DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU

TARGETED ALGAL MANAGEMENT
PROPOSED CHEMICAL EVALUATION TREATMENT

Evaluation treatments are authorized by Part 33, Aquatic Nuisance Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the administrative rules promulgated there under. This document outlines the expected materials to be submitted for review for the above-referenced evaluation treatment proposal. Applicants are encouraged to submit additional information, if available, and the DEQ may request additional information as needed to evaluate the proposal. Please contact Matt Preisser at 517-335-0061 or preisserm@michigan.gov for additional guidance.

Please submit the following:

1. Standard 3-page permit application form with application fee, proposed treatment map(s), and contract or letter of authorization (if necessary).

2. Evaluation Treatment Proposal

☐ I. Proposal Title – Include the waterbody name and location [township(s), county(ies) and town, range, and section number(s)].

☐ II. Problem Statement – State the management problem that the evaluation protocol is designed to address and the hypotheses to be tested. Include the management objective(s) for this evaluation protocol and a description of how success or failure would be evaluated.

☐ III. Waterbody Background – Provide a description of the lake characteristics in narrative, graphical, or table format, as appropriate, including the following:

- ☐ Lake size and depth (maximum and mean depths).
- ☐ Size of lake-wide littoral zone (acres).
- ☐ Surface area (acres) of each depth contour within proposed treatment area.
- ☐ Flow/retention time in proposed treatment area by moth (quantitative data, if available, otherwise qualitative description).
- ☐ Whole waterbody retention time and average outlet flow rate by month.
- ☐ Surrounding land use (text description and/or map).
- ☐ Water quality information – create a summary table of available historical water quality data. Commonly collected parameters include temperature, dissolved oxygen, transparency, total phosphorus, total alkalinity, and chlorophyll A. Additional data may include toxin measurements from past cyanobacteria blooms. Provide basic information about each data source including the names and affiliations of collectors, dates collected, and sampling locations.
- ☐ Description of the aquatic plant, algae, zooplankton, and fish communities including past field survey and/or laboratory results, if available.
- ☐ History of aquatic plant and algae management and the degree of success of the various management activities.
- ☐ Uses of the waterbody, including recreation, irrigation, drinking water, etc.
- ☐ Significant historical events, such as dredging, fish kills, algae blooms, exotic species introductions, shoreline developments, spills, sewage overflows, etc.

☐ IV. Evaluation Protocol – Outline the proposed method in a step-by-step manner, from the start to the finish of the project. Data collection must be sufficient to support a rigorous assessment of the success or failure of the evaluation protocol. Include a description of the following:

- ☐ Data to be collected before and after the proposed chemical treatment(s).
- ☐ Description or map of sampling site locations with rationale for site selection.
- ☐ Proposed methods for conducting in-lake sampling and/or laboratory analysis (e.g., water sample collection, storage/shipping, analytical procedure).
- ☐ Description of how the data will be processed and what results would trigger chemical treatment .
- ☐ Sampling and treatment schedules.
- ☐ Possible chemical(s) and application rate(s) and how each will be determined.
- ☐ Treatment method or equipment.
- ☐ Spatial (size, location) and temporal (duration) extent of proposed treatment(s).
- ☐ Post-treatment monitoring.
- ☐ Notification protocol – content and timing of treatment season communications to the DEQ, county health department, and/or other stakeholders.
- ☐ Final report summarizing results.

☐ V. Discussion – Please include the following information:

- ☐ Hypotheses for what is driving past algae blooms.
- ☐ Possible explanations why the past management practices used in this waterbody have not been successful and why the proposed protocol is expected to provide a successful outcome.
- ☐ Discussion as to why the proposed evaluation treatment should not cause unacceptable adverse impacts to non-target native aquatic plants, algae, and animals, nor to human health and safety. If controls or other actions will be taken to avoid or minimize unintended impacts, please describe.
- ☐ Discussion of anticipated or possible water quality impacts.
- ☐ Contingency plans for mitigating any unexpected impacts.
- ☐ Describe your management options for the next several years (assuming the present proposal is carried out) and demonstrate that the necessary level of commitment by the various stakeholders has been obtained for long-term management.
- ☐ Provide any scientific documentation (e.g., peer-reviewed, published scientific literature) or other case studies to support the proposed evaluation (attach copies to this document and list full citations below in Section VII).

☐ VI. Project Team and Other Support – Identify the people who will be contributing to this proposed evaluation protocol and describe their past experience in their area of participation.

☐ VII. Literature/Case Studies Cited – Include a list of citations for all literature and/or case studies cited in the evaluation treatment proposal. Enclose copies of each document.