State of New Jersey

PHIL MURPHY
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Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Mail Code – 401-02B
Water Pollution Management Element
Bureau of Surface Water & Pretreatment Permitting
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SHAWN M. LATOURETTE
Commissioner

Via Email Only
May 31, 2024

To: Distribution List

Re: Final Surface Water Master General Permit New
Category: HAB - Harmful Algal Bloom (HAB) Management (GP)
NJPDES Permit No. NJ0356531
NJPDES Master General Permit Program Interest
Trenton City, Mercer County

Dear Interested Parties:

Enclosed is a **final** NJPDES permit action identified above which has been issued in accordance with N.J.A.C. 7:14A. This master general permit serves to authorize the application of certain chemical and biological products to lakes and ponds, classified as Category 2 (C2) designated receiving waters. The Department has determined that these types of point sources require the same operating conditions and are more appropriately controlled under a general NJPDES permit, as allowable under N.J.A.C. 7:14A-6.13. A full copy of the master HAB general permit, including a complete description of all monitoring conditions, is available on the Department's website at https://dep.nj.gov/dwq/permitting_information/permits_application_forms_and_checklists/#DSW.

Comments were received on the draft permit issued on April 24, 2024. The thirty (30) day public comment period began on April 18, 2024 when the public notice was published in the *Courier Post, The Daily Record, The Democrat, The Press of Atlantic City, The Star Ledger, The Times*, and *The South Jersey Times*, as shown here: https://www.njpublicnotices.com. It ended on May 24, 2024, in accordance with N.J.A.C. 7:14A-15.10(c)1i. A Public Notice was also published in the *DEP Bulletin* on April 17, 2024, as shown here: http://www.state.nj.us/dep/bulletin. A summary of the significant and relevant comments received on the draft action during the public comment period, the Department's responses, and an explanation of any changes from the draft action have been included in the Response to Comments document attached hereto as per N.J.A.C. 7:14A-15.16. Any changes from the draft permit are identified in an attachment to this cover letter.

Any requests for an adjudicatory hearing shall be submitted in writing by certified mail, or by other means which provide verification of the date of delivery to the Department, within 30 days of receipt of this Surface Water Master General Permit New in accordance with N.J.A.C. 7:14A-17.2. You may also request a stay of any contested permit condition, which must be justified as per N.J.A.C. 7:14A-17.6 et seq. The adjudicatory hearing request must be accompanied by a completed Adjudicatory Hearing Request Form; the stay request must be accompanied by a completed Stay Request Form. Copies of these forms can be downloaded from the Department's website at https://www.nj.gov/dep/dwq/forms_adjudicatory.htm.

As per N.J.A.C. 7:14A-4.2(e)3, any person planning to continue discharging after the expiration date of an existing NJPDES permit shall file an application for renewal at least 180 calendar days prior to the expiration of the existing permit.

All monitoring shall be conducted in accordance with 1) the Department's "Field Sampling Procedures Manual" applicable at the time of sampling (N.J.A.C. 7:14A-6.5(b)4), and/or 2) the method approved by the Department in Part IV of the permit. The Field Sampling Procedures Manual is available at http://www.nj.gov/dep/srp/guidance/fspm/.

Questions or comments regarding the final action should be addressed to Kirstin Victorella or Josie Castaldo either by phone at (609) 292-4860 or email at habgp@dep.nj.gov.

Sincerely,

Brett Callanan, Chief
Bureau of Surface Water and Pretreatment Permitting

Enclosures

cc: Permit Distribution List
Masterfile #: 39609; PI #: 50577

Attachment A

Changes have been made to the permit as issued draft on April 24, 2024. The Department has determined that these changes are minor in nature and have no legal or substantial effect. Therefore, these requirements are being incorporated into the final permit and are stated below.

The final permit includes changes to the requirements in the Fact Sheet, Part I, Appendix A, and Appendix B. Only those items in Part I, Appendix A, and Appendix B which are affected are listed below, where deletions are shown in strikethrough and additions are shown in underline. Although the Fact Sheet is not part of the Final Permit, changes are hereby incorporated for the purposes of the Administrative Record, where deletions are shown in strikethrough and additions are shown in underline.

PART I
NARRATIVE REQUIREMENTS:
Harmful Algal Bloom Management (GP)

B. COVERAGE UNDER THIS GENERAL PERMIT

2. Eligible Permit Applicants

a. In accordance with N.J.A.C. 7:14A-1.2 and as defined in Appendix A, the Operator is responsible for coverage under this general permit and assumes full responsibility for permit compliance. The following Operators are required to obtain a general permit authorization:

i. Operators applying chemical and/or biological products; and/or

b. The Operator and/or, if applicable, the for-hire Applicator, must possess a valid Commercial Pesticide Applicator License and be certified in Category 5 – Aquatic Pest Control, as defined at N.J.A.C. 7:30 to apply chemical or biological products in, over, or near surface waters of the State.

C. ADMINISTRATIVE PROCESS

1. Application Requirements

b. The following information shall be included in a permit application for authorization under this general permit:

iii. Name and description of the waterbody and if the waterbody is a state-owned lake;

c. The ~~operating entity~~ Operator authorizing the activity which will result in the application of a product and resultant discharge to be authorized by this general permit must sign the NJPDES Form-1 and HAB Supplemental Form, in accordance with N.J.A.C. 7:14A-4.9, certifying that the product application will comply with all the conditions of this general permit.

h. All ~~applicants~~ authorizations will have the same expiration date and will follow the same permit cycle. In accordance with N.J.A.C. 7:14A-2.7, all NJPDES permits shall be issued for fixed terms not to exceed five (5) years.

D. CONDITIONS FOR AUTHORIZATION UNDER THE NJPDES MASTER FOR HARMFUL ALGAL BLOOM MANAGEMENT GENERAL PERMIT

1. Product Application Requirements

b. The Operator or for-hire Applicator is prohibited from performing any product application if dead or visibly distressed non-target organisms and/or stunted, wilted, or desiccated non-target submerged or emergent aquatic plants are observed during any pre-application visual monitoring.

2. Visual Monitoring Requirements During Product Application

~~a. The Operator or for-hire Applicator is prohibited from performing any product application if dead or visibly distressed non-target organisms and/or stunted, wilted, or desiccated non-target submerged or emergent aquatic plants are observed during any pre-application monitoring performed as required by the permit application.~~

a. ~~b.~~ During any product application under this general permit, all Operators or for-hire Applicators must visually assess the area to and around where products are applied for possible and observable adverse incidents, as defined in Appendix A, including the unanticipated death or distress of non-target organisms and disruption of wildlife habitat.~~, recreational or municipal water use~~.

3. Visual Monitoring Requirements After Product Application

a. All Operators or for-hire Applicators must conduct a post application surveillance of any product application. The post application surveillance must visually assess the area to and around where products were applied for possible and observable adverse incidents, as defined in Appendix A, including the unanticipated death or distress of non-target organisms and disruption of wildlife habitat.~~, recreational or municipal water use~~.

5. Public Notification and Signage

~~a. The Operator or for-hire Applicator shall post a public notice of the authorized activity in at least two (2) local newspapers.~~

a. The Operator is required to publish the following in a daily or weekly newspaper within the affected area for one day to request authorization under the General Permit, pursuant to N.J.A.C. 7:14A-6.13(d)3:

i. "Notice is hereby given that pursuant to N.J.A.C. 7:14A-6.13(d)3, [insert name of applicant] intends to submit a request for authorization under the General Harmful Algal Bloom (HAB) Management Permit No. NJ0356531 to the New Jersey Department of Environmental Protection. This authorization will allow [insert operating entity or company name] to apply product into [insert name of surface water].

E. RECORDKEEPING

3. ~~7.~~ Recordkeeping Requirements for Operators and~~/or~~ For-hire Applicators

a. The following records shall be retained by the Operator and~~/or~~ for-hire Applicator:

v. Product application date(s); ~~and~~

vi. Whether monitoring identified any possible or observable adverse incidents caused by application of products, during application or post-application; and

vii. Public notices published in newspapers in accordance with Section D.5.a.

4. ~~8.~~ Access to Records

a. In accordance with N.J.A.C. 7:14A-2.11, the Operator shall allow an authorized representative of the Department access to any records and public notices that are required to be kept under the conditions of this general permit.

F. REPORTING

2. Reporting of Water Quality Monitoring Results

a. The Operator shall submit all ~~a~~All water quality monitoring results obtained in accordance with D.4 of this general permit ~~are required to be submitted~~ to the Department via email to habgp@dep.nj.gov. Short-term monitoring results shall be submitted within 30 days after short-term sampling is completed. Long-term monitoring results shall be submitted within 30 days after long-term sampling is completed.

G. NOTIFICATION OF NONCOMPLIANCE

1. Adverse Incidents, Reportable Spill and Leaks, and Other Unpermitted Discharges

a. Operators and/or for-hire Applicators shall contact the NJDEP Hotline (1-877-WARN-DEP) immediately, but no later than two (2) hours after observing or becoming aware of an adverse incident, reportable spill or leak as defined in Appendix A, or any other unpermitted discharge. The following information shall be reported to the NJDEP Hotline:

iv. The name and telephone number of a contact person, if different than the person providing the 24-hour notice;

2. Written Report

a. If the Department determines that an adverse incident was as a result of the Operator's and/or for-hire Applicator's activity, the Operator is required to provide a written report to the Department via email to habgp@dep.nj.gov within ten (10) days of notice from the Department ~~the incident~~. The report shall include the following information:

i. Information required to be provided to the NJDEP Hotline, as specified ~~above~~ in Part I Section G.1.a of this permit;

APPENDIX A

Appendix A serves to supplement the Definitions specified at N.J.A.C. 7:14A-1.2. For the purposes of this permit, the following definitions apply:

Operator – responsible for coverage under this permit and assumes full responsibility for permit compliance, and may possess~~es~~ a valid Commercial Pesticide Applicator License, issued by the Department, ~~who is~~ certified in Category 5 – Aquatic Pest Control, in accordance with N.J.A.C. 7:30. An Operator is any person who alone or along with the other persons has primary management and operational decision-making authority over any part of the activity covered under this permit, and that meets either of the following two criteria:

(i) The entity has control over the financing for, or the decision to perform product applications that result in discharges, including the ability to modify those decisions; or

(ii) The entity has day-to-day control of or performs activities that are necessary to ensure compliance with the permit (e.g., they are authorized to direct workers to carry out activities required by the permit or perform such activities themselves).

Appendix B:

Harmful Algal Bloom Management Product Sheets

Product Sheet: Alum and Polyaluminum Coagulants (PACl)

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), ~~as well as~~ and the water quality results of the ~~recommended~~ required parameters.

2. ~~Water quality parameters identified in Table A below shall be monitored in both short-term intervals (the day before treatment application, within one week after treatment application, and 1 – 4 weeks after treatment application), and a long-term intervals (2 – 11 months after the final treatment application). Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~

2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application

3. Additional pH monitoring is required each day *during* treatment for Alum and PACl.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality parameters indicated in Table C.

Product Sheet: EutroSORB WC

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), ~~as well as~~ and the water quality results of the ~~recommended~~ required parameters.

