

Euclid NPDES

US EPA Region V Specific Objection to
Phosphorus Limits



US EPA's
"Reasonable
Potential"
Analysis is a
Mere Pretext
to its True
Policy
Objective

Ohio's Legal Summary

True position as revealed by "settlement discussions" with the City and later confirmed to Ohio EPA is 0.5 mg/L for all major Lake Erie POTWs. The basis for the 0.5 mg/L standard was revealed to be the Great Lakes Water Quality Agreement, Annex 4 recommendations.

Confirms that US EPA's permit review process and second guessing of Ohio's reasonable potential analysis in this instance was merely a pretext to implement the policy initiative of an across-the-board phosphorus reduction for Lake Erie major POTWs.

Rulemaking without Notice and Comment

Ohio's Legal Summary

US EPA's initiative to require an across-the-board Phosphorus effluent limit of 0.5 mg/L is a substantive rule as it imposes significant obligations on a class of similarly situated dischargers in Ohio's Lake Erie Basin.

Before implementing this rulemaking, US EPA is required to conduct notice and comment rulemaking under 5 USC 553.

US EPA's failure to conduct notice and comment rulemaking in advance of this effort is unlawful.

Reasonable
Potential – US
EPA Should
Defer to
State’s
Determination

Ohio's Legal Summary

Reasonable potential rule itself affords the permitting authority with a certain degree of latitude and flexibility in its implementation.

US EPA has confirmed this perspective historically dating back over 30 years in commentary supporting reasonable potential rulemaking.

US EPA should not be “second guessing” Ohio’s approach even if there are “alternative” ways one could conduct a reasonable potential analysis.

However, the fact that US EPA’s own reasonable potential analysis does not support its true policy position is yet another reason that its objection is arbitrary and capricious.

History of Ohio Lake Erie Basin Phosphorus Limits

All major POTWs in the LEB are required to have a monthly average limit of 1.0 mg/L.

- Required by Ohio Administrative Code in Rule 3745-33-06

Facilities are also required through NPDES permits to optimize.

Ohio EPA cannot legally defend permit limits outside of a TMDL when further reductions would have a negligible impact.

Ohio is not opposed to issuing permits with phosphorus limits less than 1.0 mg/L.

When evaluating the need for lower P limits Ohio evaluates:

- **Is there non-attainment attributed to elevated phosphorus concentrations?**
- **If so, would reductions by the point source move the needle on attainment?**

Several permits with limits of 0.5 mg/L and 0.7 mg/L.

Region 5 currently reviewing Plain City, which has a monthly average limit of 0.35 mg/L proposed.

Ohio is opposed to including lower phosphorus limits in permits when it will yield little to no environmental benefit.

History of Ohio Lake Erie Basin Phosphorus Limits

Region 5 began commenting on the limits of 1.0 mg/L for facilities that discharge directly to Lake Erie in early 2020 through comments on two of Ohio's permits on the real time review list.

Early 2020

Spring of 2020

That Spring, Ohio and Region 5 agreed to pause the reviews to allow technical staff to discuss phosphorus permit conditions.

History of Ohio Lake Erie Basin Phosphorus Limits

The technical workgroup met four times in the Spring of 2020.

During the meetings, Ohio EPA technical experts walked through Ohio's reasonable potential analysis for phosphorus.

Region 5 rejected the analysis because it did not result in lower limits, but to date has not provided specific scientific or legal feedback on Ohio's reasonable potential analysis.

Instead, Region 5 has provided suggestions on how to justify lower limits.

Region 5 Phosphorus Limit Suggestions

Beyond our permitting requirements and inconsistent with our scientific evaluation of Lake Erie Impairments

1. International Joint Commission's numeric phosphorus targets of 0.15 mg/L (Western basin) and 0.10 mg/L (Central basin)
2. Cutting limits by 40% (0.6 mg/L)
3. Other states' numeric criteria
4. Inland lake's criteria
5. Technology based effluent limit of 0.5 mg/L
6. Limit of 0.5 mg/L from Annex 4 suggestion

Further Discussion About 0.5 mg/L (TBEL)

TBEL of 0.5 mg/L is inconsistent with Region 5's assertion that Euclid has reasonable potential and a WQBEL is required.

TBELs are limits that represent what treatment technology can achieve.

For existing facilities, could be based on an extensive evaluation of technology used.

For new facilities, a TBEL could be defined in state or federal rule, but this has not been done.

Further Discussion About 0.5 mg/L - 2012 Great Lakes Water Quality Agreement (Annex 4)

1. the Parties shall assess and, **where necessary**, develop and implement regulatory and non-regulatory programs to reduce phosphorus loading from urban sources including:

(a) programs to prevent further degradation of the Waters of the Great Lakes from wastewater treatment plants located in the Great Lakes basin;

(b) programs to optimize existing wastewater treatment facilities;

(c) programs to ensure that construction and operation of municipal wastewater treatment facilities that discharge one million liquid gallons or more per day achieve a maximum effluent concentration of 1.0 milligram per litre total phosphorus for plants in the basins of Lakes Superior, Michigan, and Huron, **and of 0.5 milligram per litre total phosphorus for plants in the basins of Lakes Ontario and Erie;**

Further
Discussion
About 0.5
mg/L - 2012
Great Lakes
Water Quality
Agreement
(Annex 4)

Ohio EPA assessed a limit of 0.5 mg/L and determined it was not necessary.

Euclid does not have reasonable potential for phosphorus.

A limit of 1.0 mg/L is consistent with Ohio's 2020 Domestic Action Plan.

- Emphasizes reductions for nonpoint sources
- Phosphorus optimization
- Wet weather work
- Western Lake Erie Basin far-field TMDL

What Phosphorus Limit is Appropriate for Euclid?

- Region 5 has **predetermined** that a limit lower than 1.0 mg/L is needed.
 - Regardless of the what the science is telling us.
 - Regardless that Euclid does not have reasonable potential.
 - Regardless of if the limit is legally defensible.

