RESPONSES TO WRITTEN COMMENTS ON THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (DSEIS)

1. COMMENTS FROM: CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)
MARILYN SHANAHAN
CHIEF, SEQRA COORDINATION SECTION
MAY 8, 2007

Comment:

Although the primary purpose of Renovate® would be control of floating or submerged vegetation, it would also be listed for controlling shoreline and stream bank vegetation. The loss of vegetation along shorelines and stream banks could increase the potential for erosion and sedimentation resulting in turbid discharges in downstream reservoirs. The applicant should address this potential adverse impact in the DSEIS as well as the potential for cumulative impacts resulting from multiple applications within the same basin or sub-basin.

Response:

This comment is addressed in Section 9.0, as well as Sections 3.2.1.3, 3.2.3, 3.6 and 5.2 in the DSEIS, along with associated references and appendices. It is recognized in the DSEIS that one of the unavoidable impacts from the use of triclopyr or any herbicide is the impact to water quality from the loss of vegetation. Treatments to vegetation in wetlands areas or along shorelines and streambanks would generally be for the control of invasive species such as purple loosestrife. The goal of managers is to remove these invasive species and through integrated methods establish conditions that are conducive to the growth of a native assemblage of macrophytes. Through the oversight of Article 15.0313(4) of the Environmental Conservation Law (ECL) and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 327 Aquatic Pesticide Permit (hereafter referred to as an Aquatic Permit), Article 24 Freshwater Wetlands Permit or Article 25 Tidal Wetlands Permit administration by Regional New York State Department of Environmental Conservation (Department) staff, projects will be limited in scope and range, at any one time, to mitigate the overall impact to habitat and water quality at the basin or sub-basin level.

Comment:

The label information provided indicates that Renovate® is not to be used on ditches or canals being used to transport irrigation waters. DEP urges NYSDEC to consider including a restriction for use in water supply streams as well.

Response:

While the Renovate label does not specifically prohibit use in water supply streams, the combined use of label mandated treatment setbacks from potable water intakes and the Aquatic Permit requirements for notification of all riparian owners and users regarding the water use restrictions will successfully mitigate any potential exposure or use of treated waters. Riparian owners/users comments on permit applications are taken into consideration and the scope of the treated area may be limited, or even permit denial is possible, if riparian owner/user substantive concerns cannot be properly mitigated.

Comment:

No chemical specific water quality standards for triclopyr in New York State are presented in the DSEIS. These should be disclosed in the DSEIS.

Response:

This comment is addressed in Section 6.2. There are no chemical specific federal or State drinking water/groundwater standards for triclopyr, so it is set at the 50 ppb New York State drinking water standard for "unspecified organic contaminants."

Comment:

The final paragraph in Section 5.2 discusses several strategies to mitigate potential impacts resulting from the generation of large amounts of biodegradable biomass following herbicide application, but does not provide any empirical evidence to demonstrate that these methods have been proven to be effective.

Response:

The following label directions come from the EPA Label Review Manual and are found in the Environmental Hazards label section for most all aquatic herbicides.

"Treatment of aquatic weeds can result in oxygen loss from decomposition of dead weeds. This loss can cause fish suffocation. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas."

While there are no citations available to reference the relative effectiveness of this approach, the established use of this mitigative measure and the limited number of documented fish kills associated with the use of herbicides in general, suggest that this is an effective method of minimizing adverse impacts resulting from dissolved oxygen (DO) depletion. The risks of a direct, triclopyr-induced phytoplankton die-off (which could more rapidly reduce DO levels) would appear to be minimal, since Antunes-Kenyon and Kennedy (2004) indicated minimal impact of triclopyr to freshwater green algae

(Selenastrum capricornutum). Breakdown of aquatic vegetation following Renovate® treatment would be expected to take place over a longer period of time (terms of weeks rather than days) and mitigate the magnitude of an associated oxygen demand. The label calls for Renovate® to be applied when plants are actively growing, which for most of the target species is Spring, before large masses of vegetation have developed and thermoclines established in treated waters. Renovate is also a selective herbicide, and many native aquatic plants are not sensitive to it, such as coontail, elodea, and many varieties of pondweeds (see Table 4-2 in the DSEIS). These plants, if present, would continue to produce oxygen in treated areas, minimizing the potential for dissolved oxygen depletion.