2. ~~Water quality parameters identified in Table A below shall be monitored in both short-term intervals (the day before treatment application, within one week after treatment application, and 1 – 4 weeks after treatment application), and a long-term intervals (2 – 11 months after the final treatment application). Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~

2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application

3. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality parameters indicated in Table C.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. The proposed use of EutroSORB WC involves diluting the product with lake or pond water, and then applying the diluted solution directly to a water body (surface or subsurface) to reduce the phosphate level.

~~1 lb of EutroSORB WC can inactivate about 0.1 lbs of phosphorus from the water column.~~

Product Sheets: MicroLife Clear, MicroLife Clear Max, MicroLife Clear Muck Out, MuckAway PRO, MuckBiotics, Nature's Blend, PondClear PRO

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied~~, all doses tested (e.g., gathered from dosing tests like a jar test), as well as~~ and the water quality results of the ~~recommended~~ required parameters.

~~2. Water quality parameters identified in Table A below shall be monitored in both a short-term intervals (the day before treatment), within one week after treatment , and 1-4 weeks after treatment) and a long-term intervals (2 – 11 months after the final treatment). Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~

2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, as specified below:
    - Short-term: once before application, once within one week after final application, and once 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality parameters indicated in Table C.

Product Sheets: Phoslock®

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), ~~as well as~~ and the water quality results of the ~~recommended~~ required parameters.

~~2. Water quality parameters identified in Table A below shall be monitored in both short-term intervals (the day before treatment application, within one week after treatment application, and 1 – 4 weeks after treatment application), and a long-term intervals (2 – 11 months after the final treatment application). Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~

2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:

    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application

3. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality parameters indicated in Table C.

Although the Fact Sheet is not part of the Final Permit, changes are hereby incorporated for the purposes of the Administrative Record. Only those items which are affected are listed below, where deletions are shown in strikethrough and additions are shown in underline:

FACT SHEET

2 Coverage Under the Master General Permit

B. Eligible Permit Applicants:

The Department acknowledges that there may be more than one party implementing the conditions of this master general permit. The Operator is responsible for coverage under this permit and assumes full responsibility for permit compliance. In accordance with N.J.A.C. 7:14A-1.2 and as defined in Appendix A, the Department defines an Operator as any person who alone or along with the other persons has primary management and operational decision-making authority over any part of the activity. The following Operators are required to obtain a general permit authorization:

- Operators applying chemical and/or biological products; and/or
- Operators hiring another party/for-hire Applicator to apply chemical and/or biological products.

As defined in Appendix A, the Operator and/or, if applicable, the for-hire Applicator, must possess a valid Commercial Pesticide Applicator License and be certified in Category 5 – Aquatic Pest Control, as defined by N.J.A.C. 7:30 to apply chemical or biological products in, over, or near surface waters of the State.

3 Administrative Processes

The following information shall be included on the NJPDES Form-1 and/or HAB Supplemental Form:

1. Contact information and license number of the Operator;
2. Contact information and license number of the for-hire Applicator (when applicable);
3. Name and description ~~Description~~ of the waterbody and if the waterbody is a State-owned lake;

The Operator ~~operating entity~~ authorizing the activity which will result in the application of a product and resultant discharge to be authorized by this general permit must sign the NJPDES Form-1 and HAB Supplemental Form, in accordance with N.J.A.C. 7:14A-4.9, certifying that the product application will comply with all the conditions of this general permit.

An authorization under this master general permit allows the application of the specified product to the specified waterbody listed in the initial permit application. If a permit applicant requests application of additional product(s) and/or an application to additional waterbodies not listed in the initial permit application, a HAB Supplemental Application Form must be submitted to the Department at least thirty (30) days prior to each additional product and/or waterbody application. The permit applicant becomes authorized for the additional product and/or waterbody application when a modification to the individual general permit authorization has been issued by the Department.

The NJPDES category for this master general permit is "HAB". An individual authorization issued under this master general permit will be given two NJPDES numbers. The NJPDES number on the individual general permit authorization beginning in "NJG" is specific to the applicant, whereas the NJPDES number NJ0356531 is for the master general permit. Upon finalization of this master general permit, all authorizations ~~applicants~~ will have the same expiration date and will follow the same permit cycle. In accordance with N.J.A.C. 7:14A-2.7, all NJPDES permits shall be issued for fixed terms not to exceed five (5) years.

4 Summary of Permit Conditions

A. Basis and Derivation for Permit Conditions - Specific:

1. Product Application Requirements:

Application of the chemical and/or biological products allowable under this master general permit must be in conformance with the specifications found in Appendix B and with all directions stated on the manufacturer's product label.

The Operator or for-hire Applicator is prohibited from performing any product application if dead or visibly distressed non-target organisms and/or stunted, wilted, or desiccated non-target submerged or emergent aquatic plants are observed during any pre-application monitoring.

2. Visual Monitoring Requirements During Product Application:

Visual monitoring assessments are requirements of this master general permit. Visual monitoring is used as a means of identifying instances of detrimental impact to non-target organisms, disruption or degradation of wildlife habitat, and the prevention of designated recreational or municipal uses of a waterbody that may be related to the Operator or the for-hire Applicator's use of products in a given area. This requirement consists of visually monitoring the area to and around where products are applied for possible and observable adverse incidents, such as unanticipated death or distress of non-target organisms and disruption of wildlife habitat, recreational or municipal water use.

~~The Operator or for-hire Applicator is prohibited from performing any product application if dead or visibly distressed non-target organisms and/or stunted, wilted, or desiccated non-target submerged or emergent aquatic plants are observed during any pre-application monitoring.~~

During any product application authorized under this master general permit, all Operators or for-hire Applicators must visually assess the area to and around where products are applied for possible and observable adverse incidents, as defined in Appendix A.

5. Public Notification and Signage:

~~The Operator or for-hire Applicator shall post a public notice of the authorized activity in at least two (2) local newspapers.~~ The Operator is required to publish the following in a daily or weekly newspaper within the affected area for one day to request authorization under the General Permit, pursuant to N.J.A.C. 7:14A-6.13(d)3:

> "Notice is hereby given that pursuant to N.J.A.C. 7:14A-6.13(d)3, [insert name of applicant] intends to submit a request for authorization under the General Harmful Algal Bloom (HAB) Management Permit No. NJ0356531 to the New Jersey Department of Environmental Protection. This authorization will allow [insert operating entity or company name] to apply product into [insert name of surface water]."

5 Recordkeeping and Reporting

A. Recordkeeping Requirements:

1. Recordkeeping Requirements for Operators:

The following records shall be retained by the Operator, specifically the person who alone or along with the other persons has primary management and operational decision-making authority over any part of the activity:

2. Adverse incident reports, as defined in Appendix A, and rationale for any determination that reporting of an ~~identifies~~ identified adverse incident is not required;

2. Recordkeeping Requirements for Operators and ~~or~~ For-hire Applicators:
The following records shall be retained by the Operator and/or for-hire Applicator:

5. Product application date(s); ~~and~~
6. Whether monitoring identified any possible or observable adverse incidents caused by application of products, during application or post-application; and
7. Public notices published in newspapers in accordance with Section 4.B.5 of this Fact Sheet and Part I Section D.5.a of this permit.

B. Reporting Requirements:

2. Reporting of Water Quality Monitoring Results:

The Operator shall submit all ~~the~~ water quality monitoring results obtained in accordance with Appendix B and Section 4.B.4 of this Fact Sheet to the Department via email at habgp@dep.nj.gov. Short-term monitoring results shall be submitted within 30 days after short-term sampling is completed. Long-term monitoring results shall be submitted within 30 days after long-term sampling is completed.

6 Notification of Noncompliance

B. Written Report:

If it has been determined by the Department that the adverse incident was as a result of the Operator's and/or for-hire Applicator's activity, the Operator is required to provide a written report to the Department via email to habgp@dep.nj.gov within ten (10) days of ~~becoming aware of the adverse incident~~ notice from the Department. The report shall include the following information:

1. Information required to be provided to the NJDEP Hotline, as specified in Section 6.A.3 of this Fact Sheet and Part I Section G.1.a of this permit;

Table of Contents for the Final Permit

This permit package contains the items below:

List of Acronyms

ACR	Acute to Chronic Ratio
AL	Action Level
AML	Average Monthly Limitation
BMP	Best Management Practices
BPJ	Best Professional Judgement
CAP	Capacity Assurance Program
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CWEA/CWA	Clean Water Enforcement Act/Clean Water Act
Department	New Jersey Department of Environmental Protection
DGW	Discharge to Groundwater
DMR	Discharge Monitoring Report
DRBC	Delaware River Basin Commission
DSN	Discharge Serial Number
DSW	Discharge to Surface Water
EDP/M	Effective Date of the Permit/Permit Modification
EEQ	Existing Effluent Quality
ELG	Effluent Limitation Guideline
g/d or g/day	Grams per Day
IEC	Interstate Environmental Commission
HABs	Harmful Algal Blooms
IPP	Industrial Pretreatment Program
kg/d or kg/day	Kilograms per Day
LTA	Long Term Average
mg/L	Milligrams per Liter
MDL	Maximum Daily Limitation
MGD	Million Gallons per Day
MRF	Monitoring Report Form
NAICS	North American Industry Classification System
N.J.A.C	New Jersey Administrative Code
NPDES/NJPDES	National/New Jersey Pollutant Discharge Elimination System
NJDEP	New Jersey Department of Environmental Protection
NJR	New Jersey Register
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Plan
POTW	Publicly Owned Treatment Works
RPMF	Reasonable Potential Multiplying Factor
RTR	Residuals Transfer Report
RQL	Recommended Quantification Levels
RWBR	Reclaimed Water for Beneficial Reuse
SIC	Standard Industrial Classification
SIU	Significant Indirect User
SQAR	Sludge Quality Assurance Regulations
SWQS	Surface Water Quality Standards
TMDL	Total Maximum Daily Load
TR	Total Recoverable
TRIR	Toxicity Reduction Implementation Requirements
USEPA TSD	USEPA Technical Support Document for Water Quality Based Toxics Control (EPA/505/2-90-001, March 1991)
µg/L	Micrograms per Liter
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UV	Ultraviolet
WCR	Wastewater Characterization Report
WER	Water Effects Ratio
WLA	Wasteload Allocation
WWTP	Wastewater Treatment Plant
WQBEL	Water Quality Based Effluent Limitation

New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Surface Water and Pretreatment Permitting

RESPONSE TO COMMENTS

Comments were received on the NJPDES draft Surface Water Master General Permit New No. NJ0356531 issued on April 24, 2024. The thirty (30) day public comment period began on April 18, 2024, when the Public Notice was published in the *Courier Post, the Daily Record, The Democrat, The Press of Atlantic City, The Star Ledger, The Times,* and *The South Jersey Times*. It ended on May 24, 2024. The following persons commented during the public comment period:

A. Patrick Goodwin, M.S., CLM, Water Resource Scientist, Natural Lake Biosciences, Marc Bellaud, Director of Technical Services, SOLitude Lake Management, Larry Kovar, M.S., CLM, President, Aquatic Analysts, and Bob Schindler, Director of Operations, TIGRIS, in a letter dated May 24, 2024.

