Ohio NPDES Updates

Ashley Ward, P.E.

NPDES Supervisor

Ohio EPA DSW, CO

Ohio Environmental Protection Agency

Topics

- Rules and legislation
  - TMDLs!
  - OAC Chapters 33 and 40 (NPDES & Biosolids)
  - Water Quality Standards triennial review
  - Local Limit PE stamp requirements
  - Dental amalgam rules
- Phosphorus technical & financial capability study
- NPDES Updates

Ohio Environmental Protection Agency

Opportunity for Candy

Ohio Environmental Protection Agency

Rules and Legislation

TMDLs

Total Maximum Daily Loads for the Grand River (upper) Watershed

- What is a TMDL?
- What happened?
- H.B. 49 signed by Governor Kasich June 30, 2017.
  - TMDLs approved prior to March 24, 2015 valid and remain in full force.
  - Additional notification.

Ohio Environmental Protection Agency

NPDES and Biosolids rules

OAC Chapter 33 (NPDES)

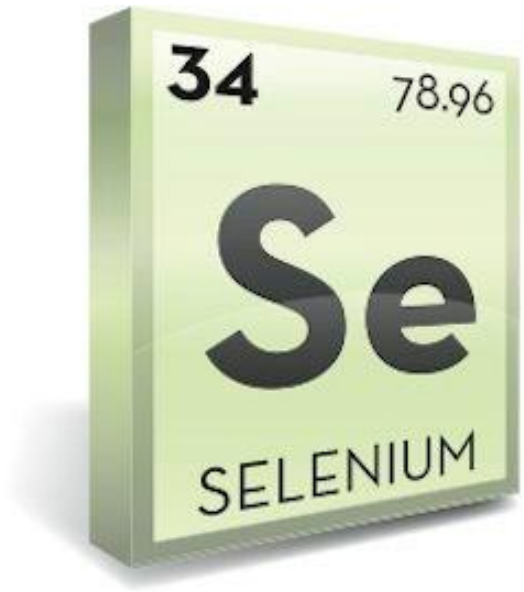
- Sufficiently sensitive methods.
- Group 5 parameters with limited datasets.

OAC Chapter 40 (Biosolids)

- Bulk EQ biosolids.
- PN of site authorizations.
- Frozen ground restriction.

