ohio law does not allow the incorporation by reference of undated materials.

Comment 40: The current version of the PCS does not include any notification of a bypass or any regulatory parameter that is greater than the 30 day average specified in the NPDES permit. The NPDES should include a statement that any NPDES dischargers has to notify all drinking water utilities who source water is the Ohio River within 25 miles of the discharge of any bypass or analysis of any regulatory parameter that is greater than the 30 day average specified in the NPDES permit within one hour of becoming aware of the incident. (Ramesh D. Kashinkunti, Greater Cincinnati Water Works)

Response 40: This comment remains under consideration.

Rule 3745-1-33 Water quality criteria for the lake Erie drainage basin.

No comments have been submitted on this rule.

Rule 3745-1-34 Water quality criteria for the Ohio river drainage basin.

No comments have been submitted on this rule.

Rule 3745-1-35 Site-specific modifications to criteria and values.

No comments have been submitted on this rule.

Rule 3745-1-36 Methodologies for development of aquatic life criteria and values.

No comments have been submitted on this rule.

Rule 3745-1-37 Methodology for deriving bioaccumulation factors.

No comments have been submitted on this rule.

Rule 3745-1-38 Methodologies for development of human health criteria and values.

No comments have been submitted on this rule.

Rule 3745-1-39 Methodology for the development of wildlife criteria for the lake Erie drainage basin.

No comments have been submitted on this rule.

Rule 3745-1-40 Water quality criteria for water supply use designations.

Comment 41: OEPA is still stating that the water quality in the river within 500 yards, cannot exceed the MCLs as developed under the Safe Drinking Water Act. Or simply put a discharger could be permitted to discharge a compound (Benzene) into the waterway at a concentration so that at a river flow (7Q10) the concentration would be < MCL within 500 yards of a drinking water intake. It is our understanding that OEPA Drinking Water will not let a PWS use a source if it contains a contaminant that is more that 50% of a MCL without treatment for that contaminant. We recommend that WQC should read cannot exceed 50% of the MCL. (Ramesh D. Kashinkunti, Greater Cincinnati Water Works)

Response 41: This comment remains under consideration.

Comment 42: Clermont County does not feel it is appropriate to include Maximum Contaminant Levels (MCLs) as water quality criteria. The Safe Drinking Water Act, under which the MCLs were developed, did not intend for these levels to be achieved in surface water, but rather in finished drinking water. (John McManus, Clermont County Water & Sewer District)

Response 42: This comment remains under consideration.

Rule 3745-1-41 Water quality criteria for recreation use designations.

Comment 43: Page 1. Define mixing zones. How large are these zones?
(J2ENTRY@aol.com)

Response 43: Mixing zones are defined in rule 3745-2-08.

Comment 44: Page 2. Total Phosphorus (Murphy -Riley Method?) APAHA 2001?

You need to define a concentration x mg L-1. and not some undefined statement "be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that result in a violation of the water quality criteria set forth in paragraph ". (J2ENTRY@aol.com)

Response 44: Ohio EPA is developing numerical water quality criteria for phosphorus. Those criteria are expected to be available for public review and comment in this summer.

Comment 45: Page 4. pathogen indicators . "Compliance with the E. coli criteria shall be based on the seasonal geometric mean if more than one measurement is available and on the single sample maximum if only one measurement is available".

Geometric means should not apply to pathogen indicators. Where is the precedent for this? Humans don't ingest pathogens based on geometric means, the ingest pathogens because high concentrations of these organisms exist in the water during recreational activities. This is a law suit waiting to happen. (J2ENTRY@aol.com)

Response 45: Adoption of the E. coli water quality criteria proceeded ahead of this rulemaking and were adopted on December 15, 2009. This comment addressed in the response to comments for that rulemaking.

Comment 46: Define the water quality monitoring network and justify sampling locations and frequency. (J2ENTRY@aol.com)

Response 46: Information about Ohio EPA's water quality monitoring program in on our Web site at www.epa.ohio.gov/dsw. It is not appropriate to include that information in the rule.

Rule 3745-1-42 Water quality criteria for the base aquatic life use designation.