B. West M. Bishop, Ph.D., CLM, Algae Scientist and Water Quality Research Manager, SePRO Corporation, in a letter received by the Department on May 24, 2024.

C. Geoffrey M. Goll, P.E., President, Mark Gallagher, Vice President, Fred Lubnow, Ph.D., Senior Technical Director, Ecological Services, Michael Hartshorne, Director of Aquatics, Princeton Hydro, LLC, in a letter dated May 24, 2024.

D. Ed Molesky, Senior Water Resources Manager and Aquatic Biologist, President, Aqua Link Pond and Lake Management, in an email correspondence dated May 23, 2024.

A summary of the timely and significant comments received, the New Jersey Department of Environmental Protection's (NJDEP or Department) responses to these comments, and an explanation of any changes from the draft action have been included below:

A. Patrick Goodwin, M.S., CLM, Water Resource Scientist, Natural Lake Biosciences, Marc Bellaud, Director of Technical Services, SOLitude Lake Management, Larry Kovar, M.S., CLM, President, Aquatic Analysts, and Bob Schindler, Director of Operations, TIGRIS, in a letter dated May 24, 2024.

1. COMMENT: Appendix B, Table B, Pages 20-25

   Natural Lake Biosciences and licensed New Jersey applicator companies SOLitude Lake Management, Tigris, and Aquatic Analysts would like to formally request the removal of Natures Blend and MuckBiotics from ALL water quality parameters identified in Table B. The justification for this request is as follows:

   1. Nature's Blend and MuckBiotics do not cause direct changes in the proposed water quality parameters.
      a. Nature's Blend and MuckBiotics are environmentally isolated bacterial strains (already present in nature), not genetically engineered strains, with a blend of enzymes. Nothing in the products causes a direct chemical reaction, like aluminum sulfate, lanthanum chlorides, copper sulfates, etc., that would directly change the water quality parameters outlined in Table B. Nature's Blend and MuckBiotics are natural probiotics, not chemicals.

   2. At label rates, Nature's Blend and MuckBiotics do not negatively impact surface waters.
      a. For example, The LC 50 for the water flea is 48 mg/L and 441.95 mg/L (48 hr exposure time) for Nature Blend and MuckBiotics. When applying max label rates in, say, only 1 ft of water in a 1-acre area (6lbs Nature's Blend and 50lbs for MuckBiotics), the concentration is 2.2 mg/L Natures Blend and 18 mg/L MuckBiotics. **Note** negligible impact on aquatic life. Compare this to copper II sulfate with an LC 50 for water flea of 0.028 mg/L (48 exposure), and the max label rate

of copper sulfate in one acre ft. of water is 10.88 lbs or 4 mg/L. Aquatic life will be significantly impacted by copper sulfate.

3. Requiring water quality monitoring for Nature's Blend and Muckbiotics, as Table B outlines, puts New Jersey surface waters at greater risk for HABs.
    a. Permitting and monitoring, as outlined in the HAB draft, pose significant cost restraints and, in some cases, are equivalent to or more than a lake's annual management budget. The estimated sampling and labor cost for lakes < 20 acres is between $10,000-$15,000 per lake. This forces lake owners and the industry in New Jersey to use only cheap "band-aid" pesticides like copper sulfate, which have been well-documented to exacerbate HAB issues in the long term and degrade a lake's ecosystem.

4. Permitting and monitoring requirements, as Table B outlines, are significantly more than those for pesticidal products like copper sulfate, which directly affect the water quality parameters in Table B and have long-term consequences, such as:
    a. Copper bioaccumulation
    b. Disrupting microbial assemblages
    c. Tolerance adjustments of certain species of algae to higher copper dosages
    d. Shift of species from green to blue-green algae and from game fish to rough fish
    e. Reductions in benthic macroinvertebrates

RESPONSE:

This new master general permit serves to authorize the application of certain chemical and biological products, when such applications are made in, over, or near certain surface waters of the State in order to protect the State's surface waters from Harmful Algal Blooms (HABs). As noted in this comment, Nature's Blend and Muckbiotics are two products identified within this master permit and are included in the Products Sheets as included in Appendix B where these Product Sheets provide specific instructions for the use of these products under this permit. Table B identifies required water quality parameters that are required to be monitored as part of the authorization for the application of the products listed within Appendix B.

This comment appears to be requesting that Nature's Blend and Muckbiotics be exempt from monitoring requirements as listed in Table B. As stated on Page 4 of the draft permit Fact Sheet, "Application of the chemical and/or biological products allowable under this master general permit must be in conformance with the specifications found in Appendix B and with all directions stated on the manufacturer's product label." Detailed information regarding the products as well as dosage information for these requested products were previously submitted to and reviewed by the Department's Division of Science and Research and are hereafter approved in this master general permit through issuance of individual authorizations. Therefore, the Department maintains that the specifications regarding dosage as included in the Product Sheets located within Appendix B of this permit are in accordance with information made available to the Department. Any requested changes to dosage requirements must be submitted to the Department's Division of Science and Research for approval prior to incorporation into this Master General Permit.

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data.

No changes have been made to the final permit as a result of this comment.

B. West M. Bishop, Ph.D., CLM, Algae Scientist and Water Quality Research Manager, SePRO Corporation, in a letter received by the Department on May 24, 2024.

1. COMMENT:

It is important to note that any substance or device that claims or implies to mitigate a pest must be registered by the USEPA under FIFRA (Federal Insecticide, Fungicide and Rodenticide Act). It was our understanding that this new permit was intended for allowing non-pesticidal product use. The multiple mentions of mitigating a pest (e.g. HABs) throughout these documents are outside the allowable claims by the manufacturer set forth by USEPA. These claims highly suggest that the substances listed are pesticides and could therefore trigger a violation of FIFRA.

Primary examples include: new Master General Permit for "HAB Management" (title of permit page 1 factsheet)
Chemical and biological products specified in Appendix B, to control HABs (page 2 Factsheet). Definitions of biological and chemical products both say 'products used to combat harmful algal blooms' (page 1 Appendix A). At minimum, a clarifying statement is needed to explain these are not registered pesticides with USEPA and no pesticidal claims were made by the manufacturer.

RESPONSE:

The Department does not agree with the commenter's statement that this permit is used to "to mitigate a pest." As described in Section 1 of the draft permit Fact Sheet, the applications of chemical and biological products are used to control phosphorus levels which drive the growth of HABs. The applications of these products do not reduce or eliminate the HABs themselves.

Furthermore, Page 3 of the draft permit Fact Sheet states:

> "Any application of chemical and/or biological pesticides in, over, or near surface waters of the State must receive authorization under a separate general permit, namely, the NJPDES (No. NJ0178217) Pesticide Application Discharge (Category PGP). A request for authorization under the PGP permit is required for certain entities and for applications over certain annual treatment thresholds as defined within the PGP permit."

Similarly, Part I.B.4.b states the following:

b. This master general permit does not authorize the discharge of chemical and/or biological pesticides to surface waters of the State. Any application of chemical and/or biological pesticides in, over, or near surface waters of the State must receive authorization under a separate general permit, namely, the NJPDES (No. NJ0178217) Pesticide Application Discharge (Category PGP).

The Department does not agree with the statements made in this comment as the NJPDES Pesticide Application Discharge Master General Permit (PGP) permits the usage of registered USEPA FIFRA pesticides in, over, or near certain surface waters of the State. The Harmful Algal Bloom Management Master General Permit serves to authorize biological and chemical products that otherwise are not qualified for coverage under the aforementioned PGP Master General Permit.

No changes have been made to the final permit as a result of this comment.

2. COMMENT:

The amount and intensity of required monitoring data would be extremely cumbersome and costly and do not accurately represent impacts of the product. This would greatly limit use and adoption of the technology. With a desired integrated approach to water resource management and a goal to decrease dependence on pesticides

and remove a pollutant (phosphorus) that is listed as a key water quality criterion, the burden of monitoring should be decreased. This amount of monitoring is not required for other products on the PGP and should be decreased here. With widespread use of EutroSORB WC in other states, and prior use of EutroSORB G in the state (under other issued permits), with no non-target issues reported (reports can be provided), this should justify a reduced monitoring burden. The cost of the required monitoring is likely to be more expensive than the treatment itself for many water resources.

RESPONSE:

The NJPDES Pesticide Application Discharge Master General Permit (PGP) permits the usage of registered USEPA FIFRA pesticides in, over, or near certain surface waters of the State. The PGP permit is separate and distinct from this subject HAB master general permit. At this time, the products specified in the Product Sheets of Appendix B do not have a registration process in accordance with the NJDEP or USEPA as they are not pesticides. As a result, the Department is issuing this HAB master general permit in order to ensure compliance with the Clean Water Act and N.J.A.C. 7:14A-2.1(d) which addresses the addition of any pollutant to waterways.

The Department has reevaluated the monitoring frequencies included in Table B and has determined that changes are warranted. As a result, the following changes for EutroSORB WC have been incorporated:

"~~2. Water quality parameters identified in Table A below shall be monitored in both short-term intervals (the day before treatment, within one week after treatment, and 1 – 4 weeks after treatment) and long-term intervals (2 – 11 months after the final treatment). Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~"

"2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:

- Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
- Long-term: once between 2 – 11 months after the final application.

3. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day."

EutroSORB G had not been previously submitted to the Department's Division of Science and Research for review and was therefore not specified within the Product Sheets in Appendix B. Any requested changes to alternate products not specified within Appendix B must be reviewed by the Department's Division of Science and Research for approval and could be incorporated into a modification to this Master General Permit. This is addressed in the master general permit at Part I.B.1.b which states the following:

b. The Department will review any requests for the application of chemical or biological products not authorized under this master general permit. Requests shall be submitted to the Department via email to habgp@dep.nj.gov. If the Department determines that the current permit conditions are appropriate to regulate the requested product, the Department may issue approval via modification to the master general permit, pursuant to N.J.A.C. 7:14A-16.5.

No changes have been made to the final permit as a result of this part of the comment.

4. COMMENT:

Will all non-pesticide products now need to be approved under this permit? Would similar products in the same categories listed be considered? Could other lanthanum-based products be listed?

RESPONSE:

Appendix B lists products currently authorized under this master general permit through issuance of individual authorizations. Inclusion of these products within Appendix B was based on extensive research by the Department's Division of Science and Research. Any requests for products that are not included are addressed in Part I.B.1.b as noted in the previous response. This applies to all products not currently specified in Appendix B.

No changes have been made to the final permit as a result of this comment.

5. COMMENT:

Review of ecological safety of phosphorus sequestration products has already been completed by many other states. Due to the benign nature of the lanthanum for phosphorus sequestration, no additional data collection monitoring is required by other states, such as CT per below permit.

Connecticut Department of Energy and Environment Protection:
https://portal.ct.gov/-/media/deep/pesticides/aquatic-general-permit-draft.pdf .

RESPONSE:

The Department conducted significant research across many states in developing this master general permit and found that many states have not approved or endorsed biological and chemical products that are not pesticides. The Department maintains that it is being proactive in addressing biological and chemical products through this master general permit to assure compliance with the Clean Water Act. At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data

No changes have been made to the final permit as a result of this comment.

