Ohio Environmental Protection Agency

Pre-Screening Questionnaire for Proposed Solutions to Prevent, Detect or Treat Water Quality Risks

Introduction to Questionnaire

Ohio EPA established this technology assessment questionnaire to enable vendors to sufficiently document their proposals so that Ohio EPA staff can readily understand the project's potential fitness, strengths and weaknesses. The process examines a variety of factors Ohio EPA expects to understand as they consider working with your proposed solution via grants, contracts, permits or other mechanisms. While some of the questions are optional, by answering the full range of questions (and attaching relevant material, if necessary), Ohio EPA will be able to give your technology and its potential effectiveness optimal consideration. Regardless of the findings, Ohio EPA or other involved state agencies are not able to endorse specific products, processes or services.

Ohio EPA has authorized a process (Table 1) wherein representatives from Battelle Memorial Institute will briefly and confidentially assess your questionnaire responses and associated documentation for gaps, uncertainties and/or potential fatal flaws. The assessment findings will be treated as confidential information between your firm and Battelle. You are welcome to share the assessment findings with Ohio EPA at your discretion. You will have the opportunity to gauge the extent of Battelle's involvement in assessing your questionnaire responses by establishing a short-term agreement with them (point of contact = Tom Gulbransen, gulbran@battelle.org). The findings may be useful in a variety of applications depending on intended use cases, that is, for grants, loans, or permits. Outcomes of key questions (*) may inform needs for further testing.

Ohio EPA		Send ↘ Questionnaire						
Vendor	Offer idea ↗		Review → Questionnaire	Set Up Agreement↕ to Review	Document Answers↘		Follow-up Debrief ↓	Enhance↑ Proposals
Battelle						Gap and Fatal ↗ Flaw Assmt	Describe findings ↑	

Table 1. Communication process for independent pre-screening questionnaire process.

The questionnaire is outlined in six sections: conceptual; regulatory; compatibility; efficacy; risks and unit costs. **Please answer the questions below thoroughly in the spaces provided. If the information needed to answer a question can be found in another document, please do not *just* refer to this document. Either summarize the information from that document in the spaces below, or attach the document and indicate in detail (for example, section, page numbers or paragraphs) where the pertinent information can be found.**

I. Concept – What is the proposed solution's strategy?

1. **Will your proposed solution prevent, detect, control or mitigate water quality risks?**
   Click here to enter text.

2. **If it prevents a water quality risk, please describe its impact on sources, nutrient/chemical cycling, and or HAB growth.***
   Click here to enter text.

3. **If it detects blooms or toxins, please describe the constituent or process observed and the substance tested, for example, water, organisms, food, sediment.**
   Click here to enter text.

4. **If it controls HABs or threats of toxins or contaminants, please describe the process.***

Click here to enter text.

a. **For example, does the technology sequester nutrients, suppress cyanobacteria, or remove toxins?**
   Click here to enter text.

b. **If applicable, which type(s) of toxins (anatoxins; cylindrospermopsins; microcystins; nodularins; saxitoxins; others) are targeted? Does treatment act on dissolved or cellular constituents?**
   Click here to enter text.

c. **Does your proposed technology address emerging contaminants, if so which?**
   Click here to enter text.

5. **Describe whether your proposed technology will be a complete solution for a given site, or an incremental improvement, to mitigate against HAB threats.**
   Click here to enter text.

6. **How quickly can the solution be deployed?**
   Click here to enter text.

7. **How soon will the solution or treatment take effect and the results become measureable?***
   Click here to enter text.

8. **Please provide citations if your solution is based on assumptions from a particular biogeochemical simulation model.**
   Click here to enter text.

II. Regulatory Prerequisites – Specific mandatory compliance evidence?

1. **If your product will be used in a drinking water reservoir or in a drinking water treatment plant it must be National Sanitary Foundation (NSF International nsf.org) certified.* If you do not already have NSF approval, please outline your plans to obtain NSF certification.**
   Click here to enter text.

2. **Has the technology received any other verifications?**
   Click here to enter text.

3. **Please list how your solution is addressed relative to the applicable FIFRA or TSCA regulations.**
   Click here to enter text.

4. **Compatibility – Could the solution fit within existing infrastructure?**
   Click here to enter text.

5. **Are there any regulatory permitting requirements, land use, or other environmental impediments to the construction/installation or operation of this technology?**
   Click here to enter text.

6. **What are the siting requirements of the technology (for example, necessary soil characteristics, hydraulic grade requirements, ground water limitations, utility requirements, setback limits, etc.)?**
   Click here to enter text.

7. **Are there environmental conditions (for example, temperature, water depth, currents, precipitation pattern, etc.) by which the technology is constrained?**
   Click here to enter text.

8. **Is the technology capable of being used in final drinking water? Source water? Ambient waters?**
   Click here to enter text.

