

8.0 Mitigation Measures to Minimize Environmental and Health Impacts from Renovate®

Mitigation measures describe guidelines or procedures used to mitigate or lessen the potential for impacts from the use of Renovate® in the waters of New York State. While no impacts to humans are expected from the use of Renovate® (see Section 6.0), there is the potential for some ecological effects (see Section 5.0). The mitigation measures described in this section will reduce, or mitigate that potential for ecological effects, without reducing the efficacy of the product.

8.1 Use Controls

As of April 7, 1993, all pesticides labeled for use in aquatic settings were classified as restricted use products by regulation of the NYSDEC. Under this regulation, 6 NYCRR Parts 325 and 326, the use of aquatic pesticides is limited to persons privately certified, commercially certified in Category 5, or possessing a purchase permit for the specific application that is proposed. Additionally, only those persons who are certified applicators, commercial permit holders, or have a purchase permit may purchase aquatic use pesticides.

8.2 Label Identification

The herbicide label is a USEPA required document describing the legal use of the registered product. Registrants are allowed to provide part of the label text in the form of a booklet or other "pull off" type labeling, when it is not feasible or possible to literally "fit" the entire label on the container [40 CFR 156.10.] Additional information regarding instructions for application in New York State is listed separately on a NYSDEC 24(c) Special Local Need (SLN) Registration supplemental label (provided in Appendix E). Currently, the application of Renovate® 3 is only allowed in NYS under the provisions of the SLN label, [note: SePRO has also applied for SLN registration for Renovate® OTF but this has not been accepted to the date of this document].

For the buyer, the label is the main source of information about how to use the product safely and legally. In addition, the label provides information for the user regarding any safety measures needed for appropriate use of the product (i.e., personal protective equipment, acceptable application methods).

8.2.1 Label Components

Final printed labels or labeling must be filed and accepted by the USEPA prior to product registration. In addition, products must be registered in New York State prior to their sale, use offer for sale, and/or distribution in New York State. The following information is required by the Agency to appear on the herbicide label:

- Product name;
- Ingredient statement including name and the percentage of each active and inert ingredient;
- "Keep Out of Reach of Children" statement;
- Signal word corresponding to appropriate USEPA toxicity categories;
- First Aid statement;
- "Skull & crossbones" symbol & the word "POISON" if the product is in Toxicity Category I;
- Net contents/Net weight;
- EPA registration and establishment numbers;
- Company name and address;

- Applicable precautionary statements related to hazards to humans and domestic animals and environmental, physical or chemical hazards;
- Directions for use;
- Storage and disposal;
- Warranty statement; and
- Worker protection labeling.

8.2.2 Label Instructions

This section of the label provides instructions to the user on how to use the product, and identifies the pest(s) to be controlled, the application sites, application rates and any required application equipment. Label use precautions and directions for aquatic applications of Renovate® 3 (including provisions on NYS 24(c) Supplemental Label) include the following:

- Obtain required state or local permits prior to application.
- Do not apply the product through any type of irrigation system.
- Do not use treated water for irrigation for 120 days, or until triclopyr level is determined to be < 1 ppb by laboratory assay (typically determined by high performance liquid chromatography (HPLC) or by enzyme-linked immunosorbent assay (ELISA) (Poovey et al. 2004).
- Do not apply Renovate® 3 directly to, or otherwise permit it to come into direct contact with (via spray drift or other mechanism), grapes, tobacco, vegetable crops, flowers or other desirable broadleaf plants.
- Do not apply to saltwater bays or estuaries.
- Do not apply directly to un-impounded rivers or streams.
- Do not apply on ditches or canals used to transport irrigation water. It is permissible to treat non-irrigation ditch banks.
- Do not apply where runoff water may flow onto agricultural land as injury to crops may result.
- When applying on banks or shorelines of moving water sites, minimize overspray to open water.
- Use of a mistblower is not recommended.
- Review chart provided in Renovate® 3 NYS SLN label to identify setback distances if product is applied to lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption (distance varies from 1,300 to over 11,500 feet and depends on application rate and number of acres treated).
- Swimming is prohibited in water treated with Renovate® 3 for three hours after treatment.
- There are no restrictions on fishing in treatment areas.
- There are no restrictions on livestock consumption of water from the treatment area.