What Phosphorus Limit is Appropriate for Euclid?

The specific objection proposes for the facility to achieve a concentration of 0.007 mg/L. A concentration of 0.007 mg/L is not technically sound or legally justifiable.

- Would not result in a measurable change in Lake Erie.
- Achieving 0.007 mg/L is not technically feasible.
- Euclid just invested in a new plant.
- Any additional investment would be expensive and for little to no environmental impact.

Region 5 has approached Euclid and Ohio proposing a limit of 0.5 mg/L to settle the specific objection.

- Would not result in a meaningful reduction.
- Neither Ohio EPA nor Euclid knows what the new plant will be able to perform once it has been fully operating for some time.
- 0.5 mg/L would be a policy stance that we do not believe is legally or scientifically defensible.

What Phosphorus Limit is Appropriate for Euclid?

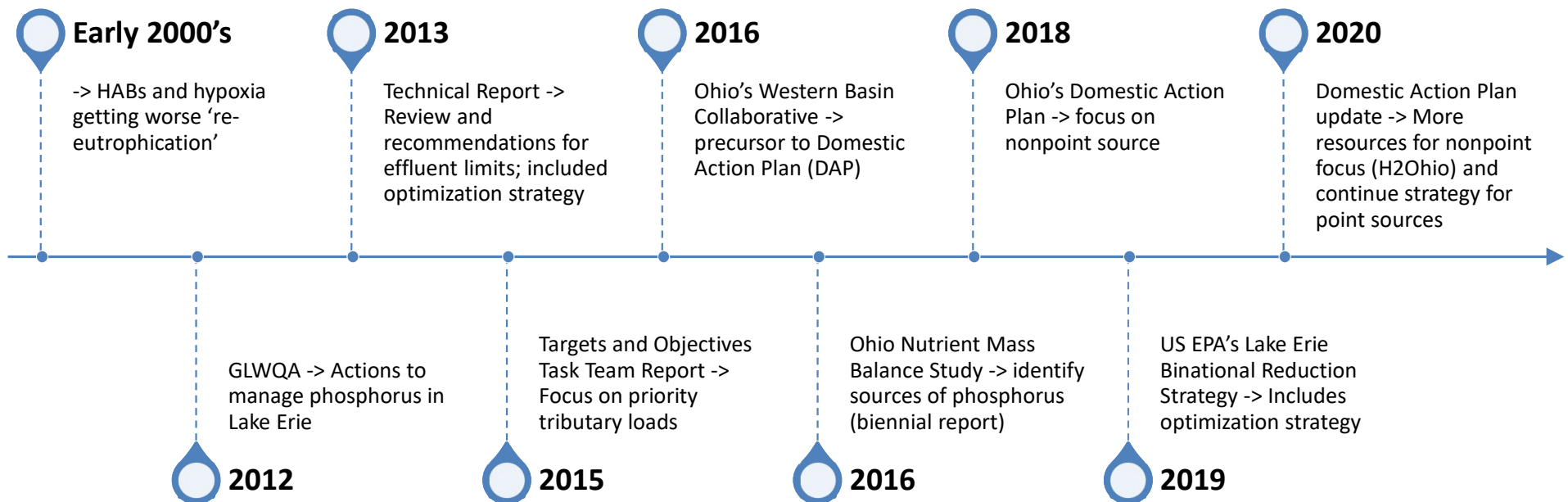
Ohio has determined that for this permit cycle, a monthly average limit of 1.0 mg/L with additional requirements to optimize treatment following recent upgrades is legal and appropriate.

Once Ohio has completed the WLEB TMDL, we will be looking to evaluate what Lake Erie impairments remain in Central Basin and will develop a TMDL specifically to address those.

NPDES TP reductions may or may not be needed to address impairments in the Central Basin.

- **Annex 4 targets for Central Basin will be needed before Ohio takes on this effort.**

Timeline – Lake Erie Nutrients in the 21st Century



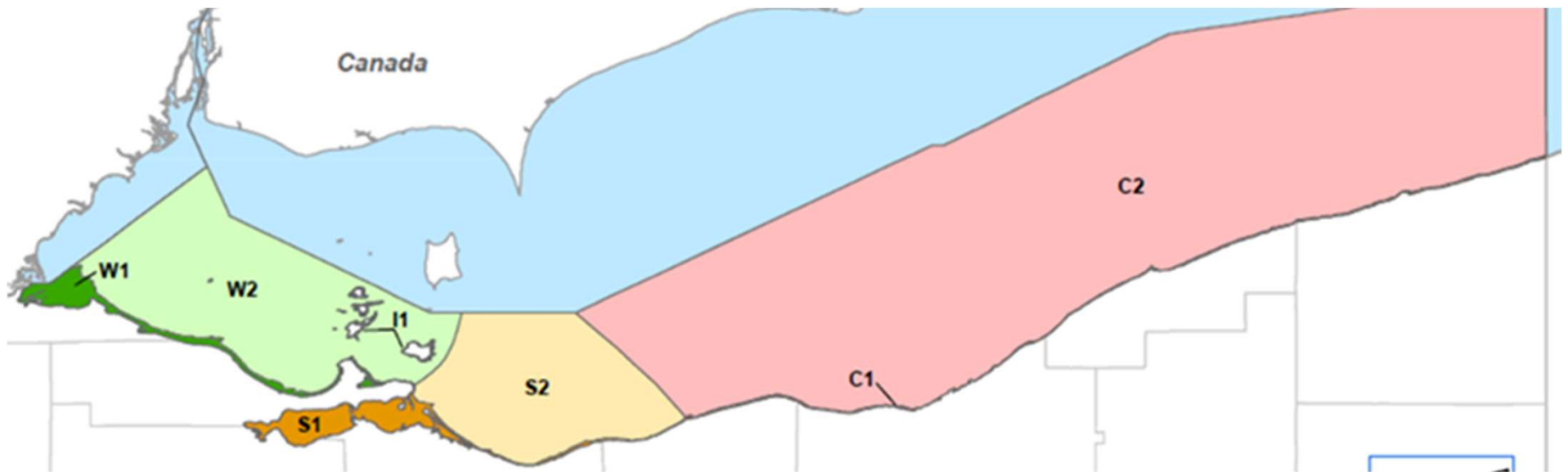
Reasonable Potential

- **During the “real time review” process, one of the suggestions was using reasonable potential to evaluate phosphorus contributions**
- **Ohio has a long history of evaluating phosphorus contributions to Lake Erie with our Nutrient Mass Balance Study**
- **We have consistently weighed the contribution of phosphorus from wastewater as we developed our Domestic Action Plan**