Comment 47: We write to you on behalf of the Ohio Association of Metal Finishers (OAMF), an organization representing the interests of industrial metal finishers and their suppliers in Ohio. It has been brought to our attention that the revisions to the Ohio Water Quality Standards (3745-1) you are

proposing will require our regional Publicly Owned Treatment Works (POTW) to drastically reduce permitting levels for industrial users in order to comply with the proposed amendment. It is our opinion that the proposed limits are unachievable. For example, cadmium levels would be reduced from 2 mg/L (ppm) to 2 ug/L (ppb), a level that is an order of magnitude below even a non-cadmium utilizing industrial facility's discharge effluent concentration.

In addition to the expenses associated with attempting to meet the inappropriately low discharge levels, the costs associated with the ongoing analysis/monitoring would be unfeasible. If the changes you are proposing are enacted, they will be contrary to several tenets of the State of Ohio Governor's Executive Order 2008-04S, *Implementing Common Sense Business Regulation*, and will force the migration and loss of manufacturing businesses from the state. Metal finishing operations who support the region's industrial base by employing an estimated 5,000 individuals in Ohio, will be forced to cease operation, creating an immense ripple effect that would be felt throughout Ohio's entire manufacturing base.

The OAMF Board of Directors urge you to reject the proposed revisions. To this end, OAMF will be pleased to provide industry representatives to work with your staff to justify the appropriateness of the current limits. We can also provide additional detail on the negative effect of following the proposed limits. (Stephen Brown, Ohio Association of Metal Finishers; Kenneth Schultz, Cleveland Black Oxide)

Response 47: The revised draft aquatic life criteria for cadmium are based on the U.S. Geological Survey report "Cadmium Risks to Freshwater Life: Derivation and Validation of Low-Effect Criteria Values using Laboratory and Field Studies." That study identified additional toxicity data and used the U.S.EPA water quality criteria derivation procedures to justify alternative criteria.

The revised draft criteria are less stringent than those in the August 2008 draft rule, but are still more stringent than those in the currently effective rule. The reports by U.S. EPA and USGS show that cadmium levels this low are necessary to protect aquatic life in Ohio's water bodies. Rule 3745-33-07 enables discharges to apply for temporary variances from meeting water quality criteria if they are unachievable.

Comment 48: The proposed decrease in the cadmium criteria could prove difficult for Southerly Wastewater Treatment Center (WWTC) to meet. The chronic wasteload allocation (WLA) for Southerly WWTC is currently 5.05 µg/L. If approved, the proposed OEPA cadmium criterion would likely decrease the chronic WLA to 0.540 µg/L. The resulting change in the effluent limits at Southerly WWTC would require the Northeast Ohio Regional Sewer District

(NEORSD) pretreatment program to justify the current local limits and to adjust as necessary.

Some industrial users in the NEORSD service area would likely have difficulty complying with the new local limit that is based on the proposed OEPA cadmium criterion. The local limit for industrial users could potentially decrease from the current 2,000 micrograms per liter ($\mu\text{g/L}$). The lowered local limit, using the OEPA proposed rationale, was calculated to be between 58 $\mu\text{g/L}$ and a negative number; this is dependent on the assumptions for the cadmium removal efficiency of Southerly WWTC and the domestic background cadmium concentration in sanitary wastewater. The utilization of clean sampling techniques allows for more representative concentrations to be achieved, which results in obtaining a higher local limit value.

In December 2008, the OEPA informed NEORSD about a paper written by the United States Geological Survey (USGS) from 2006, "Cadmium Risks to Freshwater Life: Derivation and Validation of Low-Effect Criteria Values using Laboratory and Field Studies." The paper reviewed, among other things, how the United States Environmental Protection Agency (USEPA) determined the federal criterion for cadmium and determined an alternative to accepting the federal cadmium criterion. The federal criterion was the basis for the proposed OEPA cadmium criterion. The USGS rationale, which includes an increased amount of toxicity data, was used to determine less stringent chronic criteria for Idaho. Using the USGS rationale and using clean sampling for determining domestic background and plant removal efficiency, the chronic WLA for Southerly WWTC could result in a local limit of 122.4 $\mu\text{g/L}$. The USGS rationale cadmium criteria suggest a maximum PEL of 3.95 $\mu\text{g/L}$ and an average PEL of 1.103 $\mu\text{g/L}$. The maximum and the average PELs are greater than their respective PEQs. The highest ratio of PEQ to PEL was for the average, which was 69%; this would assign cadmium to the reasonable potential Group 4 (no limit will be recommended, however monitoring will be required).