8.3 Relationship to the NYS Drinking Water Standard

The Renovate® 3 USEPA label indicates that the target triclopyr concentration in the treated water should not exceed 2.5 ppm ae and recommends setback distances for applications near functioning potable water intakes. The USEPA label recommends that potable water intakes be turned off until the triclopyr concentration in the water is determined to be 0.4 ppm or less by laboratory analysis or immunoassay. However, as indicated in Section 6.2, the drinking water standard established in New York State for organic chemical compounds not specifically identified in the standards is 0.050 ppm. Therefore, the SLN for

application in New York will contain specifications and setback distances commensurate with this State water quality standard and specify that potable water intakes be turned off until the triclopyr concentration in the water is determined to be 0.05 ppm or less by laboratory analysis or immunoassay. Modified setback distances calculated for this purpose are provided in Appendix E.

The Renovate® 3 product SLN labeling indicates that swimming should be prohibited in the treatment areas for three hours after application, but does not bear any restrictions on use of water in the treatment area for other recreational purposes, including fishing. Risks from exposure to triclopyr via drinking water or recreational uses should be negligible since triclopyr degrades rapidly in water via photolysis (Antunes-Kenyon and Kennedy, 2004).

8.4 Spill Control

Care should be taken to use Renovate® 3 properly and in accordance with the approved labels. Any leaks or spills should be promptly addressed. Liquid spills on an impervious surface should be cleaned up using absorbent materials and disposed of as waste. Liquid spills on soil may be handled by removal of the affected soil, and disposal at an approved waste disposal facility. Leaking containers should be separated from non-leaking containers and either the container or its contents emptied into another container.

8.5 Permitting and Mitigation Considerations

The State of New York regulates activities potentially affecting water resources and wetlands through several programs and multiple regulatory agencies. Section 15.0313(4) of the New York Environmental Conservation Law (ECL) requires a permit for the application of pesticides to any surface waters greater than one acre, or with an outlet to other surface waters of New York State. Pertinent to the application of aquatic herbicides for the control of invasive species are the Freshwater Wetland Program and Coastal Wetlands Program, both administered by NYSDEC. Generally speaking, the Clean Water Act (CWA) and other programs administered by the U.S. Army Corps of Engineers do not directly regulate the application of herbicides for invasive species control. Consequently, the NYSDEC Freshwater and Coastal Wetlands Programs represent the primary agency issuing permits for the use of herbicides and pesticides potentially affecting wetland areas. These permits and the associated conditions also represent the means by which site-specific characteristics and applicable mitigation measures can be incorporated.

The New York Freshwater Wetlands Act (Article 24 of ECL) provides the NYSDEC with the ability to regulate and issue permits for activities potentially affecting wetlands. Generally, this program exerts regulation over wetland areas that are mapped by the state (note: currently 12.4 acres or 5 hectares, but eventually to be reduced to 7.4 acres or 3 hectares as state wetland mapping is completed) or greater in size. Article 25 of New York Conservation Law represents the state's tidal wetland permit program. Similar to the freshwater wetland program, the state actively maps jurisdictional tidal wetlands, though there is no prescribed size limit for mapping and regulation.

Use of herbicides for invasive species control within wetlands, whether fresh or tidal, will likely require a permit from the NYSDEC. Such a permit is obtained through the general provisions of New York's Uniform Procedures Act (UPA), which allows for joint review among any state or federal agencies reviewing or commenting upon such applications in a timely manner. Permit applications must provide a clear description of the project purpose and details of the proposed activities, practicable alternatives to the activity, plans and specifications as needed, as well as proof of compliance (if applicable) with the state's Environmental Quality Review Act (SEQR) and Historic Preservation Act (SHPA). There are no applicable exemptions for either proactive invasive species control or filings conducted by government agencies under the freshwater or coastal wetland programs. New York State Environmental Conservation Law section 9-1503 provides protection for rare plant species. It is important to note that the application of herbicides to areas known to harbor rare plants is strictly controlled and may subject to a long list of specific conditions (or, in some cases,

may be simply prohibited). As noted in Section 5.1.7, information on the location and status of known rare plants may be obtained through the NYSDEC's Natural Heritage Program.