Evaluating Reasonable Potential

| | |
|------------|---|
| Understand | Understand the impairments |
| Develop | Develop the linkage to total phosphorus |
| Evaluate | Evaluate the role of phosphorus from Euclid |

Understand the Impairment



- Lake is divided into seven assessment units
- Euclid discharges to narrow **C1 shoreline** unit adjacent to the larger **C2 open waters** unit
- West to East primary flow – Central Basin is downstream of units to the west

Understand the Impairment

| Use Designation | Attaining Use? | |
|--|-------------------|--------------------|
| | Central Shoreline | Central Open Water |
| Aquatic Life Use (<i>Biological Community/Diversity</i>) | Not Attaining | TBD |
| Public Drinking Water Supply (<i>Algae</i>) | N/A | Not Attaining |
| Recreation (<i>Algae</i>) | Attaining | Attaining |

Legend

TBD = To Be Determine; N/A = Not Applicable



Understand the Impairment (Aquatic Life)

Ohio EPA's Analysis

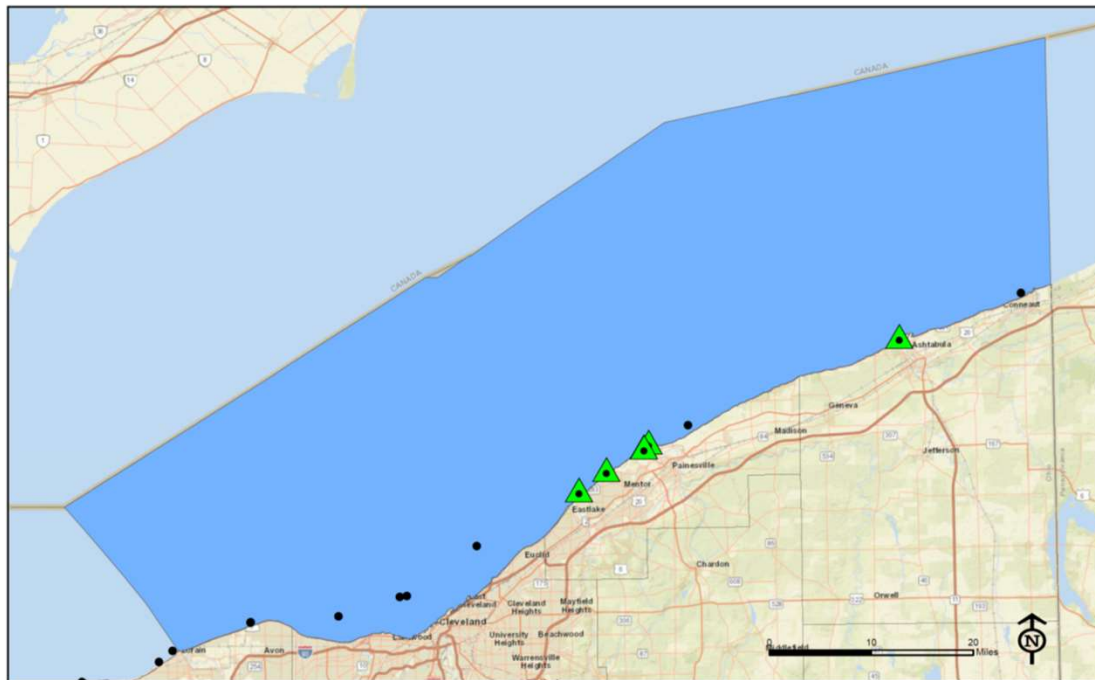
Impairment is based on shoreline fish species diversity

Impairment is generally linked to broader eutrophication of Lake Erie and trophic disruption from habitat modifications and invasive species

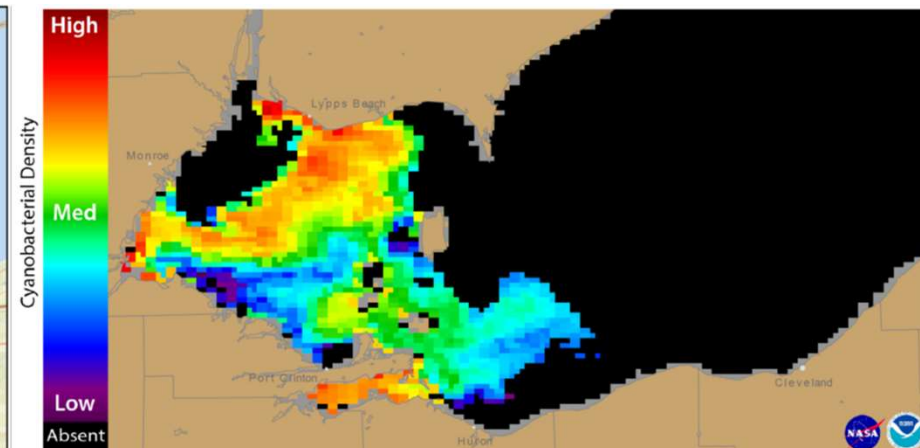
There is no pattern suggesting local disruptions from POTW discharges