Comment:

The application of Renovate® in freshwater wetlands appears to be regulated only by Article 24 of the Environmental Conservation Law (ECL), however, the vast majority of wetlands in the New York City Watershed are not subject to those regulations as they do not meet or exceed the 5 hectare regulatory threshold. This being the case, DEP relies heavily on federal Section 404 and local municipal wetland regulations to protect most watershed wetlands, regulations which do not seem to apply to herbicide application. While an Article 15, Part 327 permit is required for each application, this applies only to water bodies greater than 2.5 acres and does not include wetlands. As such, DEP is concerned about the potential impacts, including cumulative impacts, associated with applications in smaller wetland areas that typically fall outside of the current regulatory framework.

Response:

The application of pesticides to any water body greater than one acre, or with an outlet to other surface waters of the State, is subject to an Aquatic Permit. Thus, most likely treatments using triclopyr would require an Aquatic Permit. The comment is correct, in that, there is no current permit scheme to account for all small wetland disturbances, but the Aquatic Permit review process allows for involved regulatory parties to view all proposed permit applications and propose mitigation measures if it is felt there is too much cumulative impact. Those treatments that fall outside of the permit scheme are still regulated by pesticide applicator certification and pesticide label use directions.

Comment:

The DSEIS discusses the possibility of targeting additional native species for treatment. In many instances, these native species contribute to the wetland's beneficial water quality function. As such, the loss of plant diversity in wetland areas could result in potential adverse water quality impacts. Such impacts should be fully identified in the DSEIS and avoided or mitigated to the maximum extent practicable.

Response:

As stated in Section 3.3 and elsewhere in the DSEIS, the goal of natural resource managers is a diverse native assemblage of aquatic vegetation. In the case of locally dense populations of native plants, a much greater burden of proof would be required to show a causative impairment due to simple overabundance of plants for an Aquatic Permit to be issued. While the DSEIS does not overtly mention impacts to water quality from the loss of native species, this comment is addressed in Section 9.0 as an unavoidable impact to habitat function as a whole, when using products containing triclopyr, as is the case with the use of any aquatic herbicide.

Comment:

Section 4.7 notes that the active ingredient in Renovate® disassociates quickly into triclopyr acid/anion and triethanolamine. This section further notes that triethanolamine has a half-life of greater than two years in anaerobic conditions. Given that sediments in wetlands tend to be anaerobic, the persistence of triethanolamine in wetland areas is likely to be lengthy. The implications of this, including the cumulative concentrations in wetland areas, should be fully discussed in the DSEIS.

Response:

First, it should be clarified that the chemical in question that is part of Renovate® is triethylamine (TEA), not triethanolamine as indicated in the comment. This was an error in the original source material, the EPA Registration Eligibility Decision (RED). This was verified by EPA and the manufacturer DOW and has been corrected in the DSEIS.

Triethylamine is a constituent of Renovate® functioning as a counter-ion (cationic salt) that is combined with triclopyr acid (the biologically active agent) to increase the solubility of the applied product. When mixed in water (prior to treatment), triclopyr rapidly disassociates from the triethylamine molecule. The method of treatment to emergent wetlands species is foliar spray. The triclopyr component is taken up rapidly by plant tissues. Triethylamine is volatile, and will evaporate from the foliage where it will be degraded in the atmosphere with a half-life of about 4 hours. These characteristics will make it unlikely that concentrations of triethylamine will accumulate in anaerobic wetland sediments. Triethylamine exhibits very low toxicity to aquatic life. The 48 hr EC_{50} for *Daphnia magna* is 200 mg/l, and the 96 hour LC_{50} for fathead minnows (*Pimephales promelas)* is 44 mg/L (Triethylamine MSDS). If some fraction of triethylamine applied to wetland vegetation does end up in the water, some evaporation is expected. Because of its cationic character, a portion of the triethylamine that does not evaporate will bind to clay in the sediments and rendered biologically unavailable.

Studies under aerobic and anaerobic conditions have been performed with radiolabeled triethylamine as cited in the USEPA RED. These were done with the hydrochloride salt of the triethylamine to minimize volatility losses. In an aerobic aquatic system, which would be present near the water's surface, triethylamine degraded readily

(half-life - 9.3 days) to carbon dioxide; no other metabolites were found and about 20% of the applied material was bound to sediment. Under anaerobic conditions, degradation was slow (half life - 2 years), with about 50% of the applied material becoming bound to sediment and some production of CO2. It must be reiterated that the applied material was a nonvolatile salt of triethylamine, essentially forcing the material to remain in the systems; for free triethylamine, loss via volatility is likely to be the primary route of dissipation, with little remaining in the aquatic system.

