Aquatic Nuisance Control Individual Permit

Under 10 V.S.A. § 1455

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
LAKES & PONDS PROGRAM

Permittees: Lake Fairlee Association & Aquatic Control Technology	**Permit Number: 2015-C03**
Control Activity: Pesticide (SePRO Renovate OTF®)	**Waterbody: Lake Fairlee**

Based upon the Findings contained in this permit, the Secretary of the Agency of Natural Resources has determined that the proposed aquatic nuisance control activity will comply with 10 V.S.A. § 1455, and is hereby approved under the following conditions and specifications.

1 Specific Conditions

1a. **Pesticide Use.** The Permittee is authorized to apply SePRO Renovate OTF® (Registration Number 67690-42), a flake formulation active ingredient 14% triclopyr (3, 5, 6-trichloro-2-pyridinyloxyacetic acid, triethylamine salt), once annually to Lake Fairlee in accordance with the approved treatment plan. This pesticide shall be registered with the U.S. Environmental Protection Agency and the Vermont Agency of Agriculture, Food and Markets at the time of use and handled, applied, and disposed of in conformance with all state and federal regulations.

1b. **Certified Applicator.** All applicators of the authorized pesticide shall be certified by the Vermont Agency of Agriculture, Food and Markets in Category Five – Aquatic Pest Control.

1c. **Treatment Plan.** A final treatment plan shall be submitted to the Secretary for approval not less than four weeks prior to pesticide use. The treatment plan shall include the following:

1) A map identifying all area(s) in which pesticides will be used;
2) Approximate date(s) of pesticide use;
3) Pesticide target concentration(s); and,
4) Pesticide concentration monitoring locations.

1d. **Target Concentration.** In accordance with the approved treatment plan, the authorized pesticide may be used once annually, and shall be applied in a manner to achieve and maintain a target concentration of 2—2.5 parts per billion (ppb), based upon the bottom 4 feet of the water column (or deeper as conditions warrant).

1e. **Application.** To increase the concentration-exposure time, the herbicide shall be applied in the following manner: 50-70% of the herbicide shall be applied to all treatment areas, with the remaining portion sequentially applied to the same treatment areas several hours later.

1f. **Notification.** The Secretary shall be notified one week in advance of any pesticide use.

1g. **Public Informational Notification.** Prior to treatment, informational notifications shall be provided to the public of the water use advisories and recommendations as outlined below:

1) The informational notification shall include:
   - Date of the treatment;
   - Description of the herbicide to be used;
   - Summary of the use advisories and recommendations (per condition 1h below);
   - Map of the waterbody and treatment areas;
   - Statement that informational signs posted along shoreline properties and roadways will provide the exact treatment date/time and applicable use advisories and recommendations;
   - Statement that bottled water may be provided by the Permittee upon request to any person restricted from using their domestic water supply, taken directly from the lake or its effluent for drinking or for food preparation;
   - Contact name(s), address(es), and telephone number(s) for all Permittees; and,

- Statement informing all property owners that if their property is leased, rented or used at any time during treatment and/or while the use advisories are in effect, the property owner is responsible for properly informing all transient users.

2) The informational notification shall be provided to ALL abutting property owners (including commercial camps) to Lake Fairlee and within one mile of the effluent at least 15 days prior to the scheduled treatment date by one of the following:
   - Hand-delivery;
   - Confirmation receipt electronic mail;
   - Stamped, return postcard to indicate receipt;
   - Sent USPS Certified Mail™ or via Certificate of Mailing (PS Form 3817); or,
   - Other methods that provide proof of notification.
3) The informational signs shall be/posted:
   - In locations visible to vehicle traffic, shoreline property owners and potential lake users;
   - Weather resistant and at least 8½ inches in width by 11 inches in height;
   - At least two days prior to the scheduled treatment date;
   - Along all public roadways approximately ~1,000 feet in the vicinity of the shoreline;
   - At all public and private campgrounds, hotels, inns, beaches and access points;
   - At the municipal office(s);
   - Updated immediately when water use advisories or treatment plans change; and,
   - May be removed 30 days after treatment, when only the irrigation advisories remain.
4) Copies of the aforementioned notification and signs shall be provided to the Secretary at the same time as they are made available to the public.
5) Treatments should occur only on a Monday, Tuesday, Wednesday, or Thursday to minimize unnecessary pesticide exposure to the public over a weekend.