6. COMMENT: Appendix B, Item 1, Section 1, Page 5 of 31

"EutroSORB WC is a liquid product manufactured by SePro Products."

Change to: EutroSORB WC is a liquid product manufactured by SePRO Corporation

RESPONSE:

The Department agrees to make the changes to the applicable product sheet in Appendix B as requested in the comment above. Page 5 of Appendix B is hereby modified as follows, where deletions are shown in strikethrough and additions are shown in underline:

EutroSORB WC is a liquid product manufactured by ~~SePro Products~~ SePRO Corporation

No other changes have been made to the final permit as a result of this comment.

7. COMMENT: Appendix B, Item 1, Section 2, Page 5 of 31

"1 pound of EutroSORB WC can inactivate about 0.1 pounds of phosphorus from the water column."
The ratio of product to phosphorus needs updated.

Change to: 1 pdu of the product (equal to 1 pint) can bind 0.1 pounds of Phosphorus or 10 pdu's (1.25 gallons) can bind 1 pound of phosphorus.

RESPONSE:

The dose determination and application for this product was previously submitted to the Division of Science and Research and is hereafter approved in this master general permit through issuance of individual authorizations. The Department has reevaluated including this information in the Product Sheet for EutroSORB WC located within Appendix B of this permit and has determined to remove this information from the Product Sheet. As a result, the following sentence has been removed:

~~1 lb of EutroSORB WC can inactivate about 0.1 lbs of phosphorus from the water column.~~

No other changes have been made to the final permit as a result of this comment.

8. COMMENT:

"The day before treatment," is specified and this is likely not operationally feasible to make a whole separate trip to the site to sample. Immediate pre-treatment would be likely more appropriate and representative of desired conditions.

RESPONSE:

As described in the Product Sheets in Appendix B of the permit, water quality parameters are required to be monitored the day before treatment.

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data.

No changes have been made to the final permit as a result of this comment.

9. COMMENT: Fact Sheet, Item 4, Section B.4, Tables A and B, Page 5 of 11

Four different sampling events, at 3 different sites (for < 20 A sites per table B) for all those parameters is very excessive. This is a large time and cost barrier to use the product. Many of those parameters would not provide information regarding the product impacts and should be removed. Not operationally feasible to do that amount of sampling on every use of the product nor necessary based on provided information. This section needs to be altered to exempt many types of water resources (e.g. private, below certain size thresholds) and/or the number of parameters required. Especially for parameters that will not provide useful information. Since use amounts recommended for EutroSORB WC are far below provided toxicity thresholds, the visual observations should be sufficient and not require zooplankton.

RESPONSE:

Section 4.B of the draft permit Fact Sheet states the following, where Table A lists the water quality parameters to monitor with the application of each product and Table B lists the number of locations required for sampling based on size of waterbody:

"Operators and/or for-hire Applicators are required to monitor water quality parameters, where a full listing of all the parameters specified in Appendix B are listed in Table A below. The water quality

parameters shall be monitored in both short-term intervals and long-term intervals, as specified in Appendix B. Refer to Appendix B for specific instructions as to which water quality parameters are required to be monitored with the application of each product.

For all products covered under this master general permit, the monitoring location shall be an area representative of the waterbody. Monitoring shall occur at approximately the same time each day. The Operator and/or for-hire Applicator shall perform monitoring at multiple locations based on the size of the waterbody, as indicated in Appendix B and Table B below:"

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data. See also RESPONSE B.2 regarding monitoring frequencies for Table A parameters.

No changes have been made to the final permit as a result of this comment.

10. COMMENT: Appendix B, Item 1, Section 2, Page 5 of 31

"The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), as well as water quality results of the recommended parameters."

The remainder of the sentence after the word, "tested" should be deleted. This appears to be for alum or aluminum-based compounds. Those compounds are known to drastically alter water chemistries (e.g. pH, alkalinity) which can exacerbate aluminum toxicity potential. Also, those compounds have many interfering compounds that alter the ratio needed to bind phosphorus hence the need for a jar test. With the published specificity of the binding agents in EutroSORB products and negligible impacts directly to pH, alkalinity etc., this should not be required here.

RESPONSE:

Application of the chemical and/or biological products allowable under this master general permit must be in conformance with the specifications found in Appendix B and with all directions stated on the manufacturer's product label. The Department has reevaluated the requirement for the biological products to provide all doses tested, such as a jar test in the submitted report to the Department. As a result, the following change has been incorporated into the Product Sheets found in Appendix B for the biological products:

1. The applicant should submit a report to the Department with the anticipated dose to be applied, ~~all doses tested (e.g., gathered from dosing tests like a jar test), as well as~~ and the water quality results of the ~~recommended~~ required parameters.

No other changes have been made to the final permit as a result of this comment.

C. Geoffrey M. Goll, P.E., President, Mark Gallagher, Vice President, Fred Lubnow, Ph.D., Senior Technical Director, Ecological Services, Michael Hartshorne, Director of Aquatics, Princeton Hydro, LLC, in a letter dated May 24, 2024.

1. COMMENT: Fact Sheet, Item C, Page 2 of 11

Is it the intent of the Bureau to exclude Category 1 waters, as defined in NJAC 7:9B-1.4, in addition to Outstanding National Resource Waters, Freshwater 1 (FW1) Waters, and Pinelands (PL) waters, as defined at N.J.A.C. 7:9B-1?

RESPONSE:

Section 2.C of the draft permit Fact Sheet states:

> "This master general permit authorizes the application of certain chemical and biological products to lakes and ponds, classified as Category 2 (C2) designated receiving waters, as defined in the SWQS at N.J.A.C. 7:9B-1."

and,

> "Application of chemical and/or biological products to a waterbody that is not classified as Category 2 (C2) may be considered by the Department on a case-by-case basis."

Therefore, the Department will consider authorizations to additional water classifications beyond Category 2 (C2), as stated above. This will be evaluated on a case-by-case basis as part of the application review process by the Department.

No changes have been made to the final permit as a result of this comment.

2. COMMENT:

The permit specifically states that "This NJPDES/DSW New Master HAB General Permit is issued to authorize the application of certain chemical and biological products to lakes and ponds, classified as Category 2 (C2) designated receiving waters." Based on the stated limitation of the General Permit, is it the Department's intent to exclude those lakes that are designated as being Category 1(C1) waters? If so, this would exclude many lakes such as White Meadow Lake and Swartswood Lake as well as drinking water reservoirs such as Boonton and Oradell; all of which are designated as FW2-TM(C1).

RESPONSE:

See RESPONSE C.1.

No changes have been made to the final permit as a result of this comment.

3. COMMENT:

Category 1 (C1) and Category 2 (C2) waters are antidegradation designations that are provided to waters in addition to their surface water classification but also have an antidegradation designation. A C1 designation can be applied to waters that are protected from any measurable change to existing water quality because of their exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources. As such a surface water may have a surface water designation of Freshwater 2 (FW2) as well as C1 designation. Surface waters with a FW2-C1 designation can include lakes and reservoirs that would directly benefit from the use of this General Permit. It is our recommendation that this General Permit should not be limited to C2 waters as it may be more applicable to restrict the use of the proposed General Permit to "FW2" waters regardless of their antidegradation status. This general surface water classification is applied to those fresh waters that are not designated as FW1 or Pinelands Waters.

RESPONSE:

The Department concurs that C1 waters shall be protected from measurable changes in water quality, as described in the SWQS at N.J.A.C. 7:9B. This permit does not specifically deny product applications to receiving waters not classified as C2 waters. As described in RESPONSE C.1, the Department will consider authorization to other waterbodies not classified as C2 waters on a case-by-case basis.

No changes have been made to the final permit as a result of this comment.

4. COMMENT:

What is the Bureau's plan for implementing this permit? Would it be effective immediately upon issuance? If this were to go into effect immediately following the close of the comment period, we fear that the entire spring (or fall) of 2024 treatment season will be lost as potential applicants familiarize themselves with the permit, application process, and conditions, not to mention the turnaround time required from NJDEP to issue the permit. Following the issuance of the final permit, we respectfully request that NJDEP include a grace period before this goes into effect, as NJDEP has done with other permit modifications/issuances. This is especially important, as we are working with several communities who have received NJDEP grant funds to perform activities (targeted at improving water quality and reducing HABs) that would now require this permit, if issued. If there is no grace period, the cost to implement will likely exceed the fixed-fee grant budgets and could delay the implementation potentially until the next year, thereby violating the terms that outline the required timeline for grant implementation. It is our recommendation to target a January 1, 2025 start date for this new permit.

RESPONSE:

As stated in the Authorization Page of this final permit, this final permit will be effective on July 1, 2024. The Department is unaware of any circumstances where application of a product to waterways of the State has been granted a grace period as identified in this comment. The Department maintains that it is being proactive in issuing this master general permit to ensure compliance with the Clean Water Act. Therefore, all product applications are required to obtain an individual authorization covered under the NJPDES HAB Management Master General Permit for the application of certain chemical and biological products, when such applications are made in, over, or near certain surface waters of the State.

The Department has developed application forms that are simple and easy to use for the purposes of individual authorizations under this master general permit. There is no application cost or permit fee at this time. In addition, the Department has streamlined the review process to promote a quick processing time similar to the processing time under the PGP permit The Department is available for pre-application meetings to walk any project applicants through the necessary forms.

No changes have been made to the final permit as a result of this comment.

5. COMMENT:

Consultation with the Division of Fish and Wildlife is an onerous requirement. Rather than requesting the applicant coordinate with the Division of Fish and Wildlife for stocking timing, we are requesting that the Division of Water Quality contact the Division of Fish and Wildlife directly to ask for a list of stocked water bodies and the associated timing restrictions. Alternatively, a list of timing restrictions across the state could be included in the permit so there is a unified understanding of available timelines for appropriate application windows. This process would be similar to the Freshwater Wetlands Protection Act Rules (N.J.A.C 7:7A), which have a table (i.e., Table 5.7 in N.J.A.C 7:7A-5.7c) of in-stream time-of-year restrictions for all projects across the state.

RESPONSE:

The Department has consulted with the Department's Division of Fish and Wildlife in preparing this master general permit and staff have agreed to assist as part of the application process. The Bureau of Surface Water and Pretreatment Permitting can assist the permit applicant in coordinating with the Department's Division of Fish and Wildlife. Information regarding fish stocking is also available at Freshwater | Fish & Wildlife (nj.gov)

No changes have been made to the final permit as a result of this comment.

6. COMMENT:

Has the Bureau contacted other Bureaus and Divisions within NJDEP for input on the permit? Is there a plan for
interacting with other Divisions and Bureaus with NJDEP?

RESPONSE:

Yes. As part of the development and research associated with the preparation of this master general permit, the Bureau of Surface Water and Pretreatment Permitting has consulted extensively with other groups within the Department, including, but not limited to, those within the Division of Science and Research, the Division of Fish and Wildlife, and the Division of Water Monitoring and Standards.

No changes have been made to the final permit as a result of this comment.

7. COMMENT:

Should in-situ parameter collection and discrete chemical analysis be completed by a NJDEP Approved laboratory?

RESPONSE:

The master general permit does not specifically require use of a certified laboratory at this time. This is due in part to operational challenges with holding time, site access etc. Parameters which are able to be collected "in-situ" must follow Table C of the applicable Product Sheet, for "Calibration of Digital Meters for Water Quality Parameters."