Due to allied stressors, environmental gradients that could be translated to nutrient targets are absent when evaluating shoreline IBI scores

Understand the Impairment – Drinking Water



- PWS Intakes in Lake Erie
- ▲ Central Basin PWS Intakes with Microcystins Exceedance in IR
- Lake Erie Central Basin Open Water Assessment Unit



- Raw water impairments are not widespread
 - 5-of-12 intakes impacted
 - Last exceedances in 2017
 - Tie to western basin blooms
- **Finished water has not been impacted**

Develop the Linkage to Phosphorus

Ohio EPA's Analysis

Impairment is not for TP

- *Drinking water impairment is for microcystin*
- *Aquatic life impairment is based on measuring fish community*

Phosphorus is nonconservative

Eutrophication is a lake-wide phenomenon

Develop the Linkage to Phosphorus

Ohio EPA's Analysis

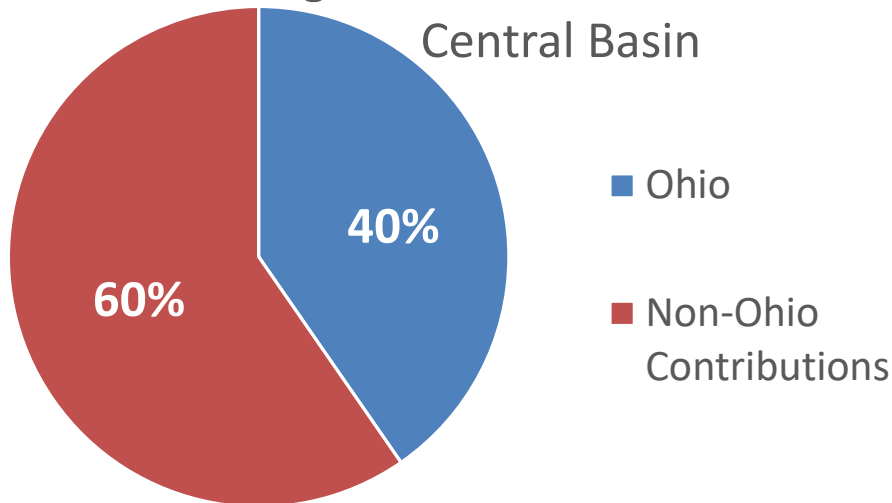
Lake Erie is a system

Modeling to a concentration endpoint is impractical

Instead evaluate the impact to loadings to the central basin

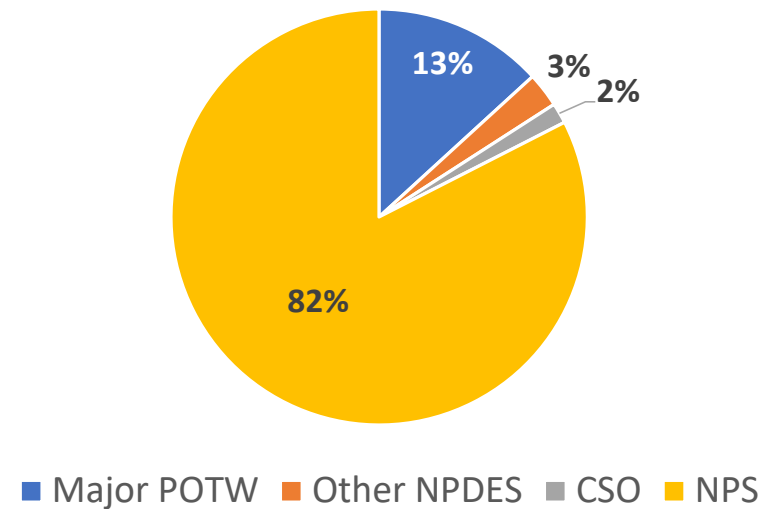
The Role of Euclid's Phosphorus in Lake Erie

