

**Aquatic Nuisance Control Individual Permit
Under 10 V.S.A. § 1455**



Permittee Information	
Permittee: Lake Dunmore Fern Lake Association Co-permittee: SOLitude Lake Management Permit Number: 3016-ANC-C	Control Activity: Pesticide (Herbicide – SePRO ProcellaCOR® EC) Waterbody: Lake Dunmore, Leicester and Salisbury
a. Specific Conditions	
<p>Based upon the Findings contained in this permit, the Secretary of the Agency of Natural Resources (Secretary) 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.</p>	
<ol style="list-style-type: none"> 1. <u>Pesticide Use.</u> The use of SePRO ProcellaCOR® EC EPA Registration Number 67690-80 (treatment), formulation active ingredient 2.7% florpyrauxifen-benzyl, is authorized to target Eurasian watermilfoil, <i>Myriophyllum spicatum</i>, in the waters of Lake Dunmore, Leicester and Salisbury. Only SePRO ProcellaCOR® EC shall be used in the waterbody over the course of one calendar year. A treatment shall only occur on a Monday, Tuesday, Wednesday, or Thursday. A treatment in July and August shall be avoided to the greatest extent possible. If a treatment during July and August cannot be avoided, the permittee shall notify the Branbury State Park manager at least 30 days in advance of the scheduled treatment date. 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. 2. <u>Certified Applicator.</u> All applicators of the authorized pesticide shall be certified by the Vermont Agency of Agriculture, Food and Markets in Category Five – Aquatic Pest Control. 3. <u>Agency Notification.</u> Notification shall be provided at least 30 days in advance of the scheduled treatment date to the Secretary of the Agency of Natural Resources and to the Agency of Agriculture, Food & Markets to coordinate pesticide use inspection at the time of treatment. The permittee shall contact Erica Cummings, Agrichemical Research and Policy Specialist, of the Agency of Agriculture, Food & Markets at 802-917-2073 or erica.cummings@vermont.gov, or her replacement, to coordinate. 4. <u>Annual Request & Approval of Treatment Locations.</u> A treatment shall only occur in locations that have been approved annually in writing by the Secretary. Prior to a treatment, the permittee and co-permittee (if applicable) shall submit a request to the Secretary with proposed annual treatment locations. Requests may be submitted to the Secretary over the growing season as needed. A request shall include: <ol style="list-style-type: none"> A. A map identifying the acreage of the waterbody, acreage of the littoral zone of the waterbody, the proposed treatment date(s), the proposed treatment location(s) with the associated acreage, and all other proposed locations and acreages for permitted non-chemical aquatic nuisance control activities (total control area) when applicable. B. A description of Eurasian watermilfoil and non-target aquatic plant species densities within each proposed treatment location. C. A map of the locations of wetlands as identified by the ANR Atlas or as defined by a dominance (>50% surface area coverage) of woody, emergent, or floating leaved vegetation anchored in sediment located in areas up to 6.5 feet deep. If determined necessary, a Wetlands Permit or Approval, per 10 V.S.A. § 914, shall be obtained prior to commencement or continuance of the control activity. D. A map of proposed treatment concentration monitoring locations. 	

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5. Annual Control Area. The total control area authorized by this permit and any additional authorizations shall not exceed 40% of the littoral zone of Lake Dunmore over the course of one calendar year, unless approved in writing by the Secretary. The same treatment location shall not be targeted with the same authorized pesticide for more than two consecutive years.
6. Treatment Plan. Treatment(s) shall be carried out in accordance with the "PROCELLACOR™ EC HERBICIDE TREATMENT PLAN" as identified in the Approved Application. The treatment plan shall be updated as necessary to minimize potential adverse impacts on the resource and to ensure compliance with this permit. All updates to the treatment plan shall be submitted to the Secretary for approval.
7. Public Informational Notification. A public informational notification (notification) shall be posted and provided to the public at least 30 days in advance of the scheduled treatment date. A webpage shall be made available to the public for posting a digital copy of the notification and for additional information on the authorized treatment. Postings of the physical and digital copies of the notification shall remain posted for no less than 30 days after the treatment occurred. If there are changes to the information on the notification, the notification shall be updated and reposted.
 - A. The notification shall include:
 - i. A map of the annually approved treatment location(s).
 - ii. The scheduled treatment date(s).
 - iii. The authorized pesticide to be used.
 - iv. The contact name(s), address(es), and telephone number(s) for all permittees.
 - v. The webpage made available to the public for information on the authorized treatment.
 - vi. A summary of the Water Use Advisories & Recommendations (condition a.9.).
 - vii. A statement identifying that the permittee shall supply potable water upon request to those who depend upon the treated waterbody or its outlet stream(s) (within one mile of the effluent) for domestic use to prepare food or drink on the day of treatment.
 - viii. A 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 informing all transient users.
 - B. The notification shall be provided to the Secretary, the municipal offices of Leicester and Salisbury, all property owners (including commercial camps) that abut Lake Dunmore, and all property owners that abut the waters receiving effluent up to one mile downstream of Lake Dunmore's outlet by a method that provides proof of notification.
 - C. Physical copies of the notification shall be posted:
 - i. In locations visible to vehicle traffic, shoreline property owners, and potential lake users along all public roadways within 1,000 feet of the waterbody.
 - ii. On weather resistant material and at least 8½ inches by 11 inches in size.
 - iii. At all public access points to the waterbody, including all public boat launches, public beaches, or other similar public locations providing access to the waterbody.