No changes have been made to the final permit as a result of this comment.

8. COMMENT:

What frequency of post-monitoring should be conducted? The draft permit references 2 - 11 months; should sampling be conducted once in that period or more frequently?

RESPONSE:

The requirements found in Appendix B include the minimum monitoring requirements that are required to be conducted, per each product. Application must comply with all directions stated on the manufacturer's product label. The permittee may decide to sample more frequently than the requirements. The Operator must also comply with the requirements in Table B of the applicable Product Sheet, for the number of locations required for sampling based on size of waterbody. All sampling results are required to be submitted in accordance with N.J.A.C 7:14A 6.5.

The Department has added a clarifying language to the Product Sheets in Appendix B for Alum and PACl, and is hereby modified as follows, where additions to the language are shown in underline:

"~~2. Water quality parameters identified in Table A below shall be monitored in both short-term intervals (the day before treatment, within one week after treatment, and 1 – 4 weeks after treatment) and long-term intervals (2 – 11 months after the final treatment). Additional pH monitoring is required each day *during* treatment for Alum and PACl. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~"

"2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
- Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
- Long-term: once between 2 – 11 months after the final application.

3. Additional pH monitoring is required each day *during* treatment for Alum and PACl.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day."

9. COMMENT:

Jar tests / bench tests, while frequently conducted for aluminum-based products to evaluate P-binding and impacts on pH, do not seem appropriate for microbial products as acute reduction in pH and metal toxicity are not generally applicable.

RESPONSE:

Application of the chemical and/or biological products allowable under this master general permit must be in conformance with the specifications found in Appendix B and with all directions stated on the manufacturer's product label. The Department has reevaluated the requirement for the biological products to provide all doses tested, such as a jar test in the submitted report to the Department. As a result, the following change has been incorporated into the Product Sheets found in Appendix B for the biological products:

1. The applicant should submit a report to the Department with the anticipated dose to be applied, ~~all doses tested (e.g., gathered from dosing tests like a jar test),~~ ~~as well as~~ and the water quality results of the ~~recommended~~ required parameters.

No other changes have been made to the final permit as a result of this comment.

10. COMMENT:

Aluminum-based phosphorus inactivants are routinely applied in the State as surface water applications for water column stripping. This application method is particularly effective for inactivating spring-time nutrient inputs on an annual basis. Inclusion of this application method is respectfully requested.

Aluminum-based inactivants are also applied as periodic injections into lakes via perforated tubing or aeration assisted dispersal. At least one current lake restoration grant project is structured around such a system. Inclusion
of this method in the HAB permit is respectfully requested.

The nature of inactivation injection systems is to introduce a low-dose of alum on a timed or event-driven (i.e. rainfall) basis. The monitoring requirements currently identified for internal load control focused application may be onerous for a more frequent, but lower dose, application. Inclusion of language clarifying the monitoring
needs under the three proposed application methods would be helpful.

RESPONSE:

As stated under the requirements section found in the Product Sheets in Appendix B "Application for all products found in Appendix B must comply with all directions stated on the manufacture's product label." The Product Sheets in Appendix B only specify the chemical or biological product being applied to the water body,

application methodology is not established. For this reason, the water quality monitoring frequency found in Appendix B for Alum and PACl is maintained regardless of the application method of the product.

No changes have been made to the final permit as a result of this comment.

D. Ed Molesky, Senior Water Resources Manager and Aquatic Biologist, President, Aqua Link Pond and Lake Management, in an email correspondence dated May 23, 2024.

1. COMMENT:

The use of concentrated bacteria additives and phosphorus binding products unfortunately have been lumped together with respect to water quality monitoring – essentially similar levels of monitoring effort and number of test parameters. I am very familiar with many phosphorus (P) binding products such aluminum containing products like Alum and PACl, and lanthanum containing products like Phoslock and Eutrosorb. P binding products work very differently in terms of their chemistries when compared to naturally occurring strains of Bacillus bacteria. For example, alum (aluminum sulfate) is a safe product but care needs to be taken when determining dosing rates. Dosing rates are dependent upon the water chemistry of the lakes themselves such as alkalinity and hardness. Dosing rates need to be reduced when lakes have low buffering capacities (low alkalinity and hardness concentrations) to avoid lowering lake pH values too much, which can result in aluminum toxicity. High levels of free aluminum in freshwater lakes can adversely impact aquatic food chains – namely zooplankton, invertebrates, and other aquatic organisms including fish. In contrast, lanthanum products are relatively new to the U.S. (last 10 years or so) but per my understanding, they have no known toxic risks to aquatic life.

RESPONSE:

As stated on Page 4 of the draft permit Fact Sheet, "Application of the chemical and/or biological products allowable under this master general permit must be in conformance with the specifications found in Appendix B and with all directions stated on the manufacturer's product label." Detailed information regarding the products as well as dosage information for these requested products were previously submitted to and reviewed by the Department's Division of Science and Research and are hereafter approved in this master general permit through issuance of individual authorizations. Therefore, the Department maintains that the specifications regarding dosage as included in the Product Sheets located within Appendix B of this permit are in accordance with information made available to the Department. Any requested changes to dosage requirements must be submitted to the Department's Division of Science and Research for approval prior to incorporation into this Master General Permit.

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data.

No changes have been made to the final permit as a result of this comment.

2. COMMENT:

Other significant differences between P binding and bacteria treatments are the frequency of treatments and the cost of the products. Bacteria treatments can occur in ponds and lakes every 2 to 4 weeks during the growing season (April through October), while much more expensive P binding treatments are applied once every few years if phosphorus inactivation via anoxic sediments is the goal or maybe several times per year during a growing season if phosphorus stripping of the lake water column is the primary objective. As for costs, P binding treatments typically can cost from tens to hundreds of thousands of dollars per treatment

depending upon the lake management strategy. Conversely, annual bacteria treatment programs for lakes (3 to 12 treatments) often range from $5 to $30K annually. Based upon the above, P binding projects like alum are much more expensive and have many more environmental risks (potential metal toxicity to aquatic life) when compared to bacteria treatments. Therefore, in my professional opinion, the level of water quality monitoring for P binding treatments is more justifiable but not appropriate and considered excessive for bacteria treatments (bio-augmentation).

RESPONSE:

The Department has reevaluated the monitoring frequencies included in Table B and has determined that changes are warranted. As a result, the following changes to the Product Sheets in Appendix B for the biological products have been incorporated:

"~~2. Water quality parameters identified in Table A below shall be monitored in both a short-term interval (the day before treatment) and long-term intervals (2 – 11 months after treatment). Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.~~"

"2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:

- Short-term: once before application.
- Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, where the minimum requirements are specified below:

- Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
- Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day."

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data.

3. COMMENT:

I believe NJDEP should consider a more appropriate lake monitoring strategy when it comes to bacteria products. First, bacteria products applied in NJ waters should only contain naturally occurring bacteria strains that are considered safe with a BSL1 (Bio-Safety Level). For example, our MicroLife Clear Max products has a BSL1, is used in aquaculture to breakdown excessive organic waste including toxic ammonia and nitrates, plus is used as a probiotic in the animal feed industry. If a product meets the high standard like MicroLife Clear, the only monitoring that DEP should consider is measuring Secchi disk transparency and dissolved oxygen at the time of application. I respectfully believe that the list of parameters in the HAB Management MicroLife Clear Max Product Sheet and the Fact Sheet are excessive and will not provide much useful information in evaluating the impacts of concentrated bacteria products on aquatic systems.

RESPONSE:

See RESPONSE D.2.

4. COMMENT:

Algaecide and bacteria treatments have two things in common – these treatments are generally performed at least on monthly basis for lakes, and cost significantly less per treatment when compared to P binding treatments. Taking a closer look at copper algaecide treatments, DEP only requires the following testing: 1) determine the hardness concentration of the lake once during the treatment season and 2) measure the dissolved oxygen concentration and Secchi Disk transparency just prior to performing a treatment. Hardness is of course required per the product label because if the pond or lake has a low buffering capacity, copper can be toxic at low pH levels. Based upon the above, the only parameters that make any sense for monitoring purposes are Secchi disk depth and possibly dissolved oxygen.

RESPONSE:

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data.

No changes have been made to the final permit as a result of this comment.

5. COMMENT:

The use of Alum, PACl (polyaluminum chloride), and lanthanum-enriched bentonite clay products are very useful tools for binding phosphorus and thereby controlling the outbreak of harmful algal blooms. Unfortunately, the level of water quality monitoring that is proposed when using these products will be cost prohibitive for many – especially smaller lake and pond owners (< 20 acres). Unfortunately, the lanthanum products have been lumped together with the aluminum containing products. Lanthanum containing products do bind up phosphorus like aluminum, but these products do not have any of the potential toxicity issues like Alum and PACl.

RESPONSE:

At this time, there is insufficient data available for determining the effects of the chemical and biological products referenced in this master general permit on surface waters in the State of New Jersey. Therefore, the Department has determined that the monitoring requirements are necessary to ensure the ensure the protection of the State's surface waters. The Department reserves the right to modify this Master General Permit pursuant to N.J.A.C. 7:14A-16 to incorporate any changes to the monitoring requirements deemed necessary upon evaluation of the data.

No changes have been made to the final permit as a result of this comment.

6. COMMENT:

I believe that it's wonderful that NJDEP has taken the next steps to approve the use of concentrated bacteria additives as a chemical free approach to managing ponds and lakes. Although the proposed general permit, if approved, will allow MicroLife Clear Max (and other products like MicroLife Clear and MicroLife Muck Out) to be applied to lakes, it may be impossible to do so for many pond and lake owners because of the extremely high associated costs with water quality monitoring. The monitoring level for the use of the products should be reduced so that pond and lake managers have more, safer options for controlling HABs.

RESPONSE:

See RESPONSE D.2.

NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM

The New Jersey Department of Environmental Protection hereby grants you a NJPDES permit for the facility/activity named in this document. This permit is the regulatory mechanism used by the Department to help ensure your discharge will not harm the environment. By complying with the terms and conditions specified, you are assuming an important role in protecting New Jersey's valuable water resources. Your acceptance of this permit is an agreement to conform with all of its provisions when constructing, installing, modifying, or operating any facility for the collection, treatment, or discharge of pollutants to waters of the state. If you have any questions about this document, please feel free to contact the Department representative listed in the permit cover letter. Your cooperation in helping us protect and safeguard our state's environment is appreciated.