1g. **Herbicide Concentration Monitoring.** Triclopyr concentrations shall be monitored accordingly and in conformance with the approved herbicide treatment plan:

1) At least two weeks prior to treatment, the Permittee shall submit to the Secretary a map of proposed sample locations for review and written approval.
2) The Permittee shall collect water samples or arrange for samples to be collected for the analysis of triclopyr.
3) Samples shall be collected within the bottom four feet of water at each sample site using appropriate equipment and techniques to collect samples at this depth.
4) Sampling shall begin approximately 24 hours after completion of treatment and continue at least monthly until all sample results demonstrate triclopyr is at or below 75 ppb, at which point sampling may be discontinued.
5) Additional samples and sample locations, including but not limited to lake sediments and adjacent water supply wells may be required as determined by the Secretary.
6) Samples shall be analyzed at the SePRO Corporation laboratory (or another qualified laboratory) to analyze triclopyr by the FasTEST method (or approved equivalent) with a detection limit of 1 ppb for triclopyr.
7) Laboratory results shall be submitted to the Secretary within 24 hours of completion.
8) Sampling and laboratory analysis may be discontinued with written approval from the Secretary.

1h. **Water Use Advisories & Recommendations**. To minimize unnecessary exposure, the following water use advisories and recommendations apply:

1) No use (including but not limited to swimming, boating, fishing, irrigation, and all domestic uses) of the treated water body and associated outlet stream for one mile downstream for any purpose is recommended on the day of and the day after treatment.

2) Recreational use (such as swimming, boating, fishing and toilet flushing) as well as domestic uses other than drinking and food preparation may resume on the 2nd day after treatment.
3) All domestic use (including drinking and food preparation) may resume only when triclopyr is detected at less than or equal to 75 ppb.
4) When triclopyr is confirmed to be less than or equal to 75 ppb, full use of the treated water body and its outlet stream(s) may resume. Until full use can be resumed, bottled water should be supplied by the Permittee to those who depend upon the treated water body and/or its outlet stream(s) for domestic use.
5) There shall be no use of water from the treated water body and associated outlet stream for one mile downstream for irrigation purposes, such as watering lawns, trees, shrubs or plants, for 120 days after the day of treatment or until the Secretary provides notification to the Permittee that this restriction has been lifted.

1i. Treatment Report. A treatment report shall be submitted to the Secretary within seven calendar days following the date of the treatment to include the following:
1) Date, time, and duration of treatment;
2) Herbicide manufacturer, trade name and formulation used;
3) Total amount of herbicide applied;
4) Total surface area of herbicide treatment;
5) Target herbicide concentration and related calculations;
6) Herbicide treatment technique and equipment used;
7) Weather and lake conditions at time of herbicide treatment ; and,
8) Description of any problems encountered during treatment.

1j. Plant Surveys. A quantitative aquatic plant survey (pre-treatment) shall be conducted prior to any herbicide use. A post-treatment plant survey shall be conducted during the same year of treatment and two consecutive years thereafter. All aquatic plant surveys shall include the following:
1) Date of survey;
2) Herbicide effectiveness on target plants;
3) Herbicide impact on nontarget plants;
4) Map depicting survey areas;
5) Description of all plant species present and their relative abundance, and;
6) Survey data shall be reported in a similar format to prior years.

1k. Annual Report. An annual report shall be submitted, on the year of treatment and two years thereafter, to the Secretary by December 1st of each year and shall include the following:
1) Summary of all herbicide concentration monitoring;
2) Qualitative assessment of the status of Eurasian watermilfoil (EWM), *Myriophyllum spicatum*, growth and its distribution;
3) Map of the final herbicide treatment areas with EWM growth distribution and density depicted;
4) Description of other nuisance control activity (if any);
5) Status of aquatic plant re-growth in treatment areas;
6) Other observations and actions taken; and,
7) Recommendations (if any).