Average Annual TP Contributions to Central Basin

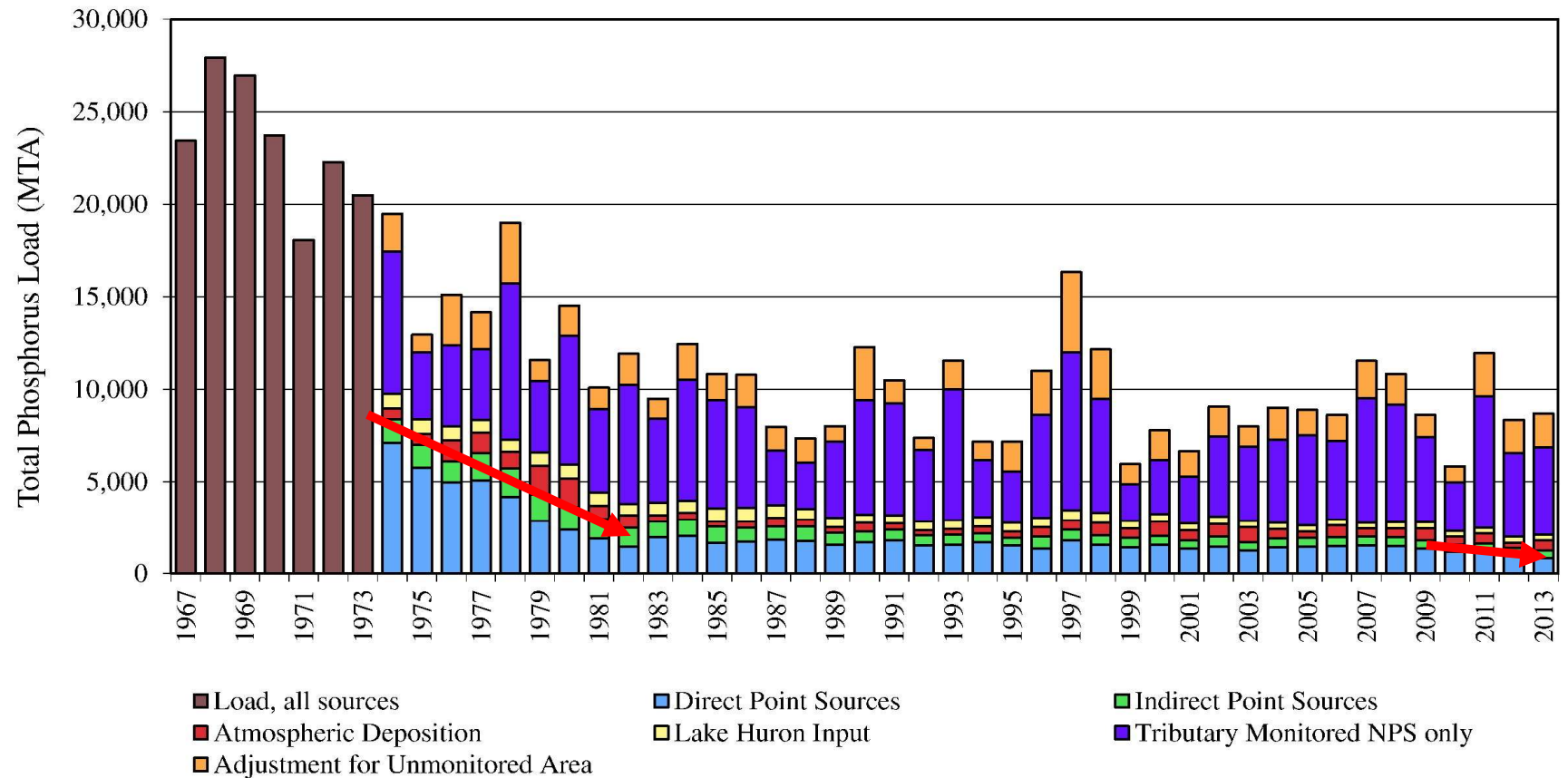


- Sources in Ohio contribute 40% of the total phosphorus load to the Central Basin
- Approximately 13% of total phosphorus contributions from Ohio sources are from major POTWs

TP Contributions from Major Source Categories in Ohio



The Role of Euclid's Phosphorus in Lake Erie



Adapted from Scavia et al. (2014); J. Great Lakes Res. 40: 226–246.

The Role of Euclid's Phosphorus in Lake Erie

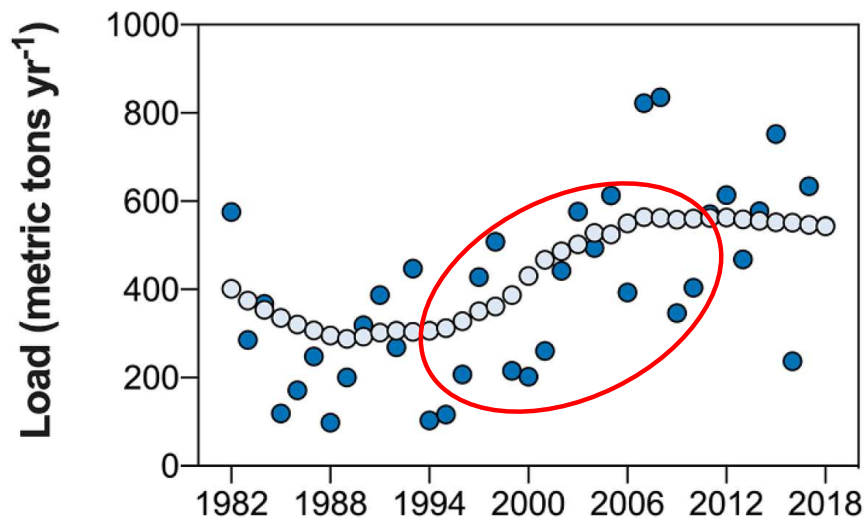
Ohio EPA's Analysis

Actions:

- Laundry soap and dishwasher detergent restrictions
- Optimization requirements for major POTWs
- Financial incentives

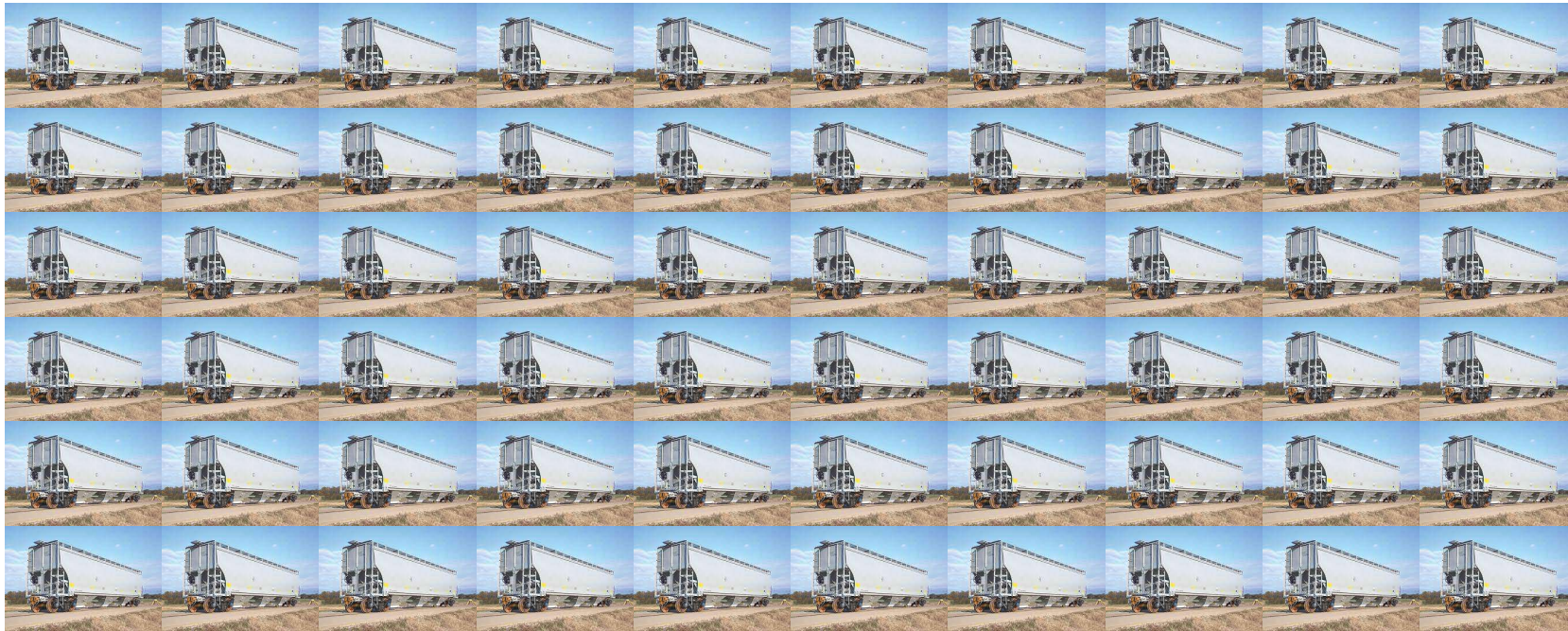
Recent average concentrations maintained <0.5 mg/L-TP; better performance than minimum compliance