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- D. The website made available to the public shall include a digital copy of the notification, this permit, the Approved Application, the [SePRO ProcellaCOR® EC Specimen Label](#), the [SePRO ProcellaCOR® EC Safety Data Sheet](#), and the status of the Water Use Advisories & Recommendations (condition a.9.).
8. Treatment Concentration Monitoring. Water samples shall be collected at each of the approved monitoring locations (condition a.4.D.) to determine the concentration of florpyrauxifen-benzyl after completion of each treatment. The results shall be submitted to the Secretary within 24 hours of the permittee receiving the results and be posted to the webpage as required under condition a.7. of this permit.
- A. Water samples shall be chemically tested 48 hours after completion of each treatment. If samples indicate that florpyrauxifen-benzyl concentrations are greater than 2 parts per billion (ppb), monitoring shall continue after an additional 24-hour period. This monitoring process shall proceed until all monitoring locations are less than or equal to 2 ppb florpyrauxifen-benzyl or if this process is authorized to be discontinued by the Secretary.
- B. The Secretary may require additional monitoring, including additional monitoring locations or the frequency of monitoring, if determined necessary.
- C. Samples shall be analyzed using a methodology with a minimum detection limit of at least 1 ppb florpyrauxifen-benzyl.
9. Water Use Advisories & Recommendations. On the day of treatment, no use of the treated waterbody and associated outlet stream for up to one mile downstream is recommended for any purpose, including swimming, boating, fishing, irrigation, and all domestic uses. Additional advisories and recommendations related to irrigation and the use of treated waters that are listed under the following sections of the [ProcellaCOR® EC Specimen Label](#) shall be posted to the webpage as required under a.7. of this permit: *Use Precautions, Use Restrictions, Application to Waters Used for Irrigation on Turf and Landscape Vegetation, Residential and other Non-Agricultural Irrigation, and TABLE 1: Non-agricultural irrigation following in-water application.*
10. Potable Water. On the day of treatment, the permittee shall supply potable water upon request to those who depend upon the treated waterbody or its outlet stream for up to one mile downstream for domestic use to prepare food or drink.
11. Treatment Report. A treatment report shall be submitted to the Secretary within one week of each treatment and include the following:
- A. Date, time, and duration of treatment.
- B. Herbicide manufacturer, trade name, and formulation used.
- C. Total amount of the herbicide applied.
- D. Total surface area of the herbicide treatment.
- E. Target herbicide concentration and related calculations.
- F. Herbicide treatment technique and equipment used.
- G. Weather and lake conditions at time of herbicide treatment.
12. Aquatic Plant Surveys. For each treatment a quantitative aquatic plant survey shall be conducted pre-treatment during the year of treatment, post treatment during the year of treatment, and the year following treatment. All aquatic plant surveys shall be completed using the point-intercept rake-toss methodology or an alternate method approved by the Secretary. All aquatic plant surveys shall include the date the survey was completed, a map depicting the survey points, and a description of all aquatic plant species present at

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each point and their relative abundance. All survey data shall be reported in a similar format to prior years and include a digital submission of data collected at each point-intercept.

13. Annual Report. An annual report shall be submitted to the Secretary on the year of treatment and one year thereafter by December 31st and shall include:
 - A. A summary of the treatment concentration monitoring when applicable.
 - B. Aquatic plant survey(s) (condition a.12.).
 - C. A map of the treatment location(s) and all other locations where additional non-chemical aquatic nuisance control activities occurred that year when applicable.
 - D. A map of the potential future treatment location(s) and all other proposed locations for additional aquatic nuisance control activities when applicable.
 - E. A summary of the status of aquatic plant re-growth in treatment locations.

b. Standard Conditions

1. Co-Permittee Status. Any individual or entity other than the permittee that is engaging in the permitted jurisdictional activity shall notify the Secretary to obtain co-permittee status prior to any such work. Notification of the addition or termination of co-permittee status shall occur using a form provided by the Secretary. A co-permittee shall be subject to all terms and conditions in this permit.
2. Aquatic 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.
3. Modification. This permit may be modified or amended upon request by the permittee or by the Secretary. If the Secretary determines that modification is appropriate, only the conditions subject to modification shall be reopened. Any modification under this condition shall be pursuant to 10 V.S.A. Chapter 170 and any rules adopted thereunder.
4. Notice of Termination. The permittee may terminate the control activity as approved by this permit by submitting a notice of termination. The notice of termination shall include, at a minimum, the permit number for which termination is sought; the basis for the notice; the permittee's name and contact information; and a signed and dated certification statement by an authorized representative of the permittee confirming the notice of termination.
5. 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 the control activity.
6. Duty to Comply and Enforcement. The permittee(s) 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(s) 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.
7. 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

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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.