Comment:

Much of the discussion of impacts presented in the DSEIS focuses on open water habitats. The applicant should further address potential adverse impacts in other habitats where applications may occur, such as wetlands.

Response:

The DSEIS is generally written from the perspective of control of submerged or floating species of aquatic vegetation as it is understood that will be the majority of proposed uses for triclopyr. The Department feels that in totality the various sections in DSEIS, along with the referenced documentation and appendices, prepare the reader with the proper orientation to potential impacts to wetlands, as well as open water habitats.

Comment:

Section 3.2.3 focuses its discussion on functional attributes of aquatic macrophytes, which include providing food and wildlife habitat as well as spawning habitat for fish. This section could be expanded to include the water quality functions played by aquatic macrophyte plant communities.

Response:

The water quality functions of aquatic macrophytes are addressed in Sections 3.2.1.3, 3.2.3, 3.6, 5.2, and the associated references and appendices.

Comment:

Section 4.4.2 discusses the time of application of Renovate® for treatment of Eurasian Watermilfoil, which only exists in open water habitats, but does not address the time of application for other target species in wetlands or other non-open water habitats.

Response:

Section 4.4.2 states that Renovate should be applied when any plant is actively growing, early Spring into Fall, depending on target species. The time of treatment for wetlands or terrestrial species target species is sufficiently addressed in the Renovate label directions. Section 4.4.2 delves deeper into the characteristics of Eurasian watermilfoil as it exhibits

an unusually early growth cycle, relative to other species, which is important to understand to achieve greater and even more selective control.

Comment:

Section 5.1.1 discusses the potential adverse impacts associated with the loss of nontarget plants with respect to the functions that these plants play in the aquatic ecosystem. The applicant may want to consider expanding this analysis to include the impacts such a loss would have with respect to water quality.

Response:

This comment is addressed in Sections 3.2.1.3, 3.2.3, 3.6 and 5.2.

Comment:

Section 2.4.3 provides a list of target species associated with Renovate®. It should be noted that in some instances these species are desirable and if present in sufficient amounts act to curtail the growth of invasive and other undesirable species.

Response:

As stated in Section 3.3 and elsewhere in the DSEIS, the goal of all aquatic vegetation managers is a diverse native assemblage of aquatic vegetation. In the case of locally dense populations of indigenous plants, a much greater burden of proof would be required to show a causative impairment due to simple overabundance for an Aquatic Permit to be issued.

Comment:

Section 5.1.7 provides a discussion of federal- and State-listed rare, threatened, and endangered species. DEP urges the NYSDEC to consider including a provision that would require an evaluation of federal- and State-listed species in the vicinity of the proposed application.

Response:

The review of every Aquatic Permit application includes a screening of the Natural Heritage Database to check for the presence of any protected species. This database is not equally accurate or complete for all water bodies in the State, however, any reviewer or riparian owner/user may raise concerns about protected species being impacted during the Aquatic Permit application review process. Further, Aquatic Permit conditions requiring aquatic vegetation surveys, a comprehensive site specific EIS to identify any protected species or even Aquatic Permit denial, may be recommended to mitigate these concerns.

Comment:

Section 8.5.3 discusses the consideration of hydrologic setting and mixing regime when treating an area with Renovate®. The target species should also be considered when determining the proper application rate. For example, *Myriophyllum* begins to grow early in the season prior to stratification. Effective application would require that the entire water column be treated. Conversely, other species that grow during stratification would only need to be treated to the depth of the thermocline.

Response:

Accurately determining the volume of water treated if a thermocline is in effect is something that applicators must always contend with regardless of the target species. Generally, the majority of uses proposed for triclopyr will be spot treatments along the littoral zone, which are not impacted as much by stratification, rather than large whole water body treatments.

Comment:

Section 5.1 does not discuss the chronic effects of triclopyr on aquatic wildlife including but not limited to teratogenic or endrocrine disruptor effects. Moreover, the applicant should determine if any mesocosm studies have been conducted regarding the environmental fate of triclopyr with respect to repeated use on a body of water.

