Beneficial Use Program Operator Training Committee of Ohio

July 26, 2018

Ohio EPA Division of Materials and Waste Management

Beneficial Use Group

John Schierberl Phil Cherosky



Today's Discussion

- Beneficial Use Rules
 - Why?
 - Background
 - Materials
- Permit Applications
 - General Permits
 - Drinking Water Treatment Material*
 - Other
 - Individual Permits
 - Land Application Management Plan (LAMP) Permits
- Emerging Contaminants of Potential Concern
- Best Management Practices (BMPs)



Why Beneficial Use Rules?

- Industry's desire to legitimize beneficial use.
- Need to eliminate multiple regulatory authorizations.
- Streamline the process.
- Ohio EPA goal to promote legitimate beneficial uses resulting in diversion of materials from landfills and less reliance on virgin materials.



Beneficial Use Rules

- OAC Chapter 3745-599
- Materials
 - Dredge from Lake Erie
 - Foundry Sand
 - Sewage Sludge Incinerator Ash
 - Drinking Water Treatment Material
 - Waste burnt for energy recovery
- General Permits, Individual Permits and Authorizations in Rule

Protection Agency

Developing Beneficial Use Rules

- DMWM and DSW worked together to promulgate OAC Chapter 3745-599 under rulemaking authorities found in ORC Chapters 3734 and 6111.
- Through beneficial use, byproducts can be used as ingredients in products that meet industry standards.
- The beneficial use rules remove the stigma of a waste material being a <u>solid</u> waste.
- Became effective on March 31, 2017.



Summary Flow Chart of the Beneficial Use Methodology

Methodology for Evaluating the Beneficial Use of Industrial Non-Hazardous Secondary Materials Develop an initial conceptual model that captures the adverse impacts to human health and the wironment that might result from the beneficial use. Identify the questions to be answered by the beneficial use evaluation and the information required to answer them. Data that will be used to nswer these questions can be assembled from the literature or generated for the evaluation. Further data collection can also be conducted in the next phase if it is found that available data are insufficient to support conclusion Step 1: Existing Evaluations evaluations sufficiently evaluations in the terature and review fo address all potential adverse impacts? quality Compare the potentia Step 2 : Comparison to is the potential for or adverse impacts from Analogous Product N mpacts comparable to or the beneficial use with lower than from the that from an analogous analogous product? Step 3: Screening haracterize potential f Analysis adverse impacts from Is the potential for Yes Impacts at or below beneficial use with comparison to screening screening benchmarks? Quantitatively and Step 4: Risk Modelin alitatively characterize potential for adverse impacts by estimating risks to receptors. Does the evaluation support the conclusion that the potential for adverse The beneficia impacts to human health and the Integrate the key findings, wironment is comparable to or lower than appropriate ssumptions, limitations and those from an analogous product, or as proposed uncertainties identified Char at or below relevant benchmarks? throughout the evaluation into final conclusions about the potential for adverse impacts associated with the Can the evaluation be refined or the = use is not proposed beneficial use. beneficial use modified in a way that appropriate might reduce risks? as proposed





Materials Approved for Beneficial Use

- 1. Foundry sands that are a solid waste, industrial waste or other waste.
- Material from public water system's drinking/industrial water treatment (aluminum and lime residuals).
- Material excavated or dredged from a federal navigational channel during harbor or navigation maintenance activities.
- 4. Sewage sludge incinerator ash (SSIA/BIA).
- 5. Solid waste, industrial waste or other waste for use as fuel or ingredient in combustion unit.

Protection Agency

Standards

- Clean-up vs "Throw Down"
- RSLs, MCLs, HW, 503, VAP, Compost, Background, DSW Sediments, Totals, TCLP, SPLP, ASTM, LEAF, TEQs, Risk Assessment, DSW 400.007......
- In Rules or Permits?
- Emerging Contaminants of Concern?
- Bioavailability Phytotoxicity "Ecological Risk"
- Defendability



Standards General Permits

- Unrestricted use
 - Examples soil blend and land application.
 - U.S. EPA Regional Screening levels and/or U.S. EPA
 40 CRF Part 503 Pollutant Concentrations.
- Leaching limits (TCLP or SPLP) for use as fill
 - Foundry sands and DWTM are 20 times MCL or SCL.
 - SSIA is 10 times MCL or SCL.
 - Dredged Material No leaching requirement.