As part of the permitting activities identified above, application may be subject to ways in which any adverse impacts may be reduced or eliminated by incorporation of mitigating measures into the permit provisions. The following measures may be considered on a site-specific basis as to their ability to further reduce, or mitigate any potential for environmental effects, without reducing the efficacy of the product.

8.5.1 Timing

When the aquatic plant management objective is to control Eurasian watermilfoil, while minimizing impacts to other aquatic macrophytes, Renovate® 3 may be used early in the season and throughout the active growth stage of target species. As was discussed in Section 3.4.1, Eurasian watermilfoil is essentially evergreen and begins to grow rapidly at the beginning of the growing season. This enables this plant to often develop significant biomass before native macrophyte species begin growing (Smith and Barko, 1990). The use of Renovate® 3 early in the growing season would target Eurasian watermilfoil, while minimizing the impact on other aquatic vegetation. In addition, the selective nature of triclopyr would also allow the resource manager to use Renovate® 3 during mid- to late season treatment programs with minimal impact to those less susceptible native plants (i.e., monocots) established in the treatment area.

For control of purple loosestrife in wetland areas, foliar application should be made in the early-mid growing season when the plant development is at the bud to mid-flowering stage of growth. It is recommended that follow-up applications of Renovate® 3 be conducted in the following year on any regrowth to achieve increased control of this species. Application during the early part of the growing season may encourage the development of suppressed native species. For further details refer to Appendix E.

8.5.2 Application Techniques

For removal of Eurasian watermilfoil, it is suggested that Renovate® 3 be uniformly applied across the entire area to be treated. Applicators should follow an application pattern that minimizes concentration of the product in local areas. In most cases for selective treatment of Eurasian watermilfoil, subsurface application is recommended. In some cases, spray application may be used and, if conducted, measures to prevent overspray should be used. Renovate® OTF should be applied using a mechanical spreader such as a fertilizer spreader or mechanical seeder or similar equipment capable of uniformly applying the flakes.

Purple loosestrife can be controlled with foliar applications of Renovate® 3. For broadcast applications, use a minimum of 4 ½ to 6 lb a.e. of triclopyr (6 to 8 quarts of Renovate® 3) per acre. If using a backpack sprayer, a spray mixture containing 1% to 1.5% Renovate® or 5 to 7 fluid ounces of Renovate(3) per 4 gallons of water should be used. All purple loosestrife plants should be thoroughly wetted. For further details refer to Appendix E.

8.5.3 Consideration of Hydrologic Setting / Mixing Regime

When making lake-wide treatments it is recommended that application rates, calculated as ppb of triclopyr, are based only on the water volume in which mixing is expected to occur. Rates should be selected according to the rate chart provided in the label as specified for a particular concentration and water depth and adjusted for mixing regime.

It should be noted that for thermally stratified waterbody, rate calculations should be based on water depth in the epilimnion above any deep water areas and generally not include waters below the metalimnion or thermocline. This is because the stratified conditions effectively concentrate the Renovate® 3 in the upper waters (or delay diffusion into the hypolimnion sufficiently long that the product is typically biodegraded). In non-stratified conditions, the entire depth of the water column should be considered for the application rate

calculations. A table indicating the proper volume of Renovate to use as a function of treatment surface area and water depth is provided in the SLN label (see Appendix E).

Adjustments to application rates will also need to be made for rapidly-flushed waterbodies (e.g., run-of-river impoundments, rivers, etc.). These should be made a site-specific basis, using estimates of water exchange to adjust concentrations or to consider multiple applications (not to exceed total of 2.5 ppm ae). If the water exchange is too rapid, the applicator may wish to consider alternative means to control macrophytes or delay treatment until water exchanges slows or may be temporarily halted (e.g., installing flashboards at a dam) until treatment is completed. This last option should only be tried following careful consideration of related effects (e.g., flooding, downstream effects, etc).