Response:

In terms of functional effects that have important public health implications, effects on endocrine function would be expressed as diminished or abnormal reproductive performance. There is no information suggesting that triclopyr causes direct adverse effects on the nervous system, endocrine system, or immune function. At doses which do not cause maternal toxicity, there is not apparent concern for either reproductive or teratogenic effects

Extensive data are available on the reproductive and developmental effects of triclopyr. The current RfD for triclopyr is based on a 2-generation reproduction toxicity study in rats (Vedula et al. 1995. Triclopyr: <u>Two-Generation Dietary Reproduction Study in Sprague-Dawley Rats</u>: Lab Project Number K-042085-048; K-042085-048P1; K-042085-048G0; unpublished study prepared by Dow Chemical Company 1065; summarized in USEPA 1998 RED document) with a no observed effects level (NOEL) of 5.0 mg/kg/day. More recently, Carney et al. (in press; see attached file) have indicated that the NOEL for development toxicity was 100 mg/kg/day for both triethylamine salt (T-TEA) or butoxyethyl ester (T-BEE). Although fetal toxicity and abnormalities have been observed at higher doses (500 times the dose considered by EPA to be safe for daily exposure to humans and over 1,400 times higher than the worst case scenario for human exposure to triclopyr in lake treatments), there is no indication that triclopyr caused any of the toxic effects through a mechanism involving endocrine disruption.

In water, triclopyr undergoes rapid photodecomposition, with a half-life of less than 12 hours. Because it degrades so rapidly, chronic (i.e., lifetime) exposures are not likely to occur to most aquatic species. While mesocosm studies were not required for registration, whole-bay studies regarding the environmental fate were carried out by the US Army Corps of Engineers which included ecological community measurements.

Comment:

Section 3.4.1.3 of the DSEIS discusses the change in fish species composition associated with Eurasian Watermilfoil. Specifically, the DSEIS notes a study that showed a decrease in the population of Bluegill (*Lepomis macrochirus*) and an increase in the populations of Black Crappie (*Pomoxis nigromaculatus*) and Golden Shiner (*Notemigonus crysoleucas*) associated with Eurasian Watermilfoil establishment. However, it is not clear from the DSEIS why this shift in fish populations is considered detrimental.

Response:

The DSEIS states that this change in fish composition has simply been documented in the literature without regard to the qualitative nature of the change. The potential for a change in fish composition to occur in New York Lakes following a Renovate® treatment is a highly site specific issue, and would be dependent upon many factors, such as the fish community present, the overall diversity of aquatic vegetation present, the abundance and extent of the target vegetation and subsequent treatment, as well as the physical geomorphology of the treated lake.

Comment:

The DSEIS references an integrated plant management approach in several instances, including as an alternative to the use of Renovate®. DEP urges the NYSDEC to consider including information about integrated management techniques on the product label.

Response:

The Renovate labels are registered for use in a wide variety of use patterns and locations. The purpose of the Aquatic Permit process is to achieve a greater level of regulation and mitigation with the use Renovate depending on the use of the product and the particular resources that may be impacted. The Department has determined that at this time the label is not an appropriate place to discuss integrated pest management as it is not mandatory for all uses of the product.

Comment:

Section 7.4 discusses other aquatic herbicides currently registered for use in New York State. While the DSEIS does, in some instances, attempt to outline the benefits of Renovate® when compared to these other registered herbicides, it does not appear to present a detailed rationale as to why additional aquatic herbicides are needed.

Response:

Each herbicide that is registered for use has limitations and benefits depending on the site of treatment or the desired results. Having various herbicide alternatives allows aquatic vegetation managers greater selectivity to achieve better results and mitigate impacts depending on the situation.

2. COMMENTS FROM: H. Gordon Shafer
President, Lamoka/Waneta Lakes Association
436 Stover Road
Bradford, NY 14815
April 26, 2007

Comment:

However, over the past few decades, the invasive/aggresive plant Eurasian watermilfoil (EWM) has taken over virtually all of Lamoka Lake less than 10 feet deep.

EWM is crowding out native plants (NYSDEC comment on visit of 7/7/06), limiting swimming and boating, and becoming a burden for homeowners to try to remove all the plants that wash up on shore. At times, the EWM is so dense at the surface that it cannot be penetrated and presents a real danger to boats and swimmers. The EWM is at best a real nuisance and at worst a danger to the safety and health of lake residents and other users.