Ohio Environmental Protection Agency

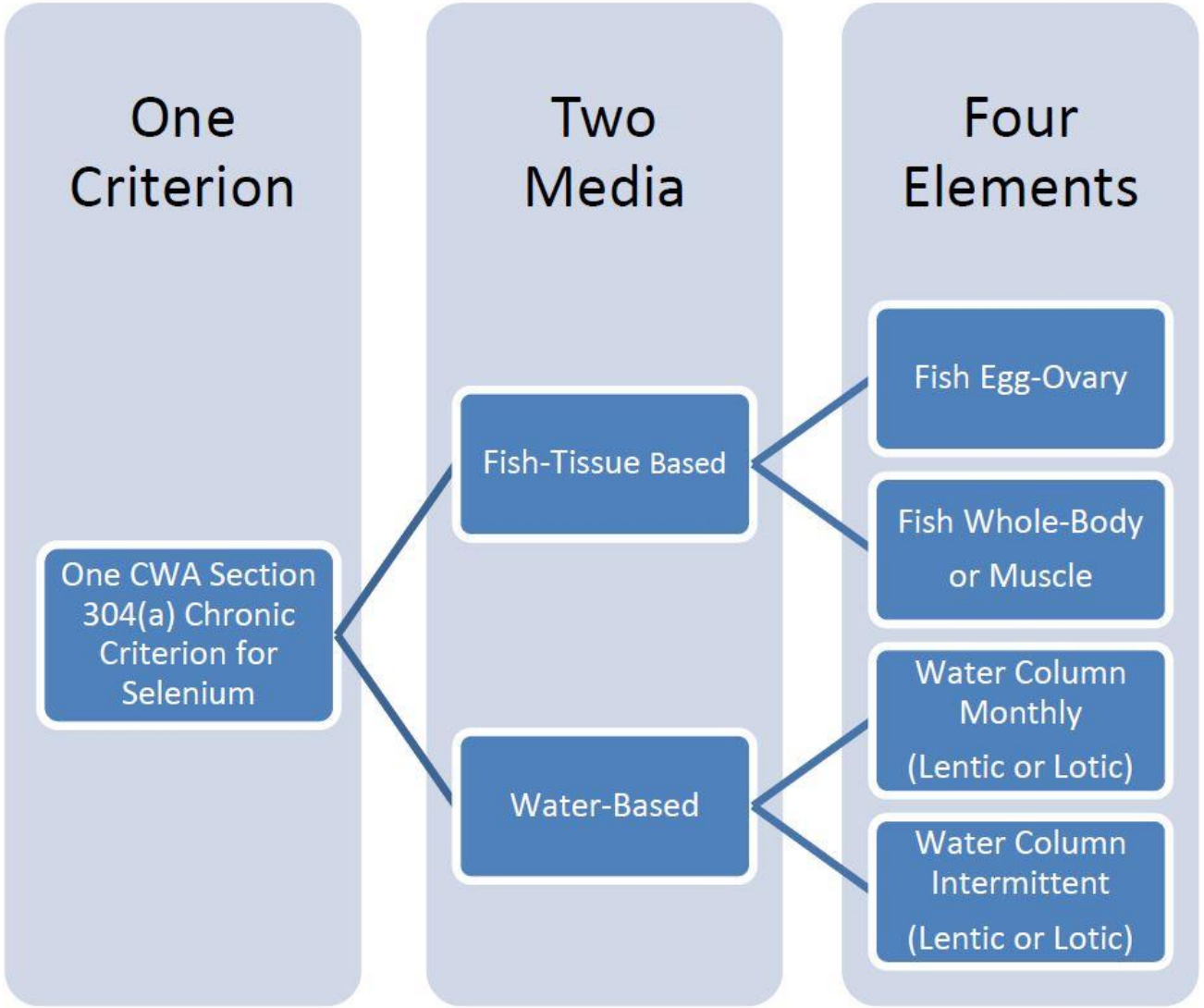
Triennial Review - Selenium



- EPA published final chronic aquatic life criterion July 13, 2016.
- Bioaccumulates
- Can cause reproductive impairment, adversely impact juvenile growth and cause mortality.

Ohio Environmental Protection Agency

Triennial Review - Selenium



Ohio Environmental Protection Agency

Triennial Review - Selenium

Water Column Criteria (µg/L)

	Old	New
Streams	5	3.1
Lakes	5	1.5

Fish Tissue Criteria (mg/kg)

- Egg/ovary: 15.1
- Whole body: 8.5
- Muscle: 11.3
- Egg/ovary overrides other criteria.

Ohio Environmental Protection Agency

Triennial Review - Ammonia

- EPA published revised aquatic life criteria for ammonia on August 22, 2013.
- New toxicity data reflecting freshwater mussel and snail sensitivity.

Ohio Environmental Protection Agency

New Federal Ammonia WQS

- What's this mean to you
  - Should Ohio adopt these criteria, WWTPs that have a water quality based ammonia limit may see there limit decrease, possibly in a significant way.
  - WWTPs with BADCT limits for ammonia may see these limits reduced as well.

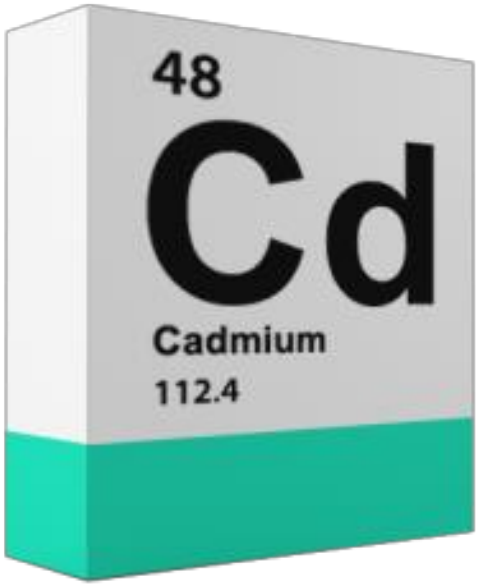
Ohio Environmental Protection Agency

New Federal Ammonia WQS

- OWDA funded project for GLEC study of ammonia removal at the Johnstown, Pataskala, Canal Winchester and Southwest Licking Sewer District.
- Instream evaluation of effluent ammonia and total N.
- All four plants showed ability to meet proposed new criteria.

Ohio Environmental Protection Agency

Triennial Review - Cadmium



- EPA published revised aquatic life criteria for cadmium in 2016.
- New aquatic toxicity tests.
- Hardness based.

Ohio Environmental Protection Agency

Triennial Review

- Copper
- Fluoride
- Strontium
- Barium
- Peracetic Acid

Ohio Environmental Protection Agency

Triennial Review- Variances

- Individual variances must be adopted into Ohio WQS.
- Individual variances need reviewed every 5 years.
- Mercury general variance.

Ohio Environmental Protection Agency

Local Limit PE Stamp Requirements

- Any of the following must be signed and certified by a professional engineer licensed by the Ohio state board of registration for professional engineers and surveyors:

(d) Publicly owned treatment works (POTW) local limit technical justifications for new or revised local limits submitted for approval in accordance with pretreatment rules in Chapter 3745-3 of the Administrative Code.