8. Reporting & Correspondence. All requisite correspondence directed to the Secretary pertaining to this permit, including notifications, surveys and reports, shall be submitted via email to ANR.WSMDSshoreland@vermont.gov or mailed to the following address:

Lake & Shoreland Permitting
Watershed Management Division
1 National Life Drive, Davis 3
Montpelier, VT 05620-3522
9. Compliance with Other Regulations. This permit does not relieve the permittee from obtaining all other approvals and permits prior to commencement of activity, or from the responsibility to comply with all other applicable federal, state, and local laws or regulations. In accordance with Fish and Wildlife Board Rule 641, adopted pursuant to 10 V.S.A. § 4145(a), a Special Use Permit from the Commissioner of Fish and Wildlife is required if a Vermont Department of Fish & Wildlife Access Area is used for the access of equipment or removal of aquatic plants associated with conducting an authorized control activity under this permit.
10. 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 at least 75 days prior to the expiration date of this permit.
11. Access to Property. By acceptance of this permit, the permittee agrees to allow representatives of the state of Vermont, at reasonable times and upon presentation of credentials, to enter upon the permittee's property, or to otherwise access the authorized control activity, to inspect to determine compliance with this permit.
12. 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.
13. Reopener. If after granting this permit the Secretary determines 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.
14. Revocation. This permit is subject to the conditions and specifications herein and may be suspended or revoked at any time for cause including: failure by the permittee to disclose all relevant facts during the application process which were known at that time; misrepresentation of any relevant fact at any time; non-compliance with the conditions and specifications of the permit; or a change in the factors associated with the control activity such that the Secretary can no longer make all applicable findings.
15. Rights and Privileges. This permit does not authorize any damage to public or private property or invasion of private rights or the violation of federal, state, or local laws or regulations. In addition, this permit does not convey any title or interest to the lands lying under public waters or waters affected.
16. Appeals. Pursuant to 10 V.S.A. Chapter 220 and the Vermont Rules for Environmental Court Proceedings, any appeal of this decision must be filed with the clerk of the Environmental Division of the Superior Court

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within 30 days of the date of the decision. An aggrieved person shall not appeal this permit unless the person submitted to the Secretary a written comment during the applicable public comment period or an oral comment at the public meeting conducted by the Secretary. Absent a determination of the Environmental judge to the contrary, an aggrieved person may only appeal issues related to the person's comments to the Secretary as prescribed by 10 V.S.A. § 8504(d)(2). 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 Rule 5(b)(4)(B) of the 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.

c. Findings

1. Jurisdiction - 10 V.S.A. § 1455(a). Within waters of the State, no person may use pesticides, chemicals other than pesticides, biological controls, bottom barriers, structural barriers, structural controls, or powered mechanical devices to control nuisance aquatic plants, insects, or other aquatic nuisances, including lamprey, unless that person has been issued a permit by the Secretary. The control activity, as described in permit application #3016-ANC-C, involves the targeted use of a pesticide, SePRO ProcellaCOR® EC, to control Eurasian watermilfoil, *Myriophyllum spicatum*, within the waters of Lake Dunmore in Leicester and Salisbury. Therefore, the Secretary has jurisdiction under 10 V.S.A. Chapter 50.

2. Application Receipt & Review. An Aquatic Nuisance Control Individual Permit application submitted by the Lake Dunmore Fern Lake Association (permittee) and SOLitude Lake Management (co-permittee) was received on January 27, 2020. It was reviewed in accordance with the Department of Environmental Conservation's Permit Application Review Guidance, adopted March 14, 2019.

The Secretary can issue an Aquatic Nuisance Control permit for the use of pesticides in waters of the State for the control of nuisance aquatic plants pursuant to 10 V.S.A. § 1455 (d) if the following findings can be made:

- (1) there is no reasonable non-chemical alternative available;
- (2) there is acceptable risk to the non-target environment;
- (3) there is negligible risk to public health;
- (4) a long-range management plan has been developed which incorporates a schedule of pesticide minimization; and
- (5) there is a public benefit to be achieved from the application of a pesticide or, in the case of a pond located entirely on a landowner's property, no undue adverse effect upon the public good.

The Secretary has determined that findings c.5.-c.9. can be made. Therefore, the Secretary shall issue a permit for the use of pesticides in waters of the State for the control of nuisance aquatic plants.

3. Background; Aquatic Nuisance Control Permit History. Lake Dunmore is a 1,051-acre waterbody, has a maximum depth of 106 feet, and drains into the Leicester River. Eurasian watermilfoil was first confirmed in Lake Dunmore in 1989 at the State Fishing Access Area. Permitted control methods for Eurasian watermilfoil in Lake Dunmore include bottom barriers, powered mechanical devices (diver assisted suction harvesting - DASH), and herbicides. The following is a summary of those Aquatic Nuisance Control permits (permits with

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no identified expiration date have expired). Permits and records containing additional detail on these control activities may be made available upon request.