1l. Annual Meeting. The Permittee shall meet with the Secretary, at minimum, on the year of treatment and two years thereafter to discuss the plant surveys, annual reports, level of EWM control achieved, long-term management plans, and other pertinent issues.

1m. Non-target Impact Mitigation.
- Aquatic Plants: All Operators shall be capable of identifying Vasey's pondweed (*Potamogeton vaseyi*), and spineless hornwort (*Ceratophyllum echinatum*), marsh mermaid-weed (*Proserpinaca*

palustris) - all of these species were observed in the Middle Brook Cove area. Herbicide treatment should be avoided in areas where these species are present.

- Other Aquatic Organisms: All control activity shall not result in injured or killed nontarget aquatic organisms.

2 Standard Conditions

2a. **Reporting & Correspondence.** All aforementioned, requisite correspondence directed to the Secretary pertaining to this permit, including notifications, surveys and reports, shall be (preferably) submitted via email to matthew.probasco@state.vt.us or mailed to the following address:

Aquatic Nuisance Control Program
Watershed Management Division
One National Life Drive, Main 2
Montpelier, VT 05620-3522

2b. **Aquatic Invasive Species Spread Prevention.** Prior to any control activity occurring, all equipment, including but not limited to boats, trailers, vehicle, and gear, that has been in or on any other waterbody, shall be decontaminated in accordance with the *Voluntary Guidelines to Prevent the Spread of Aquatic Invasive Species through Recreational Activities*, Aquatic Nuisance Species Task Force, November 2013, or its replacement.

2c. **Decision-makers & Operators as Permittees**. A Permittee is defined to mean any person associated with aquatic nuisance control activities (activity) (1) who performs the activity or who has day-to-day control of the activity; or, (2) any person with control over the decision to perform the activity including the ability to modify those decisions. Permittees identified as (1) are referred to in this permit as Operators while Permittees identified as (2) are referred to in this permit as Decision-makers. More than one Operator may be responsible for complying with this permit. Permittees are defined as a Decision-maker, as an Operator, or as both. When a Permittee is both a Decision-maker and an Operator, the Permittee must comply with all applicable requirements.

2d. **Authorization Modification or Amendment.** This permit may be modified or amended upon request by the Permittee or by the Secretary. Any modification under this condition shall be performed in accordance with the *Public Review and Comment Procedures for Aquatic Nuisance Control Permit Applications and General Permits*, January 30, 2003, or its replacement.

2e. **Rare, Threatened or Endangered Species.** Encounters with any rare, threatened, or endangered species shall be reported to the Secretary immediately. If determined necessary by the Secretary, an Endangered & Threatened Species Taking Permit, per 10 V.S.A. § 5408, shall be obtained prior to commencement or continuance of activity.

2f. **Compliance with Other Regulations.** This permit does not relieve the Permittee from obtaining all other approvals and permits prior to commencement of activity, or the responsibility to comply with any other applicable federal, state, and local laws or regulations.

2g. **Access to Property.** By acceptance of this permit, the Permittee agrees to allow representatives of the state of Vermont access to the property covered by the permit, at reasonable times, for the purpose of ascertaining compliance with Vermont's statutes, regulations, and permit conditions.

2h. **Legal Responsibilities for Damages.** The Secretary, by issuing this individual permit, accepts no legal responsibility for any damage direct or indirect of whatever nature and by whoever suffered arising out of the approved activity.

2i. **Rights & Privileges.** This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

2j. **Duty to Comply & Enforcement.** The Permittee shall comply with all terms and conditions of this permit. Any permit noncompliance shall constitute a violation of 10 V.S.A. § 1455 and may be cause for any enforcement action and revocation, modification, or suspension of the permit. It shall not be

a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit.

2k. **Duty to Reapply.** If the authorized activity is anticipated to continue after the expiration date of this permit, the Permittee shall reapply for coverage under a new permit sixty (60) days prior to the expiration date of this permit.