Ohio Environmental Protection Agency

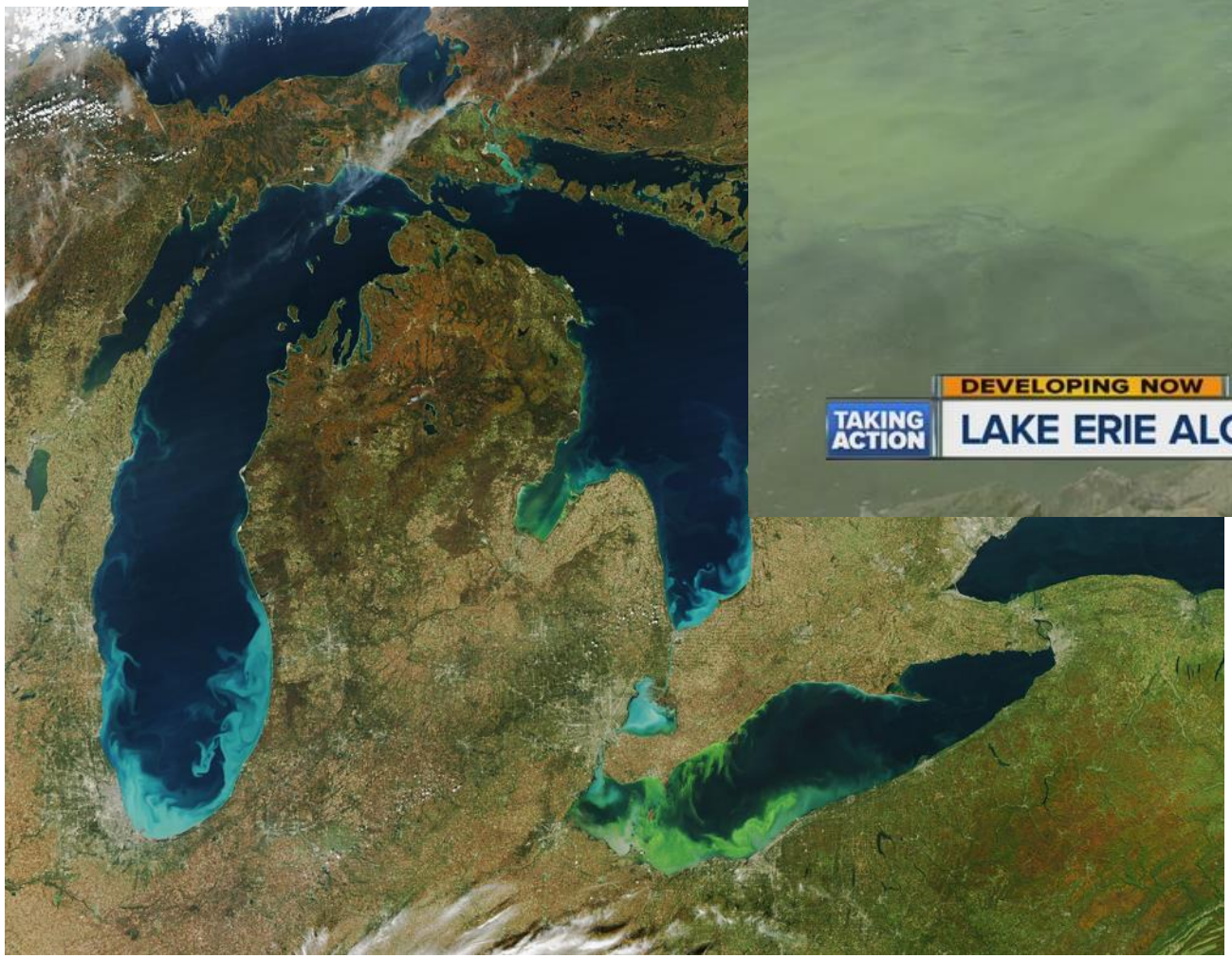
Dental Amalgam Rule

- Effective date July 14, 2017.
- Existing dental offices must comply by July 14, 2020.
- Reporting.