- Bottom barriers: 2010-B01 expires 5/19/2020, 2014-B02 expires 9/25/2024, and 2015-B02 expires 6/8/2025
- Herbicides: 2015-C07 expires 6/2/2021 (Renovate OTF® & Renovate 3®)
- Powered Mechanical Devices: 2010-H03 expires 5/24/2020 (DASH), 3004-ANC-H (DASH – pending)
- Biological: 2012-W01

4. Control Activity Purpose. The purpose of the control activity is to use ProcellaCOR® EC as a part of an ongoing integrated pest management plan to manage an established population of an aquatic invasive species (Eurasian watermilfoil) to improve the public good uses of Lake Dunmore.

5. No Reasonable Non-Chemical Alternative Available – 10 V.S.A. 1455(d)(1). The Secretary identified a potentially reasonable approach for addressing a well-established lake-wide population of Eurasian watermilfoil. Baseline assumptions regarding the proposed control activity were made to outline a reasonable approach for controlling Eurasian watermilfoil as well as identifying ecological and water quality characteristics for this waterbody:

- The control activity proposes to target specific locations (spot treatments) of dense populations of the aquatic invasive species Eurasian watermilfoil.
- Eurasian watermilfoil has been established in Lake Dunmore since at least 1989.
- The Eurasian watermilfoil population has spread throughout the lake, is a well-established population, and eradication is a highly unlikely outcome from control efforts.
- A sustained lake-wide management approach using non-chemical and chemical control methods targeting Eurasian watermilfoil has occurred in Lake Dunmore.
- ProcellaCOR® EC (active ingredient florpyrauxifen-benzyl) is expected to dissipate rapidly to a reduced concentration in Lake Dunmore due to its rapid photolysis and aerobic aquatic metabolism. The outlet of Lake Dunmore flows into the Leicester River. Due to its rapid degradation, it is anticipated that reduced concentrations will flow downstream until complete breakdown of the pesticide occurs.
- As identified in the Vermont Lake Score Card (DUNMORE – data through 2019), Lake Dunmore’s trend score is poor, its Vermont Water Quality Standards status is altered due to flow alteration, and it has a minimally disturbed watershed score. Mean spring total phosphorus is 8.3 ug/L, mean summer total phosphorus is 12.8 ug/L, and mean summer Secchi depth is 6.1 meters. The mean spring total phosphorus and mean summer phosphorus have a significantly increasing trend (increasing available nutrients). The mean summer Secchi has a significantly decreasing trend (decreasing water clarity). This data supports the likelihood of the presence of elevated biological productivity within Lake Dunmore, which may result in dense aquatic plant populations, including Eurasian watermilfoil.
- As identified in the Vermont Lake Score Card, the Vermont Inland Lake Shoreland and Habitat Score/USEPA National Lake Assessment Score ranks Lake Dunmore as being in fair condition. This ranking is a measure of human activity within 15 meters of the lake’s shoreline at ten random sites around the lake; it reflects how extensively a lake’s shoreland is developed. The fair condition indicates Lake Dunmore has a mixture of significant development within the immediate shoreline as well as locations that are either undeveloped or are developed in a way that reduces impacts on the resource. Those

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locations of significant development reduce the natural resiliency of the waterbody and increases potential adverse impacts to the biological, chemical, and physical integrity of the waterbody.

The use of a pesticide for targeted spot treatments is a reasonable approach to manage Eurasian watermilfoil. This management approach can target limited locations within the littoral zone where public good uses, such as boating, fishing, or swimming, are impacted by this species. This targeted spot treatment approach can be limited to specific areas to minimize potential adverse impacts on native aquatic plant species that may be sensitive to the pesticide. The Secretary will assess the proposed treatment locations targeted by a spot treatment to ensure the use of pesticide will be focused to areas of dense Eurasian watermilfoil growth only where non-chemical control methods may be unreasonable due to the size or density of the Eurasian watermilfoil population or the potential non-target impacts associated with conducting a non-chemical control activity.

The Secretary has determined there is no reasonable non-chemical alternative available.

6. Acceptable Risk to the Non-Target Environment – 10 V.S.A. 1455(d)(2). The Secretary considers the following as the non-target environment:

- Aquatic plants and animals within the waterbody proposed for treatment and waters up to one mile downstream of the waterbody.
- Wetlands within the waterbody proposed for treatment and wetlands within the outlet waters up to one mile downstream of the waterbody.
- Human use of waters treated with the pesticide. This includes, hydroponic farming, greenhouse and nursery plants, and all locations irrigated with waters treated with ProcellaCOR® EC.
- The ecological integrity of the waterbody, which is the culmination of how the biological, chemical, and physical integrity of the waterbody interact. The concept of ecological integrity is identified in the [Vermont Department of Environmental Conservation Watershed Management Division's Statewide Surface Water Management Strategy](#).