9. **What type of access to the nutrient source, waste stream or facility is required to deploy the technology?**
   Click here to enter text.

10. **Are there discharges, waste byproducts, or emissions generated by the technology?* If so, what type of waste and what are the estimated disposal and/or recycling requirements and costs?**
    Click here to enter text.

11. **What types of inputs are required for the technology (for example, waste volume, fresh water, power supply, etc.)?**
    Click here to enter text.

12. **Does the technology require fundamental changes to drinking water facilities?**
    Click here to enter text.

13. **Is additional equipment, staffing, construction, etc. required to operate or maintain the technology?**
    Click here to enter text.

14. **Are there any other operational obstacles that may disrupt the current use of the drinking water facility?**
    Click here to enter text.

15. **How would your technology require alteration of normal treatment facility maintenance procedures?**
    Click here to enter text.

16. **Are there existing treatment technologies this solution would displace or be incompatible with?**
    Click here to enter text.

17. **Are there existing treatment technologies which are highly complementary and/or optimize this solution?**
    Click here to enter text.

18. **How much might this technology change agricultural productivity or treatment facility capacity?***
    Click here to enter text.

19. **Does this solution engage cooperation with academic, industrial, municipal or non-governmental organization (NGO) partnerships?**
    Click here to enter text.

IV. Risks – Are there any potential risks which cannot be mitigated sufficiently?

1. **If the technology uses chemical mechanisms:**
   a. **What are the active and inactive ingredients?**
      Click here to enter text.

   b. **Is there a risk of release and/or persistence of algal intercellular toxins after treatment?***
      Click here to enter text.

   c. **Is there a risk of toxicity to non-target species?***
      Click here to enter text.

   d. **Is there risk of hazardous chemical accumulation in the environment (for example, water, soil, organismal, air)?***

Click here to enter text.

e. **Could there be detrimental aesthetic effects (for example, waterbody color changes, nuisance odors, etc.)?***
Click here to enter text.

2. **If the technology uses biological mechanisms:**
   a. **Describe the process at the cellular, organismal and/or ecosystem level.**
   Click here to enter text.

   b. **What conditions are required for the mechanism to occur?**
   Click here to enter text.

   c. **Does the solution involve use of species considered invasive or non-native?**
   Click here to enter text.

3. **If the technology uses physical mechanisms:**
   a. **Describe the process changes sought, their magnitude and duration.**
   Click here to enter text.

   b. **Describe the energy requirements.**
   Click here to enter text.

4. **What are the potential human health and ecological risks of the technology's use?***
   Click here to enter text.

   a. **Are there any components of the technology that may contain constituents of concern (for example, copper, zinc, phosphorus, etc.) or may alter effluent pH?**
   Click here to enter text.

   b. **Will the application of this technology compromise the ability of a treatment facility to comply with existing drinking water quality regulations?**
   Click here to enter text.

   c. **Are there safety concerns for the workers installing, operating or maintaining the technology?**
   Click here to enter text.

   d. **What are the potential risks to non-target (including sensitive) species?**
   Click here to enter text

   e. **What are the potential risks to sensitive habitats?**
   Click here to enter text.

5. **Is the solution proposed to inform seafood consumption or public exposure advisories? If so, how?**
   Click here to enter text.

6. **How have engineering risks of failure been addressed in product design and installation?**
   Click here to enter text.

V. Efficacy – Has success been demonstrated in transferrable settings?

1. **Has the technology been successfully tested and demonstrated in the field?**

Click here to enter text.

a. **What evidence demonstrates efficacy of the technology? Are "percent removal" statistics available for targeted constituents?***
   Click here to enter text.

b. **What were the main similarities and differences between the test/prior setting and the proposed installation in Lake Erie watershed/facilities?**
   Click here to enter text.

c. **What tests would be necessary to confidently predict effectiveness in a proposed setting?**
   Click here to enter text.

d. **Where has the technology been implemented successfully in Great Lakes, U.S. or abroad?**
   Click here to enter text.

e. **Are baseline conditions known, such that post-installation monitoring can demonstrate improvement?**
   Click here to enter text.

2. **Is there a minimum and/or maximum flow required for the technology to be effective?**
   Click here to enter text.

3. **If the technology is designed and installed correctly, would any factors cause the technology to not perform as designed?**
   Click here to enter text.

4. **What is the scalability of the technology? Has the technology been proven to successfully treat larger volumes of water, for example, runoff acreage, stream/river/facility flows, embayments, coastal waterbodies, lakes?**
   Click here to enter text.

VI. Costs – Are there enough data to trade-off benefits versus costs & risks?

1. **What are the installation and implementation costs associated with using the technology? How can risk mitigation costs be described on a unit basis (for example, nutrient load change, mass removed per area per time)?**
   Click here to enter text.