Ohio Environmental Protection Agency

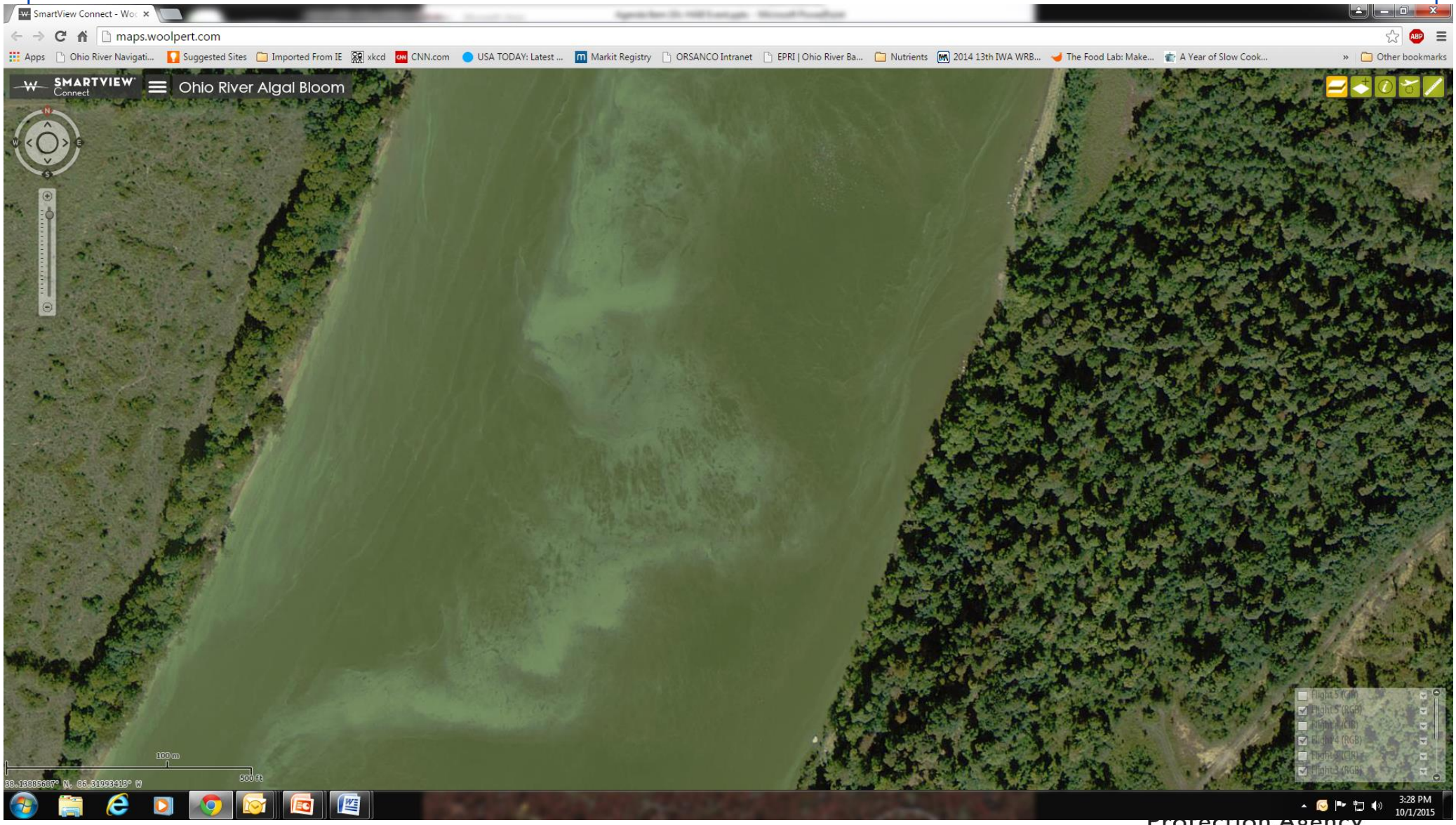

PHOSPHORUS

SB1 Reasons - Lake Erie



Ohio Environmental Protection Agency

SB1 Reasons - Ohio River Aerial Survey



Protection Agency

Senate Bill 1 – Effects on WWTPs

- Study evaluating technical and financial capability of reducing TP to 1 mg/L by December 1, 2017.
  - Only for plants who don't already have a TP limit.
  - OEPA estimates this requirement to effect 112 WWTPs, only 2 of these are in the WLEB.
  - Letters sent to potential facilities in November 2016.

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- "a study that evaluates the technical and financial capability of the existing treatment facility to reduce the final effluent discharge of phosphorus to one milligram per liter using possible source reduction measures, operational procedures, and unit process configurations"

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- Template for the study is available on Ohio EPA's website.
  - Intended to be completed by POTW staff.
- Permittee's are allowed to use their own format.
  - Using the template standardizes the results and the data collected.

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- Three main parts in OEPA template
  - Based on current effluent data can you meet 1.0 mg/L now?
    - Provide 12 months of data, answer " Yes" or "No".
    - If yes, sign and submit, you are done! If no, continue on.
  - Identify which P reduction methods have been evaluated or attempted (technical capability).
  - Identify costs associated with P reduction methods (financial capability).

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- Source Reduction - Reducing influent concentrations of TP.
  - Evaluating industrial sources for potential to reduce phosphorus in their discharges. Examples: non-phosphorus based additives to replace those that use phosphorus, creating nutrient awareness programs, and BMPs that could be put in place for any discharger contributing phosphorus loads. Imposing phosphorus limits in pretreatment permits.

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- Operational Changes
  - Altering conventional treatment methods to increase removal of phosphorus. This could include changes to aeration procedures allowing for the creation of anaerobic zones, changes in septage receiving procedures, change in the collection or distribution of return sludge in the waste stream process, and any other changes to process flow.

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- Unit Process Configuration Changes
  - Physical adaptations to the treatment system to increase treatment of phosphorus. Ex. retrofitting existing tanks to create anaerobic zones; modifications to gravity thickeners, sludge fermenters, or baffles; or any other changes to the system that increase treatment of phosphorus.