For determining what might be considered an acceptable risk to the non-target environment from a proposed treatment, the Secretary made several baseline assumptions related to the non-target environments potentially affected by the proposed treatment:

- A control activity for Eurasian watermilfoil will have an impact on the ecological integrity of the waterbody as the non-target environment cannot be avoided completely.
- Rare aquatic plant species have been recorded as being present in Lake Dunmore. Species observed include Nuttall's waterweed (S3), *Elodea nuttallii*, last observed 8/22/1984; Guadalupe naiad (S2); *Najas guadalupensis*, last observed 9/1/2019; straight-leaf pondweed (S2S3), *Potamogeton strictifolius*, last observed 8/26/1999; lesser bur-reed (S3), *Sparganium fluctuans*, last observed 9/10/1989; and humped bladderwort (S3), *Utricularia gibba*, last observed 9/3/2015. Those species are not listed as being controlled by ProcellaCOR® EC as identified on the product label.
- Native aquatic plants controlled by ProcellaCOR® EC as identified on the product label have been recorded as being present in Lake Dunmore. This includes coontail, *Ceratophyllum demersum*, last observed in 2019 as two scattered density populations along the eastern shoreline of the waterbody with a 1.6% frequency of occurrence for the survey points within Lake Dunmore; watershield, *Brasenia schreberi*, last observed in 2019 as two scattered density populations in the northern cove of the waterbody with a 1.6% frequency of occurrence for the survey points within Lake Dunmore; and floating heart, *Nymphoides* spp. (*Nymphoides cordata* is the recorded species in Lake Dunmore),

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last observed in 2019 as one trace density population located in a southeast cove of the waterbody with a 0.8% frequency of occurrence for the survey points within Lake Dunmore. The product label identifies *Ceratophyllum demersum* as being less sensitive to ProcellaCOR® EC and that a higher application rate may be required to control it. The applicant identified that *Ceratophyllum demersum* will most likely only be impacted at a treatment concentration of 5 Prescription Dose Units (PDU) or higher. The applicant also identified that white water lily, *Nymphaea odorata*, and yellow water lily, *Nuphar variegata*, may also be sensitive (not controlled/sublethal) to ProcellaCOR® EC based on treatments conducted in 2018 and 2019. Impacts to those species include slight discoloration, slight stem twisting, and leaf curling. However, plants grew out of those impacts after a period of several weeks after a treatment. *Nymphaea odorata* and *Nuphar variegata* was last observed in 2019 as one scattered density population located in a southeast cove of the waterbody with a 0.8% frequency of occurrence for the survey points within Lake Dunmore. While not identified as being controlled on the ProcellaCOR® EC product label, leafless watermilfoil, *Myriophyllum tenellum*, is closely related to species that are controlled by ProcellaCOR® EC and it is likely that this species would be sensitive to a treatment. This species was last observed in 2018 as one scattered density population located along the northern shoreline of the waterbody with a 0.9% frequency of occurrence for the survey points within Lake Dunmore.

- The outlet of Lake Dunmore flows into the Leicester River. The species composition within this stream is unknown.
- Mapped Class II wetlands are located at the Sucker Brook inlet, immediately south of the State Fishing Access Area, along a section of shoreline at the south end of Lake Dunmore, and immediately north of Route 53 at the northern end of the lake. Additional wetlands may be present as defined by a dominance (>50% surface area coverage) of woody, emergent, or floating leaved vegetation anchored in sediment located in areas up to 6.5 feet deep. Examples of wetland vegetation include willow and alder shrubs, cattails, emergent bur-reed, emergent arrowhead/*Sagittaria* sp., and watershield/white water lily pads/spatterdock/floating leaved pondweeds. If only Eurasian watermilfoil is being targeted while conducting the control activity in a wetland or wetland buffer, the control activity would be an Allow Use (6.18) under the [Vermont Wetland Rules](#).
- Lake Dunmore and its waters are public, and it is reasonable to assume that all public waters may be used for irrigation.
- As identified in the ProcellaCOR® EC Safety Data Sheet, the product is practically non-toxic to fish on an acute basis and the material is slightly toxic to aquatic invertebrates on an acute basis. Review of ecotoxicity studies based on the maximum label rate of 50 parts per billion, indicates parent compound and degradates show toxicity levels are well above the application rates used in aquatic environments. Therefore, the potential for acute risk to fish, invertebrates, amphibians, birds, and mammals is expected to be low. Chronic toxicity of concern would be short lived due to rapid degradation in the environment, and rapid dilution from spot application use pattern.
- Lake Dunmore is 1,051 acres and the littoral zone covers approximately 595 acres, which is 56.6% of the total lake surface area. The littoral zone is the area of the lake that supports rooted aquatic vegetation. The littoral zone was determined to extend up to approximately 16 feet deep for Lake Dunmore. Both the size of Lake Dunmore and its littoral zone were determined by a bathymetric survey conducted by the Secretary on October 8, 2018. For the purposes of enacting the conditions of this permit, the values from the October 8, 2018 survey will be used for the size of Lake Dunmore

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and its littoral zone unless additional technical details for Lake Dunmore indicate otherwise while this permit is active.