The Role of Euclid's Phosphorus in Lake Erie



- Researchers identified a change in the form of phosphorus in nonpoint dominated watersheds as the primary cause
- Re-eutrophication from mid-1990's to mid-2000's
- Loads from major POTWs were stable during this time period

The Role of Euclid's Phosphorus in Lake Erie



**Total Load to Central Basin of Lake
Erie – 60 Railcars (~7400 MT)**



**Euclid – Small
Dump Truck
(~10 MT)**



Evaluate the Role of Euclid's Phosphorus

Ohio's Analysis

Ohio's major POTWs contribute 13% of Ohio's phosphorus to Lake Erie's Central Basin

Phosphorus controls have been in place since the early 1980's at municipal wastewater treatment plants – re-eutrophication occurred while point source contributions remained stable

The impact of an individual facility further marginalizes the impact

- Euclid contributes 0.1% of the load

Considering this body of evidence, Euclid does not 'cause or contribute' to impairments from eutrophication or HABs in the Central Basin of Lake Erie

There are flaws in the Region's Reasonable Potential Analysis

Region 5's Analysis

Phosphorus is not conservative

The analysis is out of context with other more substantial phosphorus contributions

The target is inappropriate for Lake Erie

Chlorophyll-a to microcystin relationship is not consistent with what is observed in Lake Erie

The result of the analysis is inequitable

Phosphorus
is not
Conservative

Region 5's Analysis

Emphasis should be on the average lake concentration – not the concentration in a small mixing zone

Source concentration does not equal lake concentration

- **Central Basin concentrations <0.01 mg/L**
- **Tributary and wastewater concentrations are much higher than lake phosphorus concentrations**

The Target is
Inappropriate

Region 5's Analysis

The analysis performed by Region 5 staff used US EPA's 304(a) lake nutrient criteria models which were developed using data from inland lakes

Great Lakes Data was intentionally excluded

The Criteria is Inappropriate

Region 5's Analysis

In a response to comments on the draft criteria models U.S. EPA headquarters stated:

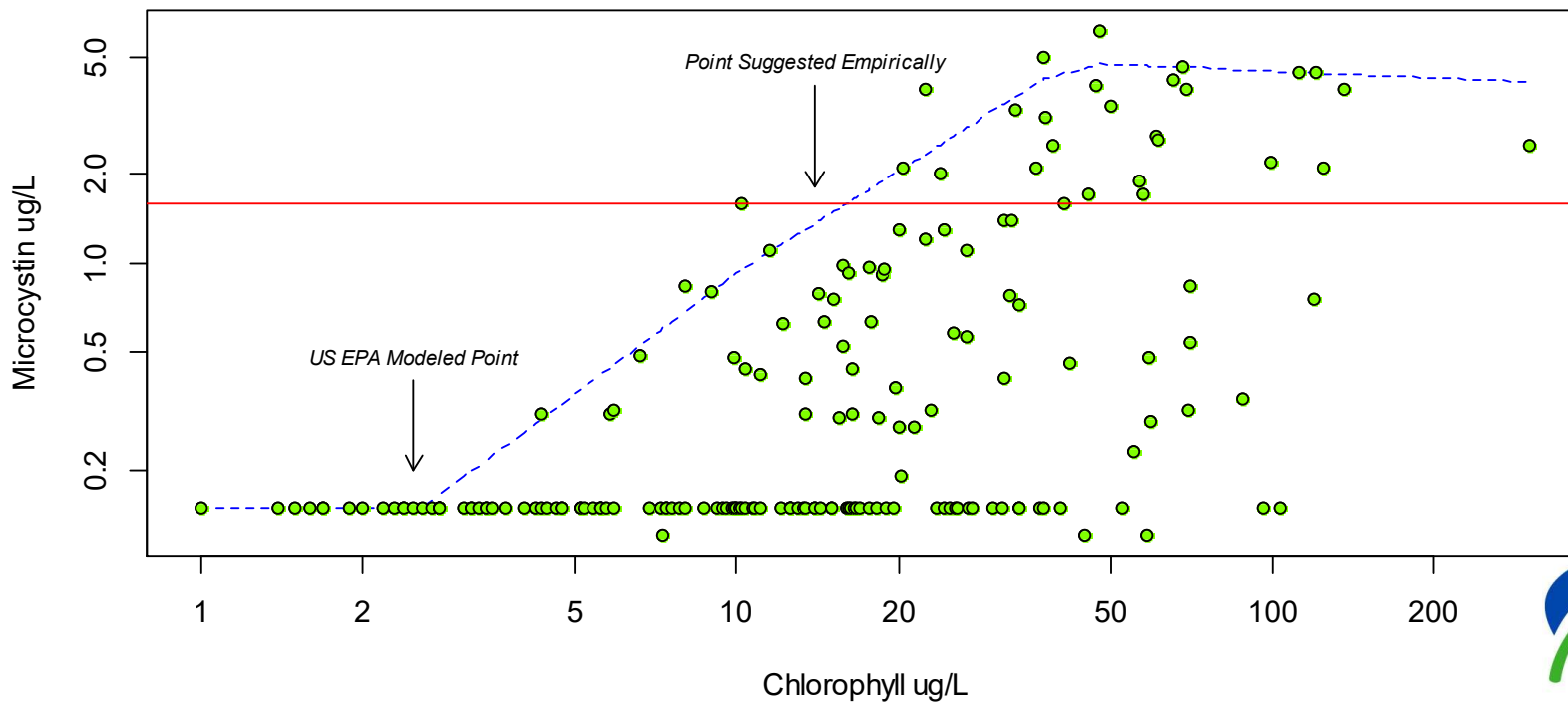
“Relationships estimated in the national criterion models may be informative when interpreting data collected from systems other than represented in the NLA data, and further evaluation of the applicability of these models is warranted.”