Ohio Environmental Protection Agency

Technical and Financial Capability Study

- Additional Treatment
  - Installation of new treatment technologies that are specifically designed to treat phosphorus. This could include a chemical dosing mechanism that adds phosphorus-treating additive or installation of a new biological phosphorus removal treatment process. This study is not intended to require that additional treatment be considered. OEPA is attempting to gather information that may already be available

Ohio Environmental Protection Agency

II. Total Phosphorus Data from the Previous Twelve Months	
Select which of the following best describes the numeric total phosphorus concentrations in the influent at your facility:	Choose an item.

Include the average monthly effluent concentration for total phosphorus for the most recent twelve months below. Unless you marked "Unknown" above, also include the average monthly influent concentration for total phosphor us as well.

Month	Average Monthly Concentration of Total Phosphorus	
	Influent (mg/L)	Final Effluent Outfall (mg/L)
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.

Based on the above discharge information, does the permittee believe that it is currently able to discharge total phosphorus at or below a one milligram per liter monthly average concentration without any additional changes to treatment processes?

Yes ? (Continue to Section III)	No ? (Continue to Section IV)

Ohio Environmental Protection Agency

IV. Identification of the most economically feasible method(s) to reduce the discharge of total phosphorus to a monthly average effluent concentration of 1.0 mg/L. Complete the following questions to identify which phosphorus reduction methods have been evaluated or attempted and which could be used in the future to reduce the total phosphorus monthly average effluent concentration to 1.0 mg/L or lower.			
IV. A.	Has Source Reduction been evaluated?	Yes ☐	No ☐
If yes, has Source Reduction been identified as a potentially feasible means to reduce Phosphorus in the effluent?		Yes ☐	No ☐
Have Source Reduction concepts been implemented?		Yes ☐	No ☐
IV. B.	Have Operational Changes been evaluated?	Yes ☐	No ☐
If yes, have Operational Changes been identified as a potentially feasible means to reduce Phosphorus in the effluent?		Yes ☐	No ☐
Have Operational Changes been implemented?		Yes ☐	No ☐
IV. C.	Have Unit Process Configuration Changes been evaluated?	Yes ☐	No ☐
If yes, have Unit Process Configuration Changes been identified as a potentially feasible means to reduce Phosphorus in the effluent?		Yes ☐	No ☐
Have Unit Process Configuration Changes been implemented?		Yes ☐	No ☐
IV. D.	Has Additional Treatment (beyond your existing facility) been evaluated?	Yes ☐	No ☐
If yes, has Additional Treatment been identified as a potentially feasible means to reduce Phosphorus in the effluent?		Yes ☐	No ☐
Has Additional Treatment been implemented?		Yes ☐	No ☐
IV. E. Include a brief summary as to how the procedures identified above could be performed and/or installed to reduce the total phosphorus monthly average effluent concentration to 1.0 mg/L or lower.			

Ohio Environmental Protection Agency

V. Economic Information and Total Estimated Costs of Reducing Total Phosphorus Concentrations			
Were chemical treatment additives identified in Section IV as part of the most economically feasible method(s) to reduce the discharge of total phosphorus to a monthly average concentration of 1.0 mg/L or lower?			
Yes ☐ (Continue to Section V.A)		No ☐ (Continue to Section V.B)	
V.A. Economic Information Associated with Chemical Feed			
Capital Cost Associated with Chemical Feed:			
Chemical Tank Cost:	Click here to enter text.	Pump Cost:	Click here to enter text.
Piping and Dosing Mechanism Cost:	Click here to enter text.	Any Other Expected Capital Costs (e.g.: new building):	Click here to enter text.
Total Associated Capital Costs (summation of the above capital costs):		Click here to enter text.	
Associated Operations and Maintenance (O&M) Cost Associated with Chemical Feed:			
Monthly Chemical Cost:	Click here to enter text.	Monthly Labor Costs:	Click here to enter text.
Monthly Electric Cost:	Click here to enter text.	Other Monthly Costs:	Click here to enter text.
Additional Monthly Costs Associated with Increased Sludge Volumes:		Click here to enter text.	
Monthly Associated O&M Costs (summation of the above O&M costs):		Click here to enter text.	

V.B. Economic Information Associated with Non-Chemical Feed Alternatives			
Complete the following information for each option identified in Section IV. Please provide an explanation for the costs (electric cost, labor, etc.) in the column titled 'Reasoning':			
TP Reduction Method:	Capital Cost:	Monthly O&M Cost:	Reasoning:
Choose an item.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Choose an item.	Click here to enter text.	Click here to enter text.	Click here to enter text.