- Approximately 40.5 acres are proposed to be treated with ProcellaCOR® EC in 2020, which is 3.9% of the total lake surface area and 6.8% of the littoral zone of Lake Dunmore. If a treatment is proposed during a year this permit is active, the final annual treatment area will be determined annually in accordance with condition a.4. of this permit.

The presence of aquatic vegetation is required for fish and wildlife habitat. Generally, Eurasian watermilfoil has been identified as providing poor fish and wildlife habitat compared with native aquatic vegetation. The removal of Eurasian watermilfoil promotes native plant biodiversity, which improves the biological integrity of the lake over time. However, Eurasian watermilfoil may provide beneficial structural habitat in the absence of other aquatic vegetation. As a measure to reduce potential non-target impacts on the ecological integrity of Lake Dunmore, no more than 40% of the littoral zone may be targeted by aquatic plant management activities annually. For any requests that propose managing more than 40% of the littoral zone, including a combination of chemical and non-chemical control methods, the permittee must demonstrate a need where the potential adverse effects on the non-target environment are outweighed by the tangible benefits.

It is not anticipated that the non-target aquatic plants and animals within Lake Dunmore, the waters downstream of Lake Dunmore, or the wetlands will be adversely impacted by applying ProcellaCOR® EC in accordance with this permit and the Approved Application. The current treatment application rate is proposed to be up to 4 PDUs (maximum application rate is 25 PDUs), which is within the application rate for targeting Eurasian watermilfoil as identified in the ProcellaCOR® EC specimen label (Table 5). For aquatic plant species that are known to be controlled by ProcellaCOR® EC, aquatic plant species closely related to species controlled by ProcellaCOR® EC, or for species that may be sensitive to ProcellaCOR® EC, proposed treatments will need to be designed appropriately to avoid potential impacts to known locations of those populations. The native non-target species that may be negatively impacted by a ProcellaCOR® EC treatment that are in Lake Dunmore (*Brasenia schreberi*, *Ceratophyllum demersum*, *Myriophyllum tenellum*, *Nuphar variegata*, *Nymphaea odorata*, and *Nymphoides cordata*) are often located within wetlands or wetland buffers. Due to this potential negative impact, ProcellaCOR® EC treatments should avoid treatment locations within a wetland, wetland buffer, or locations with known populations of these native non-target species unless it can be determined that the overall lake-wide population of a sensitive species will not be significantly impacted.

For each treatment, a quantitative aquatic plant survey will be conducted pre and post treatment during the treatment year, and the year following treatment. Aquatic plant surveys will be conducted to assess how aquatic plant populations respond to control activities. The Secretary will assess those surveys to ensure the acceptable risk to the non-target environment finding can continue to be met.

While there are recommended use restrictions identified on the product label for hydroponic farming, greenhouse, nursery plants, and irrigation of landscape vegetation, use restrictions are limited and will likely be temporary as ProcellaCOR® EC is expected to dissipate rapidly in Lake Dunmore due to its rapid photolysis and aerobic aquatic metabolism.

The permittee is required to submit an annual request for proposed treatment locations and may not conduct the treatment until receiving approval from the Secretary. To ensure compliance with this permit and to assess any unforeseen or unanticipated adverse impacts on the non-target environment, the findings made in this permit to authorize the use of ProcellaCOR® EC may be reviewed annually upon receiving the annual request.

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The use of ProcellaCOR® EC is scheduled to occur while Eurasian watermilfoil is actively growing. ProcellaCOR® EC is absorbed through submersed plant shoots and leaves when used in water. There is the potential that treatments scheduled earlier in the year may be more protective of non-target native aquatic plants as Eurasian watermilfoil often begins actively growing before non-target native aquatic plants. Targeting Eurasian watermilfoil with ProcellaCOR® EC earlier in the season may also result in requiring a reduced amount of the pesticide to be effective at controlling Eurasian watermilfoil. As Eurasian watermilfoil biomass may be reduced earlier in the year before non-target native aquatic plants begin fully growing, the reduction of that biomass may allow for an increase in available light for non-target native aquatic plants. This may temporarily increase the competitive advantage for those non-target native aquatic plants to exist for a longer period within the treatment location before Eurasian watermilfoil recolonizes the area, thus potentially reducing the frequency of using a pesticide.

The Secretary has determined that there is an acceptable risk to the non-target environment.

7. Public Health – 10 V.S.A. 1455(d)(3). At the request of the Secretary, the Vermont Department of Health (VDH), Radiological and Toxicological Sciences Division reviewed the risk of the proposed activity to public health, in which it examined potential concerns for public health that may be associated with exposure to ProcellaCOR® EC. Based on VDH’s review of the confidential statement of formulation, it is reasonable to conclude that human exposure to the inert compounds contained in ProcellaCOR® EC (at the proposed concentrations that would result under the conditions proposed by the applicants) is not likely to result in an increase in the level of concern for public health.