About 15 years ago, I joined the Lamoka/Waneta Lakes Association because I was frustrated with the weed harvester and was opposed to chemical treatment of the lake. For the past 6 years, I have been the president of the Association. Over the years, we have studied the lakes, including sponsoring many professional plant and fish studies. We have concluded that the only way to eliminate, or even effectively control, EWM is with some form of chemical treatment.

All current information is indicating that the herbicide triclopyr, Renovate, is our best bet to eliminate EWM in our lakes and perhaps in many other NY State lakes. Also, Renovate is very exciting because only a short contact time with the EWM is required which allows for partial lake treatments and thereby minimizes the impact on native plants. We can now imagine treating only the littoral area infected with EWM.

Response:

Comment is noted. No further action is necessary.

3. COMMENT FROM: **Glenn P. Sullivan**
President, New York State Aquatic Managers Association
One Commerce Plaza
99 Washington Avenue
Suite 400
Albany, NY 12210-8204
April 19, 2007

Comment:

Approval of triclopyr in New York would provide an effective aquatic herbicide alternative for selective and systemic control of eurasian watermilfoil and other species. The granular flake formulation of triclopyr (Renovate OTF) provides an additional advantage when conducting spot applications (e.g., coves, shorelines, marinas) and sites with higher dilution potential.

As noted in DSEIS, triclopyr is effective on purple loosestrife, an invasive emergent plant spreading throughout NY lakeshores and wetlands. Larger wetlands sites have benefitted from the use of Galerucella beetles to control purple loosestrife. Biocontrol, however, is less efficient in scattered shoreline infestations on lakes. Triclopyr would provide an improved tool for managing smaller infestations using a systemic herbicide. Triclopyr provides a selectivity advantage over glyphosate by not impacting native grasses interspersed with loosestrife plants.

Some of our membership has had experience using Renovate in lakes in other states. In these applications, Renovate has provided 2-3 years control of eurasian watermilfoil with no impact to native plants such as elodea, leafy pondweed, and southern naiad.

Response:

Comment is noted. No further action is necessary.

4. COMMENT FROM: **Frederick D. Erdle**
P.O. Box 288
Tyrone, NY 14887
April 17, 2007

Comment:

Renovate 3 appears to be the best choice with the least amount of impact on the native plants as well as the effect sought in a minimal amount of time.

Response:

Comment is noted. No further action is necessary.

RESPONSES TO ORAL COMMENTS ON THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT AS PRESENTED AT THE PUBLIC HEARING

1. COMMENTS FROM: JOHN SHEEHAN
COMMUNICATIONS DIRECTOR
ADIRONDACK COUNCIL
COLONIE, NEW YORK PUBLIC HEARING
APRIL 25, 2007

Comment:

Even when used as directed, certain problems are likely to occur:

- loss of dissolved oxygen from the lack of live plants and the decaying dead ones
- loss of habitat for smaller fish that take shelter in both American and Eurasian watermilfoil
- loss of vegetation during Spring spawning exposing newly hatched fish to predation
- the need to reuse the chemical for "several years" to adequately control current milfoil growth.

Response:

These comments are noted in Section 9.0 and elsewhere in the DSEIS as unavoidable impacts associated with the use of Renovate. The Aquatic Permit site specific application review process will take these impacts into account and provide for any mitigative measures to limit these impacts to a particular water body.

Comment:

San Francisco Estuary Institute study states (triclopyr):

- it can cause permanent vision loss (moderate to severe corneal injury)
- it is listed as a "group D" carcinogen by the U.S. Environmental Protection Agency (appears to have caused a significant increase in breast cancer for mice and rats during a two-year exposure test)
- about half a gram will cause "acute toxicity" in a rabbit; a third of a gram will do the same to a guinea pig; two grams for a rabbit
- although the label doesn't say so, EPA found it to be slightly toxic to birds in a 2003 ruling
- is acutely toxic to juvenile salmon which could imperil their population long term
- a 2003 study by the Pesticide Action Network found that triclopyr is toxic to the tadpoles of bull frogs, green frogs and leopard frogs
- although triclopyr has been found to be only slightly toxic to honeybees (a nonnative species in North America), it has not been tested on any other terrestrial or invertebrate insects

- the ingredients of ethanol and triethylamine are highly flammable; as a result, the herbicide has a flash point of only 110 degrees F. The label says toxic and irritating vapors may be formed or given off if the product is involved in fire
- page 5 of the specimen label notes that it is effective at killing trees such as alders, ash, aspen, cherry, choke cherry, maple, mulberry, oaks, poplar, and willow

Response:

The information above is largely a restating of a literature review (San Francisco Estuary Institute) (SFEI) study which offers no judgments or recommendations and which was simply submitted as public comments without reference to specific sections of the DSEIS or its evaluation of potential impacts. Many of the references cited in the SFEI report are second or third hand (i.e., not based on a thorough review of the primary literature). We have provided responses to the statements which we numbered for ease of reference.