2l. **Twenty-four Hour Non-compliance Reporting.** Unless provided otherwise by this permit, the Permittee shall report any noncompliance which may endanger public health or the environment. Any such information shall be provided within 24 hours from the time the Permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance, its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; as well as steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

2m. **Official Duties.** This permit shall not restrict law enforcement of emergency operations or the performance of official duties by a government agency.

2n. **Public Access Area.** In accordance with Fish and Wildlife Board Rule 641, pursuant to 10 V.S.A. § 4145(a), Vermont Department of Fish & Wildlife Access Areas shall not be used for this activity without proper authorization.

2o. **Reopener.** If after granting this permit the Secretary determines, at his or her discretion, that there is evidence indicating that an authorized activity does not comply with the requirements of 10 V.S.A. Chapter 50, the Secretary may reopen and modify this permit to include different limitations and requirements.

2p. **Appeals.** Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. The appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings available at www.vermontjudiciary.org. The address for the Environmental Division is: 32 Cherry Street; 2nd Floor, Suite 303; Burlington, VT 05401 Telephone: 802-951-1740.

3 Findings

3a. **Application Receipt & Review.** An application, prepared and submitted by the Lake Fairlee Association (LFA), and Aquatic Control Technology (ACT), was received on March 13, 2015 for an Aquatic Nuisance Control Permit for the use of SePRO Renovate OTF® under 10 V.S.A. 1455(d). It was reviewed in accordance with the Department of Environmental Conservation's *Permit Application Review Procedure*, adopted May 22, 1996.

3b. **Background.** Lake Fairlee is a 457-acre waterbody with a maximum depth of 50 feet, with one outlet that drains into the Ompompanoosac River. First confirmed in Lake Fairlee in 1995, EWM is an aquatic invasive species. It is a rooted, submerged perennial plant that grows rapidly, producing dense stands that aggressively competes with native plant communities thereby reducing biodiversity. Dense mats clog propellers, impair swimming, restrict boating and fishing access, and affect water quality. Historically, the LFA, ACT, lakeshore residents, and/or other private contractors have conducted several methods for nuisance EWM control in Lake Fairlee. These efforts include herbicides, benthic barriers, powered mechanical devices, and hand pulling. All of which have been

conducted using private and municipal funds as well as funds derived from the Agency of Natural Resources' (ANR) Aquatic Nuisance Control (ANC) Grant-in-Aid Program.

In 1999, the LHA was authorized, per ANC Permit B99-01, to install bottom barrier in areas of Lake Fairlee with dense EWM growth which totaled 120,000 square feet of bottom barrier at two sites, each one acre or less in size. The aforementioned bottom barrier was not installed upon permit issuance. However, in 2002 a third area of approximately the same size was added and all three areas were installed under ANC Permit 2002-B03. The LFA, the Town of Thetford and many individuals continued to work to control EWM with bottom barriers, hand pulling, and education and outreach initiatives. These methods proved inadequate to control EWM growth and spread throughout the lake. In 2004, the LFA was authorized via ANC Permit 2004-H06 to use a powered mechanical device (diver assisted suction harvesting) in six areas principally along the west, northwest, and north shore. On May 27, 2010, the LHA and Lycott Environmental was authorized to use SePRO Renovate OTF® per ANC Permit 2009-C08 (HB), which also allowed for the use of non-chemical physical management methods (i.e., hand-harvesting, benthic barrier installation, and diver assisted suction harvesting). In this same year, Lycott Environmental performed a large-scale Renovate OTF® treatment to nearly the entire littoral zone (~128 acres) of Lake Fairlee that yielded substantial reductions in EWM. From 2011 to 2013, non-chemical control strategies and a partial treatment (in 2013) were conducted. In 2012, the LFA hand-harvested 11,089 EWM plants throughout Lake Fairlee. EWM proliferated to widespread levels by late summer of 2013 rendering management with these smaller-scale management efforts impractical. The LFA opted not to conduct control activity in 2014 (the final full year of management under permit 2009-C08) and reallocated efforts to pursue another herbicide permit, thus treatment in Lake Fairlee in 2015. EWM has continued to exhibit a widespread distribution during the 2014 annual survey, and proliferated to an extent that surpassed pre-treatment levels, albeit at lesser abundances. ACT and the LFA have proposed SePRO Renovate OTF® treatments in conjunction with hand-harvesting and education strategies, as a long term approach to control EWM – an approach that has been utilized successfully in several local water bodies, including Lake St. Catherine, Lake Hortonia, and Burr Pond.