Each criteria rationale, that proposed by OEPA and that proposed by USGS, has pros and cons when applied to Southerly WWTC. With the proposed OEPA criteria, NEORSD will receive a less stringent acute criterion (6.66 $\mu\text{g/L}$); however, then NEORSD must address the lower QL, and the local industry may have trouble with compliance with a local limit based on the chronic criterion. The proposed OEPA cadmium criteria rationale would also likely require a cadmium effluent limit at Southerly WWTC. The USGS suggests a less stringent chronic criterion (1.103 $\mu\text{g/L}$) which relates to a higher local limit (122.4 $\mu\text{g/L}$), but a more stringent acute criterion (3.95 $\mu\text{g/L}$) would apply. If the USGS criterion is applied, then Southerly WWTC will most likely not have an effluent limit for cadmium, but would be required to monitor for cadmium. Based on the 2008 effluent data from Southerly WWTC, the USGS rationale would not have resulted in

violations of any water quality based effluent limits (WQBELs). The OEPA criterion was unable to be compared to the 2008 effluent data since the AS PQL is above calculated WQBELs.

We recommend the utilization of the USGS rationale within the State of Ohio. As commented during the review period of Idaho's toxic criteria update, the United States Environmental Protection Agency (EPA) stated that the USGS rationale was, "... technically solid, well written, and exemplifies a very good alternative approach to adopting EPA's nationally recommended cadmium criteria." Although, in recommending this approach, OEPA may need to revise the USGS rationale, originally for the State of Idaho, to ensure adequate protection of aquatic life within the State of Ohio.

In conclusion, we believe there are problems with adopting the national criteria. The criteria are overprotective for aquatic assemblages found in Ohio. Some of the species used in development of the national criteria are not present in Ohio such as Tilapia, Atlantic Salmon, Flagfish, Guppy, and African Clawed Frog to name a few. Recent toxicity data needs to be considered and included in the calculation. In some situations, indirect dischargers may receive unattainable limits based on the OEPA proposed criteria.

We suggest that the OEPA follow other examples for alternative development of cadmium criteria. For example, Chadwick Ecological Consultants, Inc. developed alternative criteria, in 2004, for Colorado and the United States Geological Survey, commissioned by Idaho, developed additional alternative criteria in 2006. (Ron Maichle, Northeast Ohio Regional Sewer District)

Response 48: We agree that the study by USGS justifies alternate cadmium criteria protective of aquatic life in Ohio. The revised draft criteria are based on that study. Although some of the species used in the development of the criteria are not present in Ohio, they serve as representatives of the many species that are present but for which there are no toxicity data.

Comment 49: We are concerned that effluent limits based on the proposed criteria for chloride could prove difficult for the Northeast Ohio Regional Sewer District's (NEORS) three wastewater treatment facilities to meet during the winter months. Since, of the three facilities, Southerly Wastewater Treatment Center (WWTC) would receive the most stringent limits, the potential for violations there was investigated. In an effort to understand what these criteria might mean to Southerly WWTC specifically, chloride and supporting data were collected at strategic locations throughout 2009.

The OEPA-proposed criteria were acquired from the USEPA national criteria: 860 mg/L for the acute criterion and 230 mg/L for the chronic

criterion. From these individual criteria, the wasteload allocation (WLA) for Southerly WWTC was calculated.

The WLA would be the calculated permit limit for Southerly WWTC if reasonable potential to exceed it is demonstrated. A comparison with the WLA based on the acute criterion did not show any potential violations at Southerly WWTC in the 2009 data. The greatest concentration of chloride, 583.5 mg/L (collected on January 14, 2009), is just over half of the WLA based on the acute criterion. However, the chronic criterion could pose a considerable problem during the winter months, with 21.8 percent of the 243 rolling thirty-day periods having potential violations. Due to public safety concerns, attempting to regulate the application of roadsalt and other chloride mixture applications during the winter months could present challenges.

The local limit could not be determined at this time, because the domestic background concentrations and the loading flow could not be determined. However, during the review of the data, it was noted that the plant's removal efficiency for chloride was -0.882 percent. The increase of chloride at the effluent might be explained by the use of chemicals during treatment. One in particular stands out: ferric chloride is added to the treatment processes for removal of phosphorus. Nutrient removal is becoming a "hot" topic, with new numerical limits anticipated for the near future. With the expected lowering of the phosphorus limit, the use of the ferric chloride for phosphorus removal could become a potential problem if the proposed chloride criteria are adopted.