To minimize unnecessary pesticide exposure to the public over a weekend, treatments will only occur on a Monday, Tuesday, Wednesday, or Thursday. On the day of treatment, no use of the treated waterbody and associated outlet stream for up to one mile downstream is recommended for any purpose, including swimming, boating, fishing, irrigation, and all domestic uses. The permittee will supply potable water upon request to those who depend upon the treated waterbody or its outlet stream for up to one mile downstream for domestic use to prepare food or drink on the day of treatment.

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

8. Long-range Management Plan – 10 V.S.A. 1455(d)(4). Aquatic invasive species are considered stressors on Vermont’s surface waters. Eurasian watermilfoil, an aquatic invasive species, has spread throughout Lake Dunmore, is well-established, and eradication is a highly unlikely outcome from control efforts. Eurasian watermilfoil is and will continue to be a part of the aquatic environment of Lake Dunmore for the foreseeable future. As a result, a targeted use of chemical and non-chemical control methods as a part of an integrated pest management plan to control nuisance levels of Eurasian watermilfoil that are impacting public good uses has been developed.

The permittee will update the “PROCELLACOR™ EC HERBICIDE TREATMENT PLAN” in the Approved Application as needed to ensure the plan is implemented to achieve the control activity purpose, promote the public good, be protective of the resource, and include pesticide minimization measures. Review of and updates to this plan or any other sections of the Approved Application will be assessed in conjunction with the baseline biological, chemical, and physical characteristics of the waterbody and watershed to set expectations for what the control activity may achieve. Potential updates to the plan will incorporate the following review:

- Identify the aquatic nuisance problem, the area(s) with the aquatic nuisance problem, and characterize the extent of the problem, including, for example, water use goals not attained (e.g. wildlife habitat, fisheries, native vegetation, and recreation).

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- Identify locations of species that may be sensitive to a control activity.
- Identify locations where wetlands may be present.
- Identify an action threshold to determine when a control activity may be appropriate.
- Identify possible factors causing or contributing to the aquatic nuisance problem.
- Review the past management history of the aquatic nuisance.
- Develop an integrated pest management plan that incorporates short and long-term goals, anticipated levels of control, expectations achieved by a control activity, and whether a control activity will need to occur in perpetuity to maintain anticipated levels of control.
- Develop management alternatives, such as no action, prevention, mechanical or physical methods, cultural methods, biological control agents, or the targeted use of pesticides, to identify how different control activities may reach the goals of the integrated pest management plan. Management alternatives should be compatible with other water uses, not adversely affect natural lake functions, have a known and understood mechanism of control, be documented as low risk to natural ecosystem functions, and are predictable and repeatable in efficacy and outcome.
- Develop methods for evaluating the efficiency of the integrated pest management plan to act as a feedback loop for determining how future control efforts should proceed.
- Implement watershed and shoreline management strategies to address sources of phosphorus and to promote the long-term stability and resilience of the waterbody to help reduce the likelihood of nuisance populations from developing.

The Secretary has determined that a long-range management plan has been developed that incorporates a schedule of pesticide minimization by utilizing an integrated pest management plan.

9. Public Benefit – 10 V.S.A. 1455(d)(5). The Secretary considered the following criteria in determining whether there is a public benefit to be achieved from the application of the pesticide:

- Whether carrying out the control activity produces tangible benefits to public good uses, such as boating, fishing, and swimming, that outweigh potential impacts on the water resource.
 - Assessment: Tangible benefits to public good uses to be achieved in the waterbody are likely to be associated with the temporary decrease in the frequency of occurrence and biomass of Eurasian watermilfoil. This temporary decrease is anticipated to benefit boating and swimming within the treatment locations. Regarding fishing as a public good use in relation to the proposed control activity, it remains undetermined as to whether the control activity will produce a tangible short or long-term benefit. The presence of aquatic vegetation is required for fish and wildlife habitat. Generally, Eurasian watermilfoil has been identified as providing poor fish and wildlife habitat compared with native aquatic vegetation. However, Eurasian watermilfoil may provide beneficial structural habitat in the absence of other aquatic vegetation. To reduce the potential impact to fishing as a result of impacts to fish and wildlife habitat from aquatic plant management, no more than 40% of the littoral zone may be targeted by aquatic plant management activities.
- Whether the potential cumulative impacts from carrying out the control activity adversely affect the water resource and the public that utilizes that resource.
 - Assessment: Additional cumulative impacts were considered that relate to the water resource and how the public may utilize that resource. The Secretary has determined that the

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cumulative impacts from carrying out the control activity are not anticipated to affect the water resource and the public that utilizes that resource.