Ohio Environmental Protection Agency

Ohio Nutrient Mass Balance Study

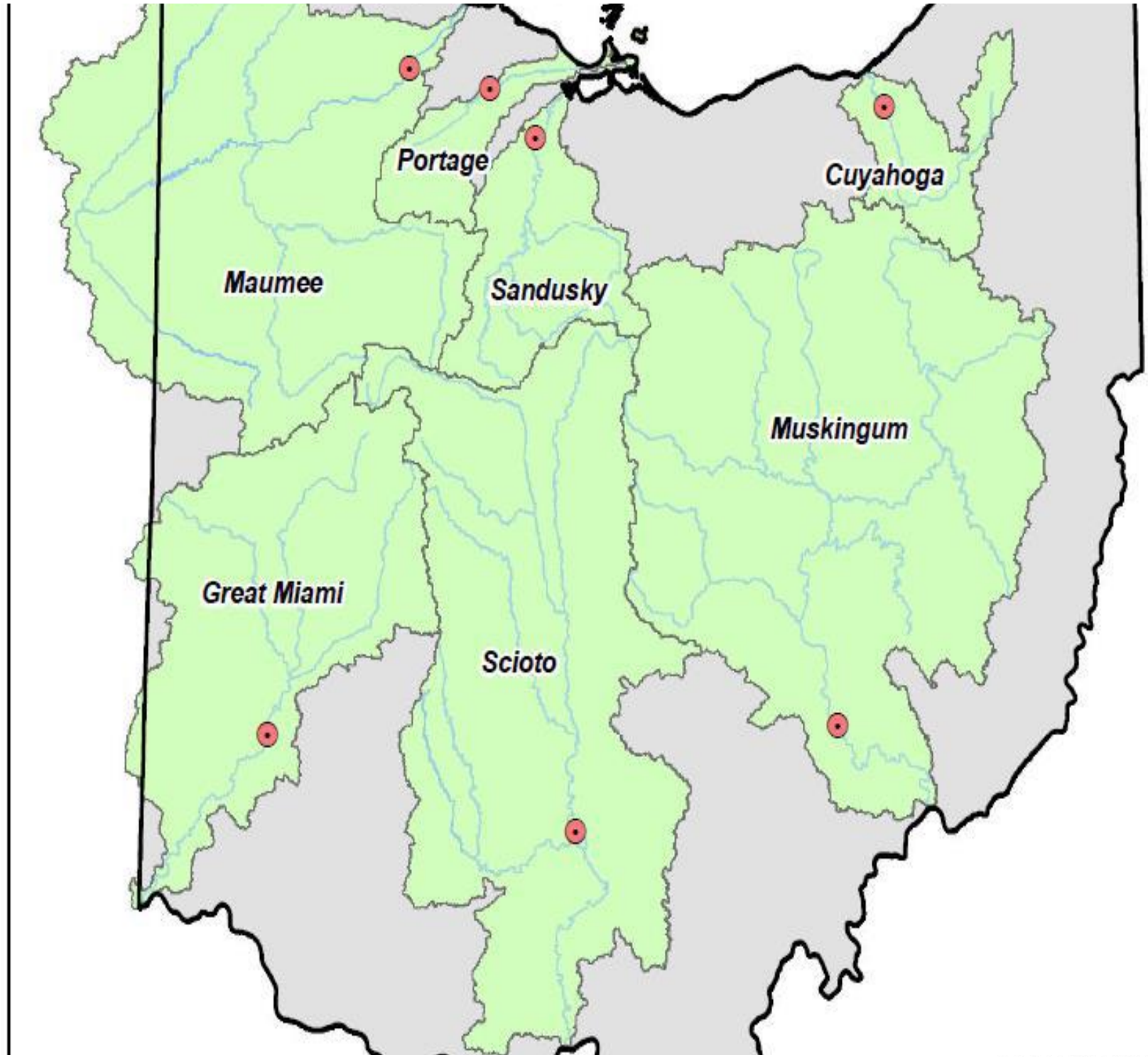
- SFY 2016-2017 Operating budget requires director to "study, examine, and calculate nutrient loading from point and nonpoint sources…to determine the most environmentally beneficial and cost effective mechanisms to reduce nutrient loadings to Lake Erie and the Ohio River."
- Director is required to report and update the results with release of "Integrated Water Quality Report" every two years beginning spring 2016.

Ohio Environmental Protection Agency

Ohio Nutrient Mass Balance Study

- 2016 Loading study published and available on OEPA website.
- Includes loadings for seven of the major watersheds in the state.
- Looked at both total P and total N.
- Scioto and Maumee highest in total P load; 2200 metric tons each
- Maumee highest in total N load; 41,000 metric tons