Using the model for the Great Lakes violates a fundamental tenant of probabilistic modeling – extrapolations should only apply to the populations used to derive the model = inland lakes

Using the model outside of that population requires additional scrutiny

Region 5's Analysis of Reasonable Potential

Region's target evaluated by Ohio EPA



Microcystin concentrations were never observed above the detection limit at the point US EPA used to derive the TP target.

The Result of
the Analysis
is Inequitable

Region 5's Analysis

The analysis yields a 99% reduction requirement for Euclid's effluent

It is unreasonable to assume that a 99% reduction from a facility that contributes 0.1% of the load is necessary

This effluent limit is not equitable where nonpoint source loads currently control the trophic status of Lake Erie

State Specific Strategies

- Phosphorus reduction strategies should be tailored to individual states.
- While the specific objection calls for a phosphorus limit consistent with a concentration of 0.007 mg/L, we know Region 5 has contacted Euclid directly, in an attempt to negotiate a 0.5 mg/L limit for this permit.
- The fact that other Region 5 states have plans in place to impose phosphorus limits to 0.5 mg/L does not mean this strategy is appropriate for Ohio's Lake Erie dischargers – the problem, and sometimes the authority, is different.

Ohio is not Wisconsin

- Wisconsin is one of a few states that has adopted numeric nutrient water quality standards.
- Ohio contends that a more targeted approach to addressing nutrients in Lake Erie is through our Maumee Watershed Nutrient TMDL, with specific wasteload and load allocations for TP.

Ohio is not Illinois

- A 2015 ruling against MWRDGC's permit stated Illinois EPA was not administering the "narrative standard" for offensive conditions.
- As a result of this ruling, negotiations between Illinois EPA, Illinois AWA, and environmental groups were held from 2016-2018.

Ohio is not Illinois

- As a result of this lawsuit, Illinois has developed a program to reduce phosphorus limits of **some facilities** down to 0.5 mg/L, however there are “off-ramps” if the permittee can demonstrate that the limit is not technically or economically feasible.
- For the most part, these facilities in Illinois don’t even discharge to the Great Lakes.
- Point sources in Illinois are 48% of their TP loadings statewide.
- In comparison, Ohio’s point sources to Lake Erie contribute much less!
 - 13% of Ohio’s contribution to the Central Basin
 - 7% of the TP loading in the Maumee Watershed



Ohio is not Michigan

Michigan has 750 Metric Tons (MT) of total phosphorus to remove annually to meet the Annex 4 - 40% reduction target.

2/3rds or 500 MT need to be reduced from the Detroit River alone.

This is a point source problem because of wastewater and urban stormwater issues.

Ohio is not Michigan

- Because total phosphorus loading from the Detroit River is predominately coming from point sources, Michigan has recently added a strategy to take another 10-13 of their NPDES permits to 0.5 mg/L.
- Michigan is doing this because they do not believe that it will require a significant amount of large capital expenses, only operational expenses, and will target the remaining significant sources in the Detroit River to help them achieve their 40% reduction goals.
- Michigan's permits expire on a watershed basis so it will take them years to get all of these permits renewed and add new TP limits of 0.5 mg/L, with appropriate compliance schedules.



Ohio is not Michigan

Michigan is working on point sources that discharge to the WLEB, but so is Ohio through our Maumee Nutrient TMDL.

- NOTE: Ohio plans to public notice facility-specific, point source wasteload allocations on June 30th in our draft Preliminary Modeling Results report.

A major difference between Ohio & Michigan is that Ohio's point sources in the Maumee River Watershed only make up 7% of the total phosphorus loading.

Both states, however, are focused on the WLEB to make a significant reduction in TP loadings that migrate to the Central Basin and are attributed to Central Basin impairments.

Ohio is similar to Indiana

- Indiana utilizes a statewide policy established in 2014 which sets a practical State treatment standard of 1.0 mg/L total phosphorus for major POTWs to protect downstream water uses.
- Indiana has found that implementation of their policy has resulted in reductions in phosphorus concentrations appropriate for their point source contributions.

Ohio is similar to Indiana

- Indiana's Domestic Action Plan for nutrient reduction for the Western Lake Erie Basin has action steps developed by an advisory committee with a diverse membership.
- The action steps focus on nonpoint source contributions as the data has shown nonpoint sources in Indiana also have the larger share of phosphorus contributions to the basin.
- Data does not show Indiana's point sources as contributing a significant portion of the Western Lake Erie total phosphorus load.