Permit Number: NJ0356531

Final: Surface Water Master General Permit New

Permittee:
NJPDES Master General Permit Program Interest Category HAB
Per Individual Notice of Authorization Division of Water Quality
Mail Code 401-02B
P.O. Box 420, 401 East State Street
Trenton, NJ 08625-0420

Co-Permittee:

Property Owner:
NJPDES Master General Permit Program Interest Category HAB
Per Individual Notice of Authorization Division of Water Quality
Mail Code 401-02B
P.O. Box 420, 401 East State Street
Trenton, NJ 08625-0420

Location Of Activity:
NJPDES Master General Permit Program Interest Category HAB
Per Individual Notice of Authorization Division of Water Quality
Mail Code 401-02B
P.O. Box 420, 401 East State Street
Trenton, NJ 08625-0420

Authorization Covered Under This Approval	Issuance Date	Effective Date	Expiration Date
HAB - Harmful Algal Bloom (HAB) Management (GP)	5/31/2024	7/01/2024	6/30/2029

By Authority of:
Commissioner's Office

DEP AUTHORIZATION
Brett Callanan, Chief
Bureau of Surface Water and Pretreatment Permitting

(Terms, conditions and provisions attached hereto)

PART I
NARRATIVE REQUIREMENTS:
Harmful Algal Bloom Management (GP)

A. GENERAL REQUIREMENTS FOR HARMFUL ALGAL BLOOM MANAGEMENT

1. Purpose

a. The New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Surface Water (DSW) General Permit for Harmful Algal Bloom Management authorizes the application of certain chemical and biological products, when such applications are made in, over, or near certain surface waters of the State.

B. COVERAGE UNDER THIS GENERAL PERMIT

1. Eligible Products

a. This general permit authorizes the use of the chemical and biological products specified in Appendix B.

b. The Department will review any requests for the application of chemical or biological products not authorized under this master general permit. Requests shall be submitted to the Department via email to habgp@dep.nj.gov. If the Department determines that the current permit conditions are appropriate to regulate the requested product, the Department may issue approval via modification to the master general permit, pursuant to N.J.A.C. 7:14A-16.5.

c. If the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit, pursuant to N.J.A.C. 7:14A-16.5, to remove the specific product or revoke the master general permit to discontinue authorization.

2. Eligible Permit Applicants

a. In accordance with N.J.A.C. 7:14A-1.2 and as defined in Appendix A, the Operator is responsible for coverage under this general permit and assumes full responsibility for permit compliance. The following Operators are required to obtain a general permit authorization:

i. Operators applying chemical and/or biological products; and/or

ii. Operators hiring another party/for-hire Applicator to apply chemical and/or biological products.

b. The Operator and/or, if applicable, the for-hire Applicator, must possess a valid Commercial Pesticide Applicator License and be certified in Category 5 – Aquatic Pest Control, as defined at N.J.A.C. 7:30 to apply chemical or biological products in, over, or near surface waters of the State.

3. Eligible Activities

a. This general permit authorizes the application of certain chemical and biological products to lakes and ponds, classified as Category 2 (C2) designated receiving waters, as defined in the SWQS at N.J.A.C. 7:9B-1.

b. Application of chemical and/or biological products to a waterbody that is not specified in item a. above may be considered by the Department on a case-by-case basis.

c. Prior to authorization under this master general permit for the application of a product to an eligible waterbody, the Department's Division of Fish and Wildlife must be consulted with to determine if any timing restrictions due to fish stocking are applicable. If applicable, an individual general permit authorization may contain requirements for timing restrictions.

d. Product application to a state-owned lake must be identified on the permit application. The Department reserves the right to include additional restrictions or to deny an individual general permit authorization to a state-owned lake.

4. Activities Not Covered

a. Application of chemical and/or biological products to Outstanding National Resource Waters, Freshwater 1 (FW1) Waters, and Pinelands (PL) waters, as defined at N.J.A.C. 7:9B-1, are not eligible for authorization under this general permit.

b. This master general permit does not authorize the discharge of chemical and/or biological pesticides to surface waters of the State. Any application of chemical and/or biological pesticides in, over, or near surface waters of the State must receive authorization under a separate general permit, namely, the NJPDES (No. NJ0178217) Pesticide Application Discharge (Category PGP).

C. ADMINISTRATIVE PROCESS

1. Application Requirements

a. The HAB checklist and application forms are available on the Department's website at: www.nj.gov/dep/dwq/forms_surfacewater.htm.

b. The following information shall be included in a permit application for authorization under this general permit:

i. Contact information and license number of the Operator;

ii. Contact information and license number of the for-hire Applicator (when applicable);

iii. Name and description of the waterbody and if the waterbody is a state-owned lake;

iv. Projected timeframe of product application(s);

v. Size of treatment area (acres and/or linear miles);

vi. Approximate latitude and longitude of treatment location;

vii. Requested chemical and/or biological product(s) to be used; and

viii. Pre-application monitoring data, as required by the application forms.

c. The Operator authorizing the activity which will result in the application of a product and resultant discharge to be authorized by this general permit must sign the NJPDES Form-1 and HAB Supplemental Form, in accordance with N.J.A.C. 7:14A-4.9, certifying that the product application will comply with all the conditions of this general permit.

d. A complete and signed application shall be electronically submitted to the Department at least thirty (30) days prior to product application via email to habgp@dep.nj.gov.

e. The applicant becomes authorized for application of a product and resultant discharge under this general permit once a final individual general permit authorization has been issued by the Department.

f. Authorization under this master general permit allows the application of the specified product to the specified waterbody listed in the initial permit application. If a permit applicant requests application of additional product(s) and/or an application to additional waterbodies not listed in the initial permit application, a HAB Supplemental Application Form must be submitted to the Department at least thirty (30) days prior to each additional product and/or waterbody application. The permit applicant becomes authorized for the additional product and/or waterbody application when a modification to the individual general permit authorization has been issued by the Department.

g. An individual authorization issued under the Master Harmful Algal Bloom Management General Permit will be given two NJPDES numbers. The NJPDES number on the individual general permit authorization beginning in "NJG" is specific to the applicant, whereas the NJPDES number NJ0356531 is for the master general permit.

h. All authorizations will have the same expiration date and will follow the same permit cycle. In accordance with N.J.A.C. 7:14A-2.7, all NJPDES permits shall be issued for fixed terms not to exceed five (5) years.

i. The Department may deny authorization under this general permit, if deemed appropriate.

j. A general permit authorization renewal application shall be submitted 180 days before the expiration date.

k. A general permit revocation request form shall be submitted to the Department if the applicant no longer requires authorization under this general permit.

l. Questions regarding this general permit, should be directed to the Bureau of Surface Water and Pretreatment Permitting at (609) 292-4860 or via email at habgp@dep.nj.gov.

D. CONDITIONS FOR AUTHORIZATION UNDER THE NJPDES MASTER FOR HARMFUL ALGAL BLOOM MANAGEMENT GENERAL PERMIT

1. Product Application Requirements

a. Application of the chemical and/or biological products allowable under this master general permit must be in conformance with the specifications found in Appendix B and all directions stated on the manufacturer's product label.

b. The Operator or for-hire Applicator is prohibited from performing any product application if dead or visibly distressed non-target organisms and/or stunted, wilted, or desiccated non-target submerged or emergent aquatic plants are observed during any pre-application visual monitoring.

2. Visual Monitoring Requirements During Product Application

a. During any product application under this general permit, all Operators or for-hire Applicators must visually assess the area to and around where products are applied for possible and observable adverse incidents, as defined in Appendix A, including the unanticipated death or distress of non-target organisms and disruption of wildlife habitat..

3. Visual Monitoring Requirements After Product Application

a. All Operators or for-hire Applicators must conduct a post application surveillance of any product application. The post application surveillance must visually assess the area to and around where products were applied for possible and observable adverse incidents, as defined in Appendix A, including the unanticipated death or distress of non-target organisms and disruption of wildlife habitat..

4. Water Quality Parameters

a. Operators and/or for-hire Applicators must monitor the water quality parameters specified in Appendix B.

b. The water quality parameters shall be monitored at the frequencies specified for each product in Appendix B.

c. The monitoring location shall be an area representative of the waterbody. The Operator and/or for-hire Applicator shall perform monitoring at multiple locations based on the size of the waterbodies specified in Appendix B.

d. All digital meters for sampling of water quality parameters shall be calibrated in accordance with the specifications in Appendix B.

5. Public Notification and Signage

a. The Operator is required to publish the following in a daily or weekly newspaper within the affected area for one day to request authorization under the General Permit, pursuant to N.J.A.C. 7:14A-6.13(d)3:

i. "Notice is hereby given that pursuant to N.J.A.C. 7:14A-6.13(d)3, [insert name of applicant] intends to submit a request for authorization under the General Harmful Algal Bloom (HAB) Management Permit No. NJ0356531 to the New Jersey Department of Environmental Protection. This authorization will allow [insert operating entity or company name] to apply product into [insert name of surface water].

b. Signs shall be posted at treatment sites at least 24 hours prior to the start of the product application and removed no sooner than 72 hours after completion of the authorized activity. Signage shall include the following details:

i. Signs shall be posted at the shoreline of the treatment area;

ii. Signs must have letters at least 1 inch high and shall bear the following statement: "TREATED WATER";

iii. List of products applied;

iv. Date of product application;

v. Any water use restrictions and time limits, as defined on the product label;

vi. The signs shall remain legible and posted until the greatest time for the use of the treated water has passed according to label directions; and

vii. Name, email address, and telephone number of the Operator and, if applicable, the for-hire Applicator.

E. RECORDKEEPING

1. General Recordkeeping

a. This permit requires Operators and for-hire Applicators to maintain certain records to help them assess the performance of HAB management measures and to document compliance with permit conditions. Operators and for-hire Applicators can utilize any records and documents developed for other programs, provided that all requirements of this general permit are satisfied.

b. All required records shall be prepared as soon as possible, but no later than thirty (30) days following completion of the associated activity. Operators shall retain copies of these documents for a period of at least five (5) years from the date of coverage under this general permit, in accordance with N.J.A.C. 7:14A-6.6.

2. Recordkeeping Requirements for Operators

a. The following records shall be retained by the Operator, specifically the person who alone or along with the other persons has primary management and operational decision-making authority over any part of the activity:

i. A copy of the permit;

ii. Adverse incident reports, as defined in Appendix A, and rationale for any determination that reporting of an identified adverse incident is not required;

iii. A copy of any corrective action documentation; and

iv. A copy of any spill, leak, or other unpermitted discharge documentation, as defined in Appendix A.

3. Recordkeeping Requirements for Operators and For-hire Applicators

a. The following records shall be retained by the Operator and for-hire Applicator:

i. Name and license number of individual(s) who applied the product;

ii. Documentation of equipment calibration;

iii. Information on each treatment area, including location and size (acres or linear feet) of treatment area and the name of the waterbody to which products are applied;

iv. Name and quantity of each product applied to each treatment area;

v. Product application date(s);

vi. Whether monitoring identified any possible or observable adverse incidents caused by application of products, during application or post-application; and

vii. Public notices published in newspapers in accordance with Section D.5.a

4. Access to Records

a. In accordance with N.J.A.C. 7:14A-2.11, the Operator shall allow an authorized representative of the Department access to any records and public noticesthat are required to be kept under the conditions of this general permit.

F. REPORTING

1. Reporting of Visual Monitoring

a. The Operator shall submit the results of the visual monitoring assessment in accordance with D.2 to the Department via email to habgp@dep.nj.gov within thirty (30) days following completion of the authorized activity.

b. The Operator shall submit the results of the post-application visual monitoring assessment in accordance with D.3 to the Department via email to habgp@dep.nj.gov within thirty (30) days following completion of the authorized activity.