2. **What are the ongoing operation and maintenance requirements (for example, testing and/or inspection frequency, equipment and staff requirements, demobilization, etc.)?**
   Click here to enter text.

3. **What is the estimated design life of the components of the technology before overhaul is required?**
   Click here to enter text.

4. **What are the unit costs of monitoring for efficacy of the proposed solution?**
   Click here to enter text.

5. **Does the solution require expertise of commercial vendors?**
   Click here to enter text.

Relevant Practices and Literature:

Chalise, A.R. 2014. Section of Sustainability Indicators for Wastewater Treatment Technologies. Thesis, Concordia University. http://spectrum.library.concordia.ca/978968/1/Chalise_MASc_F2014.pdf

Chesapeake Bay Program Water Quality Goal Implementation Team. 2010. Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model
http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf

County of Los Angeles Department of Public Works. Los Angeles County-Wide Structural BMP Prioritization Methodology: A Guidance Manual for Strategic Storm Water Quality Project Planning.
http://ladpw.org/wmd/bmpmethod/assets/pdfdocs/guideancemanual.pdf

Evans, B. M., Lehning, D., Borisova, T., Corradini, K., and Sheeder.S. 2003. A Generic Tool for Evaluating the Utility Of Selected Pollution Mitigation Strategies Within A Watershed. *Penn State Institutes for the Environment, Land & Water Research Building, Pennsylvania State University, University Park, PA 16802*
http://www.ucd.ie/dipcon/docs/theme10/theme10_02.PDF

FAPRI. 2007. Estimating Water Quality, Air Quality, and Soil Carbon Benefits of the Conservation Reserve Program - FAPRI-UMC Report #01-07. Food and Agricultural Policy Research Institute (FAPRI), University of Missouri-Columbia.
http://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/EPAS/PDF/606586_hr.pdf

Manner, R., 2014. Illinois Water. Urbana & Champaign Sanitary District and Illinois Association of Wastewater Agencies, Nutrient Committee. Presentation to the Illinois Nutrient Loss Reduction Strategy Panel Discussion at the Illinois Water 2014 Conference.
http://www.epa.state.il.us/water/nutrient/presentations/Mannerpdf.pdf

Minnesota Pollution Control Agency. 2016. Process for selecting Best Management Practices. Minnesota Stormwater Manual.
http://stormwater.pca.state.mn.us/index.php/Process_for_selecting_Best_Management_Practices

Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. 2015. Mississippi River/Gulf of Mexico Watershed Nutrient Task Force 2015 Report to Congress. First Biennial Report. U. S. Environmental Protection Agency. 93pp.
http://www2.coastalscience.noaa.gov/publications/handler.aspx?resource=ITsK3r0bfy0kbAb+Mi3dQXRs8kKN9U0r5lpDq0enTD0=

NEIWPCC. 2015. Harmful Algal Bloom Control Methods Synopses. New England Interstate Water Pollution Control Commission.
https://www.neiwpcc.org/neiwpcc_docs/NEIWPCC_HABControlMethodsSynopses_June2015.pdf

ODNR, 2011. Summary Report for Battelle's Technical Support Services: Grand Lake Saint Marys Restoration. Ohio Dept. Natural Resources, Grand Lake St. Marys Restoration Commission.

Office of Science and Technology Policy, 2016. Harmful Algal Blooms and Hypoxia Comprehensive Research Plan and Action Strategy: An Interagency Report. Office of Science and Technology Policy, National Science and

Technology Council, Subcommittee on Ocean Science and Technology, Interagency Working Group on Harmful Algal Bloom and Hypoxia Research and Control Amendments Act
https://www.whitehouse.gov/sites/default/files/microsites/ostp/NSTC/habs_hypoxia_research_plan_and_action_-_final.pdf

Peluso, V. F., Marshall, A. 2002. Best Management Practices for South Florida Urban Stormwater Management Systems. South Florida Water Management District. TECHNICAL PUBLICATION REG-004
http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/bmp_manual.pdf

State of Washington Department of Ecology. Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies. https://fortress.wa.gov/ecy/publications/summarypages/1110061.html

Technology Acceptance and Reciprocity Partnership (TARP). The TARP Protocol for Stormwater Best Management Practice Demonstrations. http://www.mastep.net/documents/TARPTier2.doc

University of Massachusetts at Amherst (UMass-Amherst). Stormwater Technologies Clearinghouse.
http://www.mastep.net/index.cfm#

USEPA. 2015. Techniques for Tracking, Evaluating, and Reporting the Implementation of Nonpoint Source Control Measures – Urban. USEPA Office of Water, EPA 841-B-00-007
https://www.epa.gov/sites/production/files/2015-10/documents/urban_0.pdf

USEPA. 2015. Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water.
https://www.epa.gov/sites/production/files/2015-11/documents/algal-risk-assessment-strategic-plan-2015.pdf