State of New Jersey

PHIL MURPHY
Governor

TAHESHA L. WAY
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Mail Code – 401-02B
Water Pollution Management Element
Bureau of Surface Water & Pretreatment Permitting
P.O. Box 420 – 401 E State St
Trenton, NJ 08625-0420
Phone: (609) 292-4860 / Fax: (609) 984-7938

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

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 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

---

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)