Ohio Environmental Protection Agency

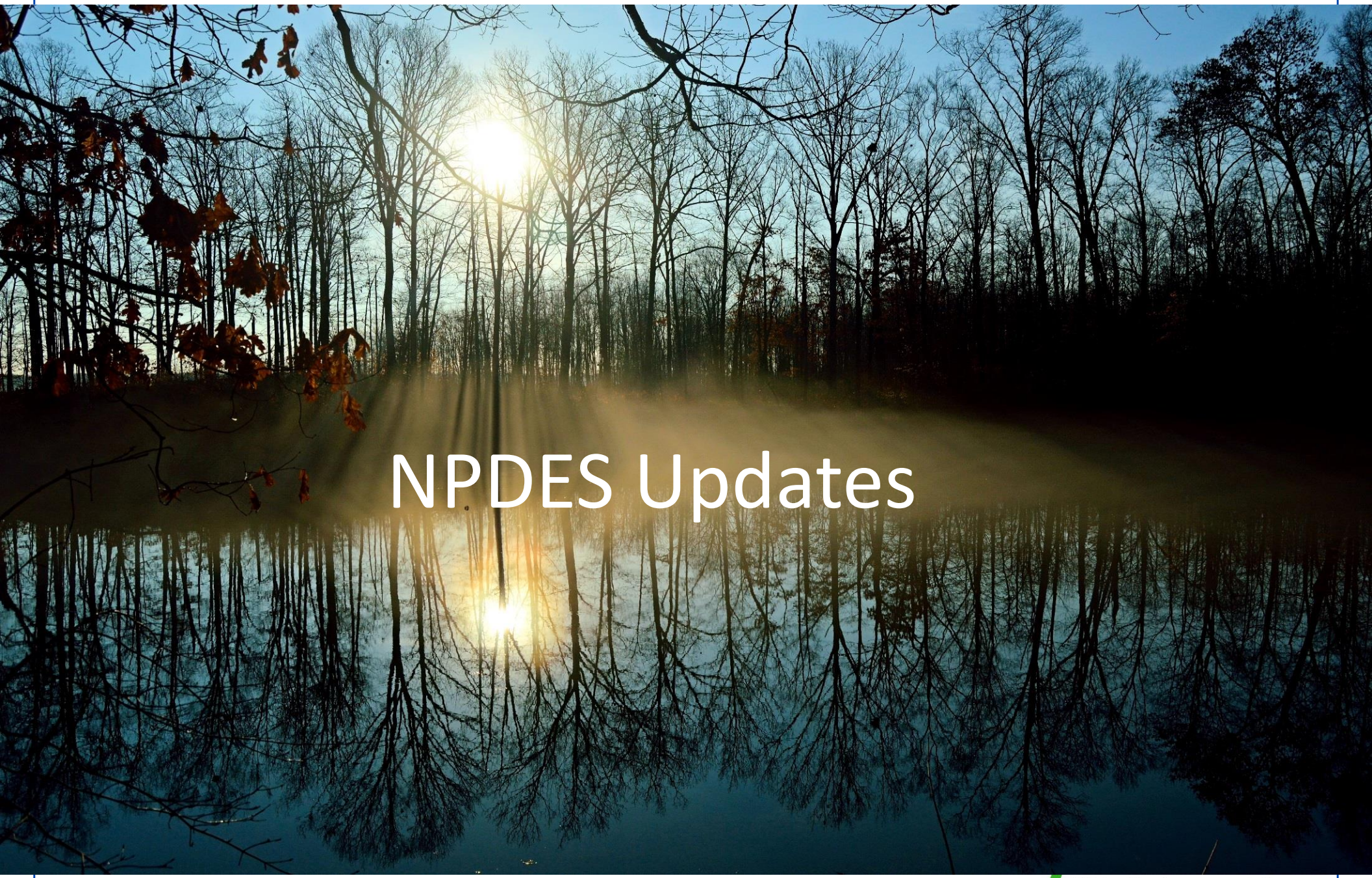

Portage
Cuyahoga
Maumee
Sandusky
Muskingum
Great Miami
Scioto

Ohio Nutrient Mass Balance Study

Table 6 — Total phosphorus and total nitrogen contributions from household sewage treatment systems (HSTS), NPDES permitted sources (NPDES) and nonpoint sources (NPS) relative to the total load at the watershed outlet (expressed as percent). Values reported for wy13.

Watershed	Total P (percent of total)			Total N (percent of total)		
	HSTS	NPDES	NPS	HSTS	NPDES	NPS
Maumee	4	9	87	1	10	89
Portage	5	11	84	2	8	86
Sandusky	2	5	93	1	3	95
Cuyahoga	11	29	60	6	62	32
Great Miami	6	37	56	3	17	80
Scioto	4	30	66	3	16	81
Muskingum	10	49	41	7	25	68