Another expected change to limits in the future could result from the addition of sulfate criteria. Many states are working on or have recently adopted sulfate criteria. Chloride and sulfate criteria seem to be favored over a total dissolved solids (TDS) criterion. Since TDS is made up of several different anions and cations, it may not demonstrate actual or reproducible toxicity (Mount et al. 1997, IDNR 2009b, Pennsylvania Department of Environmental Protection 2009, Linton et al. 2008). Mount et al. (1997) was able to determine, from extensive testing, that the toxicity appeared to be dependent on specific ionic composition since some combinations could be antagonistic. As such, there is currently no national criterion for TDS because it is an indirect measure of the presence of a combination of other constituents (Linton et al. 2008).

Iowa Department of Natural Resources (IDNR) started review of the chloride criteria in 2007 and found that additional toxicity data, along with review of new research, was needed for scientifically defensible criteria. The IDNR partnered with the USEPA Office of Research and Development to determine the gaps in data and to help with the update and review process (IDNR 2009). It was determined that additional toxicity testing was needed to verify some toxicity data in the new review and to determine

whether chloride toxicity was dependent on any other parameters. Partnering with several other organizations, the USEPA had a battery of toxicological work completed in 2008; this work was for a recalculation of the chloride criteria along with additional information for future sulfate criteria (Linton et al. 2008).

As stated by Stephan et al. (1985), "When enough data are available to show that acute toxicity to two or more species is similarly related to a water quality characteristic, the relationship should be taken into account... ." As demonstrated by the toxicity testing completed in the chloride criteria update, a total of three, of four, species had shown that hardness affects chloride toxicity; both of the laboratories performing the testing had corresponding results (Linton et al. 2008). The hardness lessened the toxic effect of chloride as it increased. In addition, one species was used to assess whether chloride toxicity could be a function of sulfate levels. The species (*Ceriodaphnia dubia*) showed that sulfate had an inverse effect on chloride toxicity (IDNR 2009b). If at least one more species demonstrates this inverse effect, sulfate should also be taken into account.

The results obtained from additional toxicological information led to the development of the State of Iowa's chloride criteria to reflect the relationship characteristics of not only hardness, but of sulfate as well. Iowa's adopted criteria are listed below (Environmental Protection Commission 2009):

Iowa Chloride Acute Criterion: $287.80(\text{Hardness})^{0.205797}(\text{Sulfate})^{-0.07452}$

Iowa Chloride Chronic Criterion: $177.87(\text{Hardness})^{0.205797}(\text{Sulfate})^{-0.07452}$

The current Iowa criteria-based WLA were then compared with data obtained from Southerly WWTC during 2009. The comparison applying Iowa's acute criterion still demonstrates that Southerly WWTC did not show any potential violations of the WLA calculated from the acute water quality criterion. The new toxicity data obtained during Iowa's investigation into new criteria, however, included more sensitive invertebrate taxa, lowering the acute criterion from the national criterion. Only two percent of the 46 rolling thirty-day periods were in potential violation for the chronic criterion, for which the calculated WLA was higher than the WLA determined using the OEPA-proposed criterion. When the hardness effect on toxicity is taken into account, the chronic criterion is less stringent.

In conclusion, the proposed State of Ohio criteria are potentially both under- and over-protective of aquatic assemblages (IDNR 2009b). Recent additional toxicological information should also be included in the criteria calculation. The relationship of sulfate should be considered, if additional research suggests that other species also exhibit this effect, in

development of Ohio criteria. At the very minimum, water hardness should be accounted for in the new Ohio criteria.

Also, we recommend that the TDS criteria be removed from the Ohio water quality standards. Even though the OEPA is not proposing a change to these criteria, it might be appropriate to add this change during this review since the OEPA will be rescinding the old rule (draft Ohio Administrative Code [OAC] 3745-01-07) and replacing it with a new rule (draft OAC 3745-01-42)..

Response 49: This comment remains under consideration.

Rule 3745-1-43 Water quality criteria for the tiered aquatic life use designations.

No comments have been submitted on this rule.

End of Response to Comments