2. Reporting of Water Quality Monitoring Results

a. The Operator shall submit all water quality monitoring results obtained in accordance with D.4 of this general permit to the Department via email to habgp@dep.nj.gov. Short-term monitoring results shall be submitted within 30 days after short-term sampling is completed. Long-term monitoring results shall be submitted within 30 days after long-term sampling is completed.

3. Annual Reporting (Including Inventory)

a. An annual report shall be submitted by the Operator to the Department via email to habgp@dep.nj.gov, no later than December 31st of the year, and shall include the following:

i. Contact information of the Operator;

ii. Contact information of the for-hire Applicator (if applicable);

iii. Contact information for Authorized Agent and/or Permit contact (if applicable);

iv. NJPDES permit number(s);

v. The inventory report must include: waterbody name, product(s) used, amount of product applied, and acreage treated;

vi. A summary report of all adverse incidents that occurred during the previous calendar year;

vii. A summary of any corrective actions, including spill responses, in response to the adverse incident(s), and the rationale for such actions; and

viii. Brief description of what was observed during visual monitoring, including the location, date and time.

G. NOTIFICATION OF NONCOMPLIANCE

1. Adverse Incidents, Reportable Spill and Leaks, and Other Unpermitted Discharges

a. Operators and/or for-hire Applicators shall contact the NJDEP Hotline (1-877-WARN-DEP) immediately, but no later than two (2) hours after observing or becoming aware of an adverse incident, reportable spill or leak as defined in Appendix A, or any other unpermitted discharge. The following information shall be reported to the NJDEP Hotline:

i. The caller's name and telephone number;

ii. Operator and, if applicable, the for-hire Applicator's contact information;

iii. NJPDES permit number of the general permit authorization issued to the Operator;

iv. The name and telephone number of a contact person, if different than the person providing the 2-hour notice;

v. How and when the individual became aware of the adverse incident, spill, leak, or other unpermitted discharge;

vi. Description of the location of the adverse incident, spill, leak, or other unpermitted discharge;

vii. Description of the adverse incident, spill, leak, or other unpermitted discharge and the description of the product(s) that was applied, spilled, leaked, or discharged in the affected area; and

viii. A description of any actions the Operator has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects, if the incident is believed to be as a result of the Operator's and/or for-hire Applicator's activity.

b. If the Operator and/or for-hire Applicator is unable to notify the NJDEP Hotline within two (2) hours, they shall do so as soon as possible and provide rationale for why they were unable to provide such notification.

2. Written Report

a. If the Department determines that an adverse incident was as a result of the Operator's and/or for-hire Applicator's activity, the Operator is required to provide a written report to the Department via email to habgp@dep.nj.gov within ten (10) days of notice from the Department. The report shall include the following information:

i. Information required to be provided to the NJDEP Hotline, as specified in Part I Section G.1.a of this permit;

ii. Date and time the Operator contacted the Department notifying of the adverse incident;

iii. Location of adverse incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc.);

iv. A description of the circumstances of the adverse incident, including, 1) species affected, 2) number of individuals and 3) approximate size of dead or distressed organism;

v. Magnitude of the effect (e.g., aquatic square area or total stream distance affected);

vi. Name and quantity of product applied, and method application;

vii. Description of the habitat and the circumstances under which the incident occurred (including any available ambient water data for product applied);

viii. Action to be taken to prevent recurrence of adverse incidents.

H. GENERAL REQUIREMENTS FOR ALL NJPDES PERMITS

1. Requirements Incorporated by Reference

a. The permittee shall comply with all conditions set forth in this permit and with all the applicable requirements incorporated into this permit by reference. The permittee is required to comply with the regulations, including those cited in paragraphs b. through e. following, which are in effect as of the effective date of the final permit.

b. General Conditions

Penalties for Violations	N.J.A.C. 7:14-8.1 et seq
Incorporation by Reference	N.J.A.C. 7:14A-2.3
Toxic Pollutants	N.J.A.C. 7:14A-6.2(a)4i
Duty to Comply	N.J.A.C. 7:14A-6.2(a)1 & 4
Duty to Mitigate	N.J.A.C. 7:14A-6.2(a)5, 6.2(a)11
Inspection and Entry	N.J.A.C. 7:14A-2.11(e)
Enforcement Action	N.J.A.C. 7:14A-2.9
Signatory Requirements for Applications and Reports	N.J.A.C. 7:14A-4.9
Effect of Permit/Other Laws	N.J.A.C. 7:14A-2.9(c), 6.2(a)6&7
Severability	N.J.A.C. 7:14A-2.2(b)
Administrative Continuation of Permits	N.J.A.C. 7:14A-2.8
Permit Actions	N.J.A.C. 7:14A-2.7(c)
Permit Duration and Renewal	N.J.A.C. 7:14A-2.7(a)&(b)
Confidentiality	N.J.A.C. 7:14A-18.2 & 2.11(g)
Treatment Works Approval	N.J.A.C. 7:14A-22 & 23
General Permits	N.J.A.C. 7:14A-6.13

c. Operation and Maintenance

Need to Halt or Reduce not a Defense	N.J.A.C. 7:14A-2.9(b)
Proper Operation and Maintenance	N.J.A.C. 7:14A-6.12(a)

d. Monitoring And Records

Monitoring	N.J.A.C. 7:14A-6.5
Record Keeping	N.J.A.C. 7:14A-6.6
Signatory Requirements for Monitoring Reports	N.J.A.C. 7:14A-6.9

e. Reporting Requirements

Planned Changes	N.J.A.C. 7:14A-6.7
Noncompliance Reporting	N.J.A.C. 7:14A-6.10
Hotline/Two Hour & Twenty-four Hour Reporting	N.J.A.C. 7:14A-6.10(c) & (d)
Written Reporting	N.J.A.C. 7:14A-6.10(e) &(f) & 6.8(h)
Duty to Provide Information	N.J.A.C. 7:14A-2.11, 6.2(a)14 & 18.1
Transfer	N.J.A.C. 7:14A-6.2(a)8, 6.13(n), 16.1, 16.2

APPENDIX A

Appendix A serves to supplement the Definitions specified at N.J.A.C. 7:14A-1.2. For the purposes of this permit, the following definitions apply:

Adverse incident - any effect that an Operator or for-hire Applicator has observed upon inspection or of which the Operator otherwise becomes aware within 72 hours, in which:

1. There is evidence that a person or non-target organism has likely been exposed to a product residue;

2. The person or non-target organism suffered a toxic or adverse effect. The phrase "toxic or adverse effects" includes effects that occur within a water of the State on non-target plants, fish or wildlife that are unusual or unexpected (e.g., effects are to organisms not otherwise described on the product sheet, product label or otherwise not expected to be present) as a result of exposure to a product residue, and may include:

    a. Distressed or dead juvenile and small fishes;
    b. Washed up or floating fish;
    c. Fish swimming abnormally or erratically;
    d. Fish lying lethargically at the water surface or in shallow water;
    e. Fish that are listless or nonresponsive to disturbance;
    f. Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants; and/or
    g. Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.).

    The phrase, "toxic or adverse effects," also includes any adverse effects to humans (e.g., skin rashes) or domesticated animals that occur either from direct contact with or as a secondary effect from a product application (e.g., sickness from consumption of plants or animals containing products) to waters of the State that are temporally and spatially related to exposure to a product residue (e.g., vomiting, lethargy); and

Biological Products – products used to combat harmful algal blooms by using microbial nutrient competition to reduce phosphorus loading in waterbodies.

Chemical Products – products used to combat harmful algal blooms through controlling the internal or external phosphorus loading within a waterbody.

For-hire Applicator – persons who possess a valid Commercial Pesticide Applicator License and be certified in Category 5 – Aquatic Pest Control that is issued by the Department. They make contractual product applications for which they or their employer receive compensation (e.g., lawn care firms, pest control companies).

Harmful Algal Bloom (HAB) – an algal bloom that can be dangerous to people, animals, or the ecology. Some, but not all, HABs produce chemicals that can be toxic to humans and animals if ingested, inhaled, or if contacted by skin or mucous membranes. These toxins can also accumulate in fish and shellfish which can cause illness when either is consumed. HABs often occur under suitable environmental conditions of light, temperature, nutrient enrichment, and calm water. These blooms can result in a thick coating or mat on the surface of a waterbody, frequently in late summer or early fall, but blooms can occur year-round.

Leak – a reportable leak means a leak of one gallon liquid or more of any combination of any product and/or diluent, or one pound or more of any dry product formulation.

Lake or pond – any impoundment, whether naturally occurring or created in whole or in part by the building of structures for the retention of surface water, excluding sedimentation control and stormwater retention/detention basins and ponds designed for treatment of wastewater. Lakes and ponds are characterized by a long term or permanent downgradient restriction of surface water flow from the impoundment and areas of quiescent water within the body of the impoundment. Lakes and ponds are frequently characterized by greater water depths within the impoundment than either the upgradient or downgradient surface water flow and by shallow water lateral edges containing emergent or submerged plant species. For regulatory purposes, the upgradient boundary of a lake or pond shall be considered to be the point at which areas of greater depth and relatively quiescent water can be differentiated from the upgradient surface water input into the impoundment under average flow conditions.

Non-target Organisms – the organisms located in the community that are not the target of the product.

Operator – responsible for coverage under this permit and assumes full responsibility for permit compliance, and may possess a valid Commercial Pesticide Applicator License, issued by the Department, certified in Category 5 – Aquatic Pest Control, in accordance with N.J.A.C. 7:30. An Operator is any person who alone or along with the other persons has primary management and operational decision-making authority over any part of the activity covered under this permit, and that meets either of the following two criteria:

(i) The entity has control over the financing for, or the decision to perform product applications that result in discharges, including the ability to modify those decisions; or

(ii) The entity has day-to-day control of or performs activities that are necessary to ensure compliance with the permit (e.g., they are authorized to direct workers to carry out activities required by the permit or perform such activities themselves).

Permittee – for the purposes of this permit, the permittee is the same as Operator.

Pollutant – any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, agricultural, and construction waste or runoff or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a DTW. “Pollutant” includes both hazardous and nonhazardous pollutants.

Product – products eligible for authorization under this permit can be found within the individual Product Sheets found in Appendix B.

Product Residue – material that is not deliberately produced in a production process which can be toxic to the environment.

Spill – a reportable spill means a spill of at least one gallon liquid or one pound more of any combination of any product.

Surface Water – water at or above the land's surface which is neither ground water nor contained within the unsaturated zone, including, but not limited to, the ocean and its tributaries, all springs, streams, rivers, lakes, ponds, wetlands, and artificial waterbodies.

Treatment Area – the entire area over water where the product application is intended to provide benefits within the treatment management area. In some instances, the treatment area will be larger than the area where products are applied. For example, the treatment area for a lake area is the water surface area where the application is intended to provide benefits.