Ohio Environmental Protection Agency



NPDES Updates

Ohio Environmental Protection Agency

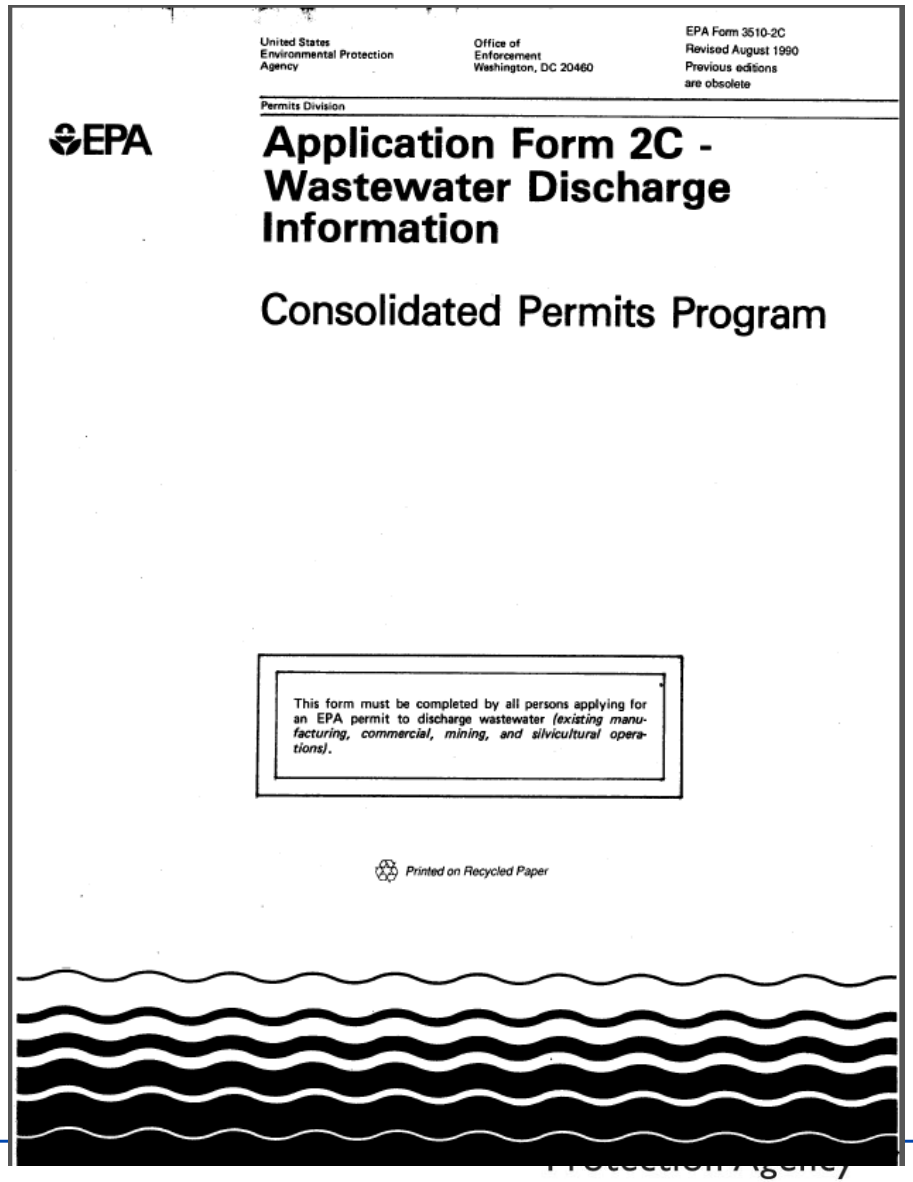
NPDES Application Data Submittal for POTWs

- NPDES applications will have new data submittal requirements, consistent with 40 CFR 122.21.
- Affects POTWs with design flows greater than 1.0 MGD.
- POTWs with a pretreatment program already submit this information as part of their pretreatment annual reports and will not need to re-submit the information.

Ohio Environmental Protection Agency

NPDES Application Data

- Three scans for parameters including
  - metals
    - antimony, beryllium, silver, thallium not typical now
  - hardness
  - volatile organic compounds
  - acid-extractable compounds
  - base-neutral compounds.



United States Environmental Protection Agency

Office of Enforcement Washington, DC 20460

EPA Form 3510-2C Revised August 1990 Previous editions are obsolete

Permits Division

EPA

Application Form 2C - Wastewater Discharge Information

Consolidated Permits Program

This form must be completed by all persons applying for an EPA permit to discharge wastewater *(existing manufacturing, commercial, mining, and silvicultural operations)*.

Printed on Recycled Paper

NPDES Application Data

- A letter was sent in November 2016 with information about this requirement to facilities who will need to meet the new application requirement.
- Affected POTWs with permits that expire after March 1, 2018 will need to include the data as part of their renewal application.

Ohio Environmental Protection Agency

NPDES Application Data

- For more information refer to the fact sheet available at: www.epa.ohio.gov/dsw/permits/individuals.aspx
- The list of parameters can be found in Appendix J to 40 CFR 122.

Ohio Environmental Protection Agency

IT Update

- Currently Available forms:

- Annual sewage, biomonitoring, pretreatment, SSO, MS4, non-compliance and unanticipated emergency overflow.

- General and Individual NPDES Applications

- No Exposure Applications

Ohio Environmental Protection Agency

Questions – for candy!

Ohio Environmental Protection Agency

Question # 1

Federal ammonia criteria has been revised to reflect new toxicity data based on what two groups of aquatic life?

Ohio Environmental Protection Agency

Question # 2

Name one of the two watersheds with the highest phosphorus loading, according to Ohio EPA's 2016 Nutrient Mass Balance Study.

Ohio Environmental Protection Agency

Question # 3

What is one thing you learned from my presentation that you found the most interesting or useful?

Ohio Environmental Protection Agency

Questions for me?

Ashley Ward, P.E.

NPDES Supervisor

Division of Surface Water

614-644-4852

ashley.ward@epa.ohio.gov

Ohio Environmental Protection Agency