Ohio is similar to Indiana

- While Indiana's NPDES permittees have phosphorus limits based on the 1.0 mg/L set by the policy, their actual discharge is typically lower, but not consistently at 0.5 mg/L or less.
- Indiana contends that for a diligent operator to ensure compliance with a limit of 0.5 mg/L, costly infrastructure improvements would need to be made at their facilities.
- Indiana is concerned that imposing a 0.5 mg/L limit would result in a large expense with little water quality improvement.
- Indiana believes there are more appropriate ways to invest money that would have more positive impact on Lake Erie water quality.
- Ohio wholeheartedly agrees!



Ohio's Strategy

- Ohio's nutrient permitting strategy looks to:
 - Reasonable potential analysis of our narrative criteria; and/or
 - Existing TMDLs to determine wasteload allocations that lead to lower TP limits; and
 - Plant optimization requirements for Lake Erie basin major POTWs
- Based on discussions with other states in other US EPA Regions, it is unclear that reasonable potential analysis on narrative criteria is being looked at in a consistent manner.

Ohio's Strategy - TMDLs

- In 40 CFR 130.7 and the Clean Water Act:
 - Within the 303(d) Impaired Waters list – states are given authority to set TMDL priorities recognizing not everything can be done at once.
 - The Integrated Reports are approved by US EPA biennially.

Ohio's Strategy – Maumee Nutrient TMDL

- In our 2020 Integrated Report, Ohio prioritized the Maumee Watershed Nutrient TMDL and committed to completing it within three years.
 - Approved by Region 5
 - Includes 4,000,000 acres of agricultural land
- Ohio is on target to submit the final TMDL to US EPA for approval by June 30, 2023.
- This commitment should not be ignored as it will be the single, greatest effort to fix most of Ohio's TP contributions to harmful algal blooms in Lake Erie.
- A Central Basin Lake Erie TMDL is not Ohio's highest priority at this time, but we will continue to work with Annex 4 on appropriate TP loading targets and proceed with prioritization of a TMDL, if the state of the science determines we should.

Ohio's Strategy – Maumee Nutrient TMDL

- Ohio does not plan to impose unattainable TP limits on our point sources through the Maumee Nutrient TMDL.
- Doing so would simply force the local governments and rate payers to take on the cost burden to in-turn, pay for nonpoint source reductions on their behalf.
- Through Ohio's H2Ohio Program and other state funded efforts, the state of Ohio is already paying the nonpoint source parties to take actions to reduce phosphorus loadings and do not need to put the local governments in the middle of these transactions or force our rate payers to bear this burden.

Summary

- We have explained our reasonable potential analysis process to Region 5 countless times and have many records asking for *“the specific, technical reasons why US EPA believes the reasonable potential analysis that was conducted [for Euclid] is not appropriate”*, with no response to date.
- Per the reasonable potential rule, US EPA is supposed to afford the permitting authority with a certain degree of latitude and flexibility in its implementation.

Summary

- In this specific objection, US EPA contends that Ohio is (out of line with) the Clean Water Act because we did not follow **the ambient numeric nutrient water quality criteria recommendations for lakes and reservoirs**, which we deem wholly inappropriate for use in any of the Great Lakes' ecosystems.
- Even if we did agree that this criteria was applicable, Ohio contends that it would only be defensible, once adopted into our own Water Quality Standards through our triennial review process.



Summary

- Ohio's NPDES universe includes **292 majors & 2,920 minors**
- In FFY 2021, US EPA identified these nine permits for “real time review”:

| <u>Permit number</u> | <u>Name</u> | <u>Type</u> | <u>Expiration Date</u> |
|----------------------|---------------------------------------|-------------|-------------------------|
| OH0020541 | City of Nelsonville | POTW | Modification 10/27/2020 |
| OH0064009 | Summit County Environmental Services | POTW | 10/31/2020 |
| OH0052922 | City of Bucyrus | POTW | 11/30/2020 |
| OH0028240 | Zanesville City of | POTW | 1/31/2021 |
| OH0031062 | City of Euclid | POTW | 2/28/2021 |
| OH0028118 | Willard, City of | POTW | 2/28/2021 |
| OH0049999 | Eastern Ohio Regional Wastewater Auth | POTW | 6/30/2021 |
| OH0027740 | City of Toledo | POTW | 8/31/2021 |
| OH0003891 | Aleris Rolled Products | NON-POTW | 1/31/2021 |

- **US EPA's real time review process should NOT be the avenue to set regional, nutrient permitting strategies – illegal rulemaking!**

Summary

CWA's limited authority over nonpoint source pollution is not an excuse or reason to thrust the pollution reduction on point sources where science and regulations do not support it.

US EPA's actions are being taken with disregard to a state's nutrient reduction planning framework and in disregard to a state's TMDL prioritization authority.

We do not concede that a 0.5 mg/L limit of TP is an appropriate, negotiated solution based on the myriad of technical and legal positions we have presented today. Further, Ohio finds it inappropriate for Region 5 to attempt to negotiate permit limits directly with the City of Euclid as it undermines our role as a federally delegated program.

Closing

In closing, I want to make it crystal clear that Ohio has prioritized nutrient reduction in Lake Erie and is moving at a record pace to implement TP reductions where the science tells us it will make the biggest impact.

Ohio is very concerned about US EPA's lack of consistency on total phosphorus permitting requirements across its regions.

This has garnered national attention and Ohio is also very concerned about the precedent Region 5 is attempting to set with the Euclid permit, as are other states.

Closing

Expecting a 99% reduction from a facility that contributes 0.1% of the TP load is inequitable and indefensible.

If US EPA's true policy objective is 0.5 mg/L, then US EPA's own reasonable potential is arbitrary and capricious.

This specific objection puts Ohio's delegation credibility into question, and we ask that this matter be deliberated with US EPA HQ - Office of Water, before a final decision is rendered.

Lastly, again, Ohio respectfully requests US EPA to withdrawal this specific objection.

Ohio's Testimony Concluded