Based on the current extent of EWM coverage, spot-treatment with Renovate OTF® is the most cost-effective alternative, to minimize further establishment of EWM, to avoid additional displacement of native species, and to restore navigation access and other recreational uses. Additional details of the proposed Renovate OTF® herbicide treatment program are provided in the treatment plan.

3c. **No Reasonable Nonchemical Alternative Available – 10 V.S.A. 1455(d)(1).** To date, no reasonable non-chemical alternative to the use of herbicide effective at reducing or controlling nuisance plant growth, particularly EWM, in a lake-wide manner has been identified. All known non-chemical alternatives, such as bottom barriers, mechanically powered devices, biological controls, and hand-pulling have substantial practical and economical disadvantages. To achieve lake-wide control, these alternatives impact the nontarget environment more significantly than the use of herbicide. Financial and practical limitations prevent alternatives from achieving reasonable lake-wide EWM control.

3d. **Nontarget Environment – 10 V.S.A. 1455(d)(2).** Significant adverse impacts to the native plant community are not anticipated from the proposed Renovate OTF® treatments as illustrated in Lycott Environmental's requisite 2009 to 2014 annual reports, surveys conducted by ACT, other lake consultants, and Agency of Natural Resources' staff. In addition, many water bodies undergoing similar treatment programs, such as Burr Pond, Lake St. Catherine, and Lake Morey, have not reported significant adverse impacts on the native plant community. Triclopyr is highly selective for EWM, and rapidly enters a plant's leaves and stems, then transfers to the roots, disrupting the plant's metabolism. This treatment plan focuses on portions of the lake where EWM is too abundant (moderate to dense) to be cost-effectively managed using non-chemical techniques and is highly susceptible to fragmentation and continued spread.

There are no known adverse effects or mortalities attributable to SePRO Renovate OTF® on fish, amphibians, reptiles, or other nontarget organisms. The results of SePRO Renovate OTF® treatments performed at Lake Fairlee and at other Vermont lakes over the past eight years have demonstrated effective, highly selective EWM control. This EWM selectivity is evidenced in Lake Fairlee by the frequency of occurrence and species richness values detailed in the aforementioned reports.

There are significant wetlands adjacent to Lake Fairlee. One of which is located at Middle Brook Cove and another is located at North Cove. Middle Brook Cove supports a robust population of marsh mermaid weed (*Proserpinaca palustris*), which has been identified as a Plant Species of Greatest Conservation Need by the Vermont Department of Fish & Wildlife. Plant surveys have indicated that prior treatments have had no impact on this rare plant. While the wetland adjacent to North Cove also has a robust population of wetland or emergent aquatic plants, survey data indicate the population of these plants have remained stable with prior herbicide use. Targeted control in North Cove will reduce aggressive competition between EWM and native plant communities, likely resulting in an enhancement of the relative abundance and diversity of native aquatic plants. Wetland areas adjacent to Lake Fairlee are protected from direct herbicide application due to shallow water, rendering the location inaccessible. This, in combination with the highly selective nature of SePRO Renovate OTF® to EWM, the Secretary has concluded that the use of this herbicide, particularly areas adjacent to wetlands, does not pose an unacceptable risk.

To mitigate the risk of introduction or transport of non-native, aquatic invasive species proper spread prevention measures must be taken. Thus, prior to any control activity occurring, all equipment (such as a boat, trailer, vehicle, and gear) that has been in or on any other waterbody, will be decontaminated in accordance with the *Voluntary Guidelines to Prevent the Spread of Aquatic Invasive Species through Recreational Activities*, Aquatic Nuisance Species Task Force, November 2013, or its replacement.