Beneficial Use Authorizations

- Permits: general or individual
 - Constituents of Concern appropriate for use (sampling and analysis)
 - Operating conditions
 - Best Management Practices BMPs (storage and use)
 - Reporting requirements
 - Record Keeping (Legitimacy Criteria)
- Authorized in rule: no permit required if byproduct is used in a construction material meeting engineering specifications
 - Encapsulation
 - Legitimacy criteria



Beneficial Use General Permit

- Permit issued by the director.
- Issued for five years.
- To apply for coverage, send in Notice of Intent (NOI).
- Contains operating conditions and constituents limits.
- Two foundry sand general permits and one SSIA general permit.
 - Example: Foundry sand used as an ingredient in a soil blend



Beneficial Use Individual Permit

- Same four materials as the general permit.
- Apply if you cannot operate or meet conditions in a general permit.
- Fill out the individual permit form.
- Process involves characterization of material, BMPs, record keeping and reporting.
- Approval will depend on use of the material and the constituents in the material.

Protection Agency

Issued General Permits

- Foundry Sand
 - Soil Amendment
 - Fill Material
 - U.S. EPA risk assessment
- Sewage Sludge Incinerator Ash
 - Soil Amendment
 - Two generators
 - NEORSD and Cincinnati



Draft General Permits

Dredged Material

- Dewatered dredged material from Cleveland Harbor
 - Used in a soil blend.
 - Used for fill.

Drinking Water Treatment Material

- Drinking Water Treatment Materials by Placement on Land for Agronomic Benefit as a Liming Material.
- Drinking Water Treatment Materials by Placement on Land in a Soil Blend.

Protection Agency

Drinking Water Treatment Material

- Drinking Water Treatment Material by Placement on Land for Agronomic Benefit as a Liming Material.
- General Permit under final development
 - Interested Party review
 - Working with American Water Works Association (AWWA) Ohio Chapter, The Ohio State University and others
- Current research



Drinking Water Treatment Material

(continued)

- Current LAMP Permits
 - When current LAMP Permits expire transition/apply for coverage under OAC 3745-599
 - 180 Days prior to expiration of LAMP apply for new permit
 - Maintain current operations until general permit is issued



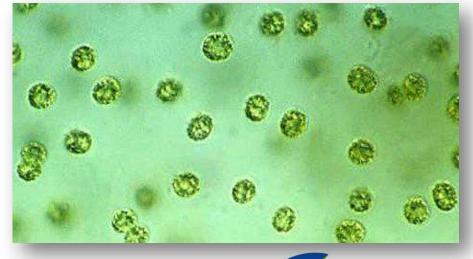
Microcystins

- Harmful Algal Blooms
 - Microcystin-producing cyanobacteria
- Collaborating with DDAGW HAB unit to sample and test DWTM and dredge.
 - Concentrated in DWTM
 - Persistent in soils
- Emerging contaminant of concern
 - Plant uptake
 - Ground water leaching
 - Surface water runoff
- Ohio Board of Higher Education Sea Grant Project
 - Ohio State Dr. Basta, Dr. Lee, Dr. Dayton
 - Participate in research?



Microcystins (continued)

- Fate and transport in the environment
- Developing standards
- Sampling and testing methodologies
- Labs
- Best management practices
 - Application rates
 - Setbacks
 - Tillage