Appendix B:

Harmful Algal Bloom Management Product Sheets

List of Product Sheets:

1. Alum & Polyaluminum Coagulants (PACl)
2. EutroSORB WC
3. MicroLife Clear
4. MicroLife Clear Max
5. MicroLife Clear Muck Out
6. MuckAway Pro
7. MuckBiotics
8. Nature's Blend
9. Phoslock®
10. PondClear PRO

Alum

Alum (aluminum sulfate) and aluminum salts can be applied to the surface of a water body as liquid (more common form) or as a solid. When alum is added to the water, aluminum hydroxide (Al(OH)3) is formed. Aluminum hydroxides, naturally present in most lake sediments, act as adsorbents because they bind the Phosphorus. The optimum pH for alum treatment is between 6.0 and 8.0 S.U. The formation of aluminum hydroxide reduces alkalinity leading to a decrease of pH in the waterbody. For this reason, a buffer solution can be applied with alum treatment to raise the pH to a more neutral level. The application of alum can also remove phosphorus by forming aluminum phosphates and releasing sulfate ions.

Polyaluminum Coagulants (PACl)

These highly polymerized coagulants act in a similar manner to Alum. Aluminum hydroxychloride dissociates in water to form aluminum hydroxide species and chloride ions. Some of the most common forms include: polyaluminium chloride, aluminum chlorohydrate, and polyaluminium chlorohydrate. PACl works satisfactorily between a pH range of 5.0 – 8.0 S.U.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. The dose determination depends on many factors: P concentration, alkalinity, pH, etc.

Phosphorus (P) removal is obtained by adding enough Alum/PACl throughout the water column. Alum and PACl are usually applied as a one-time dose due to its cost as well as effectiveness. The applications of these products work for situations where internal P loading is higher than external loading of P. Examples of external loading of P are from sources such as surface water runoff and internal loading of P is from releases of sediment bound P during biological or chemical processes in the waterbody. In these situations, by binding and reducing the internal P load, the biological activity of photosynthetic organisms (specifically cyanobacteria) is measurably reduced. Jar tests must be conducted to determine the correct quantity of alum/PACl to apply. For example, a testing vessel (e.g., five gallon plastic bucket) filled with sample water and treated with alum will be tested and compared to a control bucket with only sample water.

Alum treatment **should not** be applied if the following water quality characteristics are observed:

1) Alkalinity lower than 35 mg/L as $CaCO_3$,
2) pH lower than 6.0 S.U. or higher than 8.0 S.U., and
3) High external P loading.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), and the water quality results of the required parameters.

2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

3. Additional pH monitoring is required each day *during* treatment for Alum and PACl.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of Alum and PACl.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Dissolved aluminum	
• Total recoverable aluminum	
• Total phosphorous	
• Secchi depth[1]	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

EutroSORB WC

EutroSORB WC is a liquid product manufactured by SePRO Corporation.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. The proposed use of EutroSORB WC involves diluting the product with lake or pond water, and then applying the diluted solution directly to a water body (surface or subsurface) to reduce the phosphate level.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), and the water quality results of the required parameters.

2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

3. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

4. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of EutroSORB WC.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

MicroLife Clear

MicroLife Clear is a proprietary blend of bacteria manufactured by Hydro Logic, Inc.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Maximum dosing allowable: 4 lbs per surface acre initial treatment, then reduction to 2 lbs per surface acre treatment per week. The recommended dosing is 4 – 16 oz per surface acre every 2 to 4 weeks.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of MicroLife Clear.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

MicroLife Clear Max

MicroLife Clear Max is a proprietary blend of bacteria manufactured by Hydro Logic, Inc.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Applicators are instructed to dissolve 5 lbs of product in 5 gallons of water to be treated (1:1 ratio). Applicators can apply between 4 – 16 oz of product per surface acre every 2 to 4 weeks. An initial double dose of 8 – 32 oz per acre is recommended. The maximum dosing which was used in any reported value was 6 lbs per acre (96 oz per acre) at a frequency of once per month for the targeted removal of organic sediments.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of MicroLife Clear Max.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

MicroLife Clear Muck Out

MicroLife Clear Muck Out is a proprietary blend of bacteria manufactured by Hydro Logic, Inc

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Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Maximum dosing allowable: Initial dosing is 40 packets per acre, then reduction to 20 packets per acre per week. The recommended dosing is 5 – 10 packets per surface acre every 2 to 4 weeks.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of MicroLife Clear Muck Out.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

MuckAway PRO

MuckAway PRO is a microbial blend manufactured by Airmax Company.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Therefore, the vendor dosing should not exceed 10 – 50 lbs per surface acre. MuckAway PRO can be applied every two to four weeks while water temperature is above 50°F.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application MuckAway PRO.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 ºC	± 0.1 ºC	± 0.1 ºC	± 0.2 ºC
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

MuckBiotics

MuckBiotics is a biological tablet manufactured by Natural Lakes Biosciences.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Table A reports the suggested amount of product to apply to the water. For example, a ¼ surface acre application for targeted muck reduction (5.0 – 12.5 lbs) would also cover muck maintenance and preventions and degradation of floating debris.

Table A: Monthly recommended MuckBiotics dosage (lbs)[1]

Surface Area (acres)	Targeted Muck Reduction (lbs)	Muck Maintenance and Prevention (lbs)	Degradation of Floating Debris (lbs)
0.25	5.0 – 12.5	2.5 – 6.25	1.25 – 3.75
0.5	10 – 25	5.0 – 12.5	2.5 – 7.5
1	20 – 50	10 – 25	5.0 – 15
5	100 – 250	50 – 125	25 – 75
10	200 – 500	100 – 2500	50 – 150
100	2000 – 5000	1000 – 2500	500 – 1500

Footnotes:
[1] Source: MuckBiotics website. (https://naturalake.com/product/muckbiotics)

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table B shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table B shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table C below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table D.

Table B: Water quality parameters to monitor with the application MuckBiotics.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table C: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table D: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

Nature's Blend

Nature's Blend is a dry powder with a proprietary blend of bacteria cultures produced by Natural Lake Biosciences.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Nature's Blend should be applied bi-weekly when water temperatures are in the range of 58-78°F.

The dosage is determined by the necessary microbial activity appropriate for the waterbody size. Applicators should report the size of the applied area and calculate the application amount based on that. Table A below reports the suggested amount of product to apply to the water.

Table A: Recommended Nature's Blend Dosage Rates[1]

Surface Area (acres)	Initial Application (lbs)	Standard Application (lbs)	Hypereutrophic Water (lbs)
0.25	1.0	0.5 – 1.0	1.5
0.5	1.5	0.5 – 1.5	3.0
1	3.0	1.0 – 3.0	6.0
5	15	5.0 – 15	30
10	30	10 – 30	60
100	300	100 – 300	600

Footnotes:

[1] Source: Natural Lake website (https://naturallake.com/product/natures-blend/)

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table B shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table B shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table C below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table D.

Table B: Water quality parameters to monitor with the application Nature's Blend.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table C: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table D: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

Phoslock®

Lanthanum modified bentonite (LMB), is commercially known as Phoslock®. The optimum pH for Phoslock® treatment is between 5.0 and 7.0 S.U.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's registered product label. The Phoslock® dose determination depends on many factors: Phosphorus (P) concentration, alkalinity, pH, etc. In general, 1,000 kg of Phoslock removes 34 kg of PO4-2 (11 kg of P). Usually, Phoslock consists of lanthanum (5% in weight) and bentonite (95% in weight). Most studies estimate that most P is released within the first 4 – 5 cm. Another formula can be:

Water column Phosphorus load + P released by sediments = total P load
Total P load (kg)*100 = Phoslock dosages to apply

Phoslock® **should not** be applied if the following conditions occur:

1) pH lower than 5.0 or higher than 8.0 S.U.
2) Sulfate concentration between 100 and 3,000 mg/L
3) Carbonate concentration between 100 and 6,000 mg/L

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, all doses tested (e.g., gathered from dosing tests like a jar test), and the water quality results of the required parameters.

2. The water quality parameters, identified in Table A, including field parameters, shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

3. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

4. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of Phoslock®.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Dissolved lanthanum	
• Total lanthanum	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)

PondClear PRO

PondClear PRO is a microbial blend manufactured by Airmax Company.

Dose Determination and Application

Application must comply with all directions stated on the manufacturer's product label. Maximum dosing allowable: 6 – 8 lbs (6 – 12 packets) per surface acre, every 2 to 4 weeks. The recommended dosing is 2 – 4 lbs (4 – 8 packets) per surface acre.

Requirements

1. The applicant should submit a report to the Department with the anticipated dose to be applied, and the water quality results of the required parameters.

2. The water quality parameters identified in Table A shall be monitored in a short-term and a long-term interval, where the minimum requirements are specified below:
    - Short-term: once before application.
    - Long-term: once between 2 – 11 months after the final application.

3. The water quality field parameters identified in Table A shall be monitored in short and long-term intervals, where the minimum requirements are specified below:
    - Short-term: once before application, once within one week after final application, and once between 1 – 4 weeks after final application.
    - Long-term: once between 2 – 11 months after the final application.

4. Monitoring shall be performed at multiple locations based on the size of the waterbody, as indicated in Table B below. Monitoring shall occur at approximately the same time each day.

5. To ensure accuracy, calibration of digital meters must be performed before every measurement for the water quality field parameters indicated in Table C.

Table A: Water quality parameters to monitor with the application of PondClear Pro.

Physical and Chemical Parameters	Biological Parameters
• Water temperature[1]	• Zooplankton counts
• Dissolved oxygen[1]	• Cyanobacteria species counts
• pH[1]	
• Conductivity[1]	
• Total alkalinity	
• Total hardness	
• Dissolved organic carbon	
• Total phosphorous	
• Secchi depth[1]	
• Soluble reactive phosphorus	

In the event that the Department determines that the use of a chemical or biological product authorized under this master general permit is no longer acceptable, the Department reserves the right to modify this master general permit to remove the specific products or revoke this master general permit to discontinue authorization.

Footnotes:
[1]Field Parameter

Table B: Number of locations required for sampling based on size of waterbody.

Waterbody Size (acres)	Number of Sample Locations
≤ 20	3
> 20 and ≤ 50	4
> 50 and ≤ 200	5
> 200 and ≤ 1,000	6
> 1,000	7

Table C: Calibration of Digital Meters for Water Quality Parameters.

Field Parameter	Range	Resolution	Accuracy	Sensor Stabilization Criteria[1]
Water Temperature[2]	-5 – 45 °C	± 0.1 °C	± 0.1 °C	± 0.2 °C
Dissolved oxygen[3]	0.05 – 20 mg/L	± 0.2 mg/L	± 2%	± 0.2 mg/L
	0.05 – 20 mg/L	± 0.1 mg/L	± 1%	± 0.2 mg/L
pH[2,4]	0 – 14 S.U.	± 0.1 S.U.	± 0.1 S.U.	± 0.1 – 0.2 S.U.; if drifting persists or if measuring low-conductivity waters (≤75 µS/cm), allow ± 0.3 S.U.
Conductivity[2,4]	0 – 200,000 mS/cm	2 mS/cm	± 1.5%	± 5% for conductivity values ≤100 µS/cm, or ± 3% for conductivity values >100 µS/cm

Footnotes:
[1]Source: From National Field Manual for the Collection of Water Quality Data, USGS
[2]Grab sample at 1 foot below water level
[3]Grab samples profiles (reading at 1 foot below water level and at 1-2 foot intervals up to 2 foot above lake bottom)
[4]Grab sample at 2 feet above lake bottom (if site is more than 10 ft deep)