- On the day of treatment, no use of the treated waterbody and associated outlet stream for up to one mile downstream is recommended for any purpose, including swimming, boating, fishing, irrigation, and all domestic uses. Potable water will be supplied by the permittee upon request to those who depend upon the treated waterbody or its outlet stream for up to one mile downstream for domestic use to prepare food or drink. Additional advisories and recommendations related to irrigation and the use of treated waters are listed under the following sections of the [ProcellaCOR® EC Specimen Label](#): *Use Precautions, Use Restrictions, Application to Waters Used for Irrigation on Turf and Landscape Vegetation, Residential and other Non-Agricultural Irrigation, and TABLE 1: Non-agricultural irrigation following in-water application*. Treatment concentration monitoring will occur to assess concentrations of ProcellaCOR® EC (active ingredient florasulfuron-benzyl) within Lake Dunmore and waters downstream to inform the public when the herbicide is no longer detectable and when potential irrigation restrictions no longer apply. In addition, a treatment in July and August will be avoided to the greatest extent possible to avoid disruptions to the operation of the Branbury State Park and the public that utilize that park for access to Lake Dunmore. If a treatment during July and August cannot be avoided, the permittee will notify the Branbury State Park manager at least 30 days in advance of the scheduled treatment date to coordinate any potential actions that may reduce the temporary impact on how the public utilizes Lake Dunmore through Branbury State Park. Impacts on the public that utilize the water resource are anticipated to be temporary and minor as it is expected that ProcellaCOR® EC will dissipate rapidly to a reduced concentration in Lake Dunmore due to its rapid photolysis and aerobic aquatic metabolism.
- Lake Dunmore is currently a waterbody that is dominated by aquatic plants within the littoral zone as opposed to being dominated by algal species. Aquatic plants utilize the available nutrients in this waterbody, thereby limiting the available nutrients for algal species. To maintain this current aquatic plant dominated clear water steady state and to prevent algal species from becoming dominant and potentially impacting the water resource and the public that utilizes that resource, no more than 40% of the littoral zone may be targeted by aquatic plant management activities.
- Treating dense populations of Eurasian watermilfoil with ProcellaCOR® EC (a spot treatment herbicide with relatively short exposure times) will rapidly increase the biological oxygen demand as the Eurasian watermilfoil decomposes, which may deplete concentrations of dissolved oxygen and result in anoxia. Anoxia has the potential to result in a die-off of aquatic animals, which if that were to happen, it would negatively impact the water resource and potentially impact how the public utilize that resource. To reduce this potential impact, treatment locations within the littoral zone will be limited so that no more than 40% of the littoral zone is targeted annually for aquatic plant management activities.
- Lake Dunmore is not located within a Groundwater Source Protection Area or a Surface Water Source Protection Area.

- Whether measures to reduce impacts on the water resource have been taken.

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- Assessment: The control activity proposed to control Eurasian watermilfoil only, which is an aquatic invasive species. The target concentration of ProcellaCOR® EC used will be in accordance with the PDUs per acre-foot of water for Eurasian watermilfoil as identified in the specimen label (Table 5). In addition, to reduce impacts to native aquatic plants that may be sensitive to ProcellaCOR® EC, treatment locations should avoid treatments within a wetland unless it can be determined that the overall lake-wide population of a sensitive species will not be significantly impacted. The treatment is proposed to be a spot treatment design with relatively short exposure times (hours to several days). Treatments will occur during a time of year with actively growing Eurasian watermilfoil. To prevent resistance to ProcellaCOR® EC, the same treatment area will not be targeted for more than two consecutive years with ProcellaCOR® EC. The permittee is required to submit an annual request for proposed treatment locations and may not conduct the treatment until receiving approval from the Secretary. To ensure compliance with this permit and to assess any unforeseen or unanticipated adverse impacts on the resource or public good that may have resulted from a treatment, the findings made in this permit to authorize the use of ProcellaCOR® EC may be reviewed annually upon receiving the annual request.
- Whether the control activity is excessive for the stated purpose.
 - Assessment: The use of ProcellaCOR® EC, a spot treatment herbicide with relatively short exposure times, as a part of an ongoing integrated pest management plan to manage an established population of an aquatic invasive species (Eurasian watermilfoil) to improve the public good uses of Lake Dunmore is not considered excessive for the stated purpose.

Based upon review of the public good criteria, the Secretary has determined that the tangible benefits to the public good outweigh the potential negative impacts. The Secretary finds that there is a public benefit to be achieved from the application of a pesticide.

10. 10 V.S.A. § 1455(h) – Public Notification. Upon receipt of the application, the Secretary proceeded in accordance with the permit process as identified under 10 V.S.A. Chapter 170.

11. References.

[SePRO ProcellaCOR® EC Specimen Label](#)

[SePRO ProcellaCOR® EC Safety Data Sheet](#)

d. 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 the day of signing and expire five years thereafter.

Peter Walke, Commissioner
Department of Environmental Conservation

By: _____
Oliver Pierson, Program Manager
Lakes & Ponds Management and Protection Program
Watershed Management Division