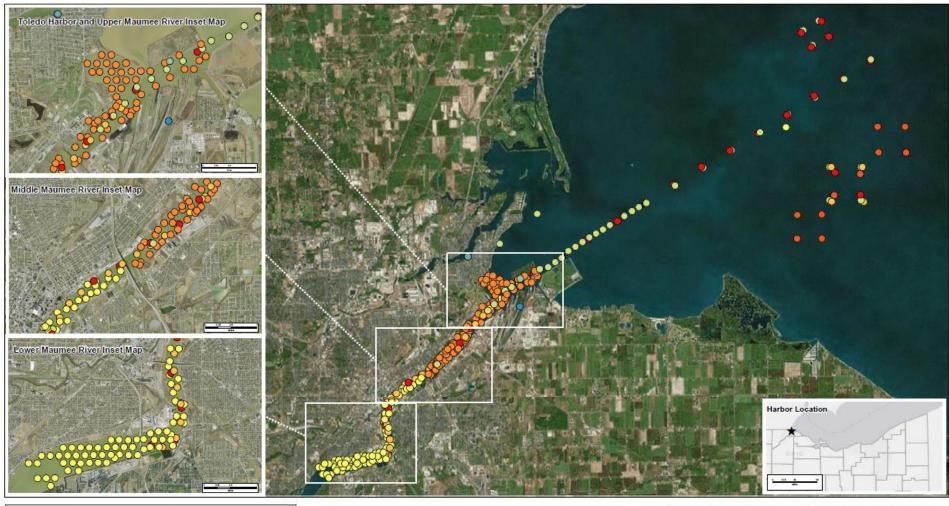




Lake Erie Dredge Materials

- Senate Bill 2 signed by the governor on July 7, 2017.
 - Establishes new rule-making authority to address when/how beneficial use of certain dredged material is not an ORC 6111 "other waste" or ORC 3734 "solid" waste.
 - Blast furnace slag or steel slag are not "industrial waste" or "other wastes"
 - Cannot exceed water quality standard under 6111.041
 - Cannot exceed primary or secondary maximum contaminant level in ground water under 6109.04
 - Must be sold in commerce
- This involves amending Beneficial Use OAC Chapter 3745-599.
 - Interested Party review pending



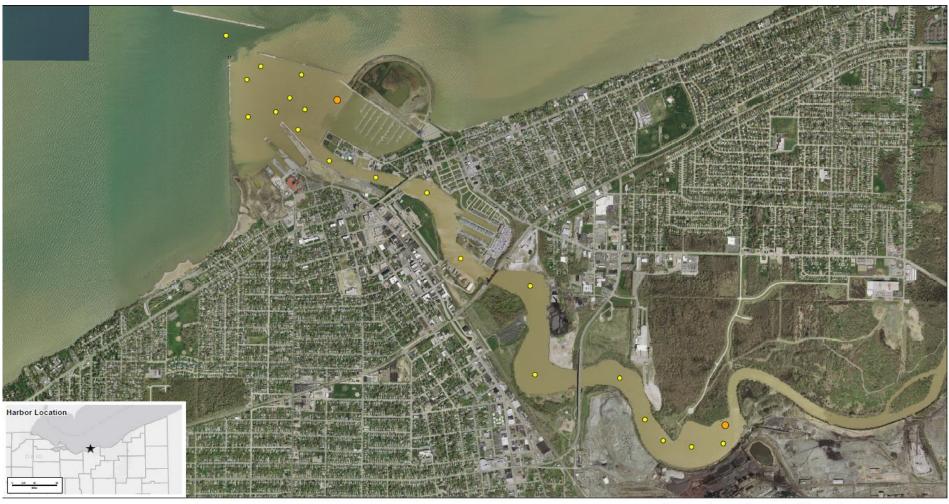




Dredge Sampling Locations Toledo Harbor







Percent above Standard - Metals

- 0 100 %
- All Harbor Sampling Sites
- 0 100 1,000 %
- > 1,000 %

Metal Results above Standard

Dredge Sampling Locations Lorain Harbor





Future

- "Shake down" new program
- Additional permits development/revision
- Improve tracking/communication
- Improve application platform
- Education and research
- Adding new beneficial use materials



Discussion/Questions/Feedback?

Ohio EPA

Division of Materials and Waste Management

Beneficial Use Group

http://epa.ohio.gov/dmwm/Home/Beneficial-Use





Challenges Past, Present, Future

- Inconsistencies through time
- Centralized vs Decentralized
- Tracking
- Qualitative vs Quantitative
- Silo affects
- Resources/Reorganizations/Turnover
- ORC 6111