Having reviewed all of the potential negative impacts of the proposed pesticide treatment on the nontarget environment especially relative to the negative impacts of not controlling EWM, the proposed activity poses an acceptable risk if it is conducted in accordance with this permit and the all other applicable regulations.

The Secretary has determined that there is acceptable risk to the nontarget environment.

3e. **Public Health – 10 V.S.A. 1455(d)(3).** At the request of the Secretary, the Vermont Department of Health (VDH), Radiological and Toxicological Science Program has reviewed and provided recommendations pertaining to the risk of the proposed activity to public health, in which it thoroughly examined potential concerns for public health that may be associated with exposure to Renovate OTF® as well as to any potential triclopyr metabolites. The recommended water use conditions are based upon review of current scientific information for potential health effects; half-life of the herbicide and inert compounds; complete dissolution rates; careful consideration of direct contact with treated waters and the manner in which it may occur; and, several very health protective assumptions. The review also includes standard risk assessment procedures, knowledge of previous chemical control efforts, and the assumption that only one product will be applied per growing season. Based upon the VDH's evaluation and recommendations, and the resulting permit conditions, it has been determined that human exposure is not likely to result in an increase in the level of concern for public health.

The Secretary has determined that there is negligible risk to public health.

3f. **Long-range Management Plan – 10 V.S.A. 1455(d)(3).** A long-range management plan has been developed that incorporates a schedule of pesticide minimization that combines the use of chemical and some non-chemical methods to manage and prevent the spread of EWM. The goal of this plan is to reduce the abundance of EWM to below nuisance levels and prevent the transport and proliferation of EWM to other waterbodies. LHA conducts educational and volunteer training efforts

each year to increase awareness of its control efforts, recruit volunteers to assist with management and implementation of its long-range management plan, and reduce the potential for the lake to be infested with a new invasive species.

By employing all of the components of the plan, and updating and revising it as appropriate, the LHA hopes to control EWM in order to restore recreational uses as well as enhance the native aquatic plant community and habitat diversity. The LHA recognizes that eradication is not attainable, and EWM management is an ongoing undertaking. A diligent and sustained effort will be required to maintain EWM control below nuisance conditions.

The plan will achieve its goal provided that the herbicide treatment is conducted in accordance with the conditions of this permit; the components of the plan are implemented and updated routinely; adequate, stable funding is maintained; and, a strong framework exists for continuing the ongoing management efforts indefinitely.

The Secretary has determined that a long-range management plan has been developed.

3g. **Public Benefit – 10 V.S.A. 1455(d)(3).** The Secretary has determined that LHA's range management plan will provide a public benefit. All of the proposed control methods and other spread prevention and awareness efforts, will provide a public benefit. The control activity will continue to provide significant improvement to recreational use, enhance the native aquatic plant community, ensure habitat diversity, and prevent the spread of EWM.

The Secretary has determined that there is a benefit to the public good.

3h. **Public Notification – 10 V.S.A. 1455(h).** An opportunity for the public to review and comment on this application was provided in accordance with the Department of Environmental Conservation's *Public Review and Comment Procedures for Aquatic Nuisance Control Permit Applications and General Permits*, adopted per 3 V.S.A. Chapter 25, on January 30, 2003.

3i. **References.**

SePRO Renovate OTF® Specimen Label
SePRO Renovate OTF® Material Safety Data Sheet

4 Authorization

By delegation from the Secretary, the Vermont Department of Environmental Conservation has made a determination that the above activity qualifies for an individual aquatic nuisance control permit. The Permittees are authorized per 10 V.S.A. § 1455(i) subject to the conditions herein specified.

This permit shall be effective on May 18, 2015, and expire five years thereafter.

David K. Mears, Commissioner
Department of Environmental Conservation

By:  Perry Thomas
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Perry Thomas, Manager
Lakes & Ponds Management and Protection Program
Watershed Management Division