1. Permanent vision loss – While triclopyr is classified as Category I for eye irritation, that test doesn't represent any reasonable ecological exposure scenario. The laboratory test includes direct exposure of the eye to the undiluted formulation concentrate, while nontarget species in the environment will not be exposed to the concentrate. The label requires eye protection for the applicator, to minimize the potential for eye exposure while mixing the concentrate.

2. Carcinogenic Classification -- Triclopyr is classified as a group D carcinogen material. Although there were some responses as cited above, they were believed to be only marginal by the USEPA Carcinogenicity Peer Review Committee.

3. Toxicity to mammals – This statement is misleading in that these tests were conducted using the technical strength triclopyr, which is not what is in the aquatic herbicide formulation. Accordingly, the potential exposure dosage to wildlife is much less than this. The potential for toxicity is dependent on the dose applied.

4. Toxicity to avians – See response to comment #3 above.

5. Toxicity to juvenile salmon – The basis for this assertion is a citation from a 20-year old paper by Wan, et al (1987). Dow AgroSciences (DAS) has noted that even with the reported values, there is no ecological hazard at treatment rates found on the label. More importantly, in 2002, EPA evaluated the available data for triclopyr triethylamine (TEA) and its potential effect on Pacific anadromous salmonids and their habitats and concluded that triclopyr TEA is "practically nontoxic to fish" and that there was little or no concern with potential toxicity to fish or the aquatic invertebrates on which they feed. Further information can be obtained from Dr. Kent Woodburn (at Dow in Midland, MI, kbwoodburn@dow.com).

6. Toxicity to amphibians – It should be noted that the cited study was not a study carried out by the Pesticide Action Network (PAN), but is a reference to a paper by Berrill, et al. (1994) published in Environmental Toxicology and Chemistry 13(4), pages 657-664. From

a careful examination of the paper, it can be shown that the toxicity to amphibians noted in their laboratory study is much less likely to occur from a field treatment of Renovate. The most important factor of the study was the formulation of triclopyr used. The Berrill paper states that there are two formulations of triclopyr, an ester formulation and the triethylamine (TEA) formulation. Berrill reports that the triethylamine formulation is nontoxic to fish at concentrations below 200 ppm (mg/L), but the ester formulation is toxic to fish at 1-3 ppm. The reason for the difference in toxicity was also discussed. The ester formulation is rapidly absorbed by fish, where it is deesterified and triclopyr acid is released directly into the tissues. The TEA formulation disassociates almost immediately upon contact with water, and the ionic triclopyr acid is not readily taken up into fish (or amphibian) tissue, thereby reducing or eliminating exposure. Both formulations of triclopyr break down in warm, clear, sunlit water. However, the amphibian toxicity tests were conducted at 15°C in the darkness, ostensibly to keep the test material from photodegrading. Tadpoles exposed to 0.6 ppm triclopyr were unaffected. At 1.2 ppm, more than half of the tadpoles exposed would no longer respond to prodding, however, these tadpoles recovered within three days. At 2.4-4.8 ppm triclopyr, exposed green frogs and bullfrog tadpoles died, but most leopard frog tadpoles recovered. The maximum treatment rate for Renovate is 2.5 ppm triclopyr acid. In warm, clear, sunlit waters, such as those where aquatic plants are likely to be a problem, triclopyr acid is rapidly degraded, reducing the exposure to fish and amphibians. The triclopyr acid is also rapidly absorbed by plants, further reducing the concentration that could potentially affect fish and amphibians. It is uncertain which form of triclopyr was actually used in the study, but it appeared to be the triclopyr ester, which has much higher acute toxicity than the amine salt found in Renovate.

7. Toxicity to insects -- Testing for impacts to insects has been conducted for European Union (EU) registration but only with the ester formulation (the form used in Europe).

8. Flammability – The information cited is not from the label, but from the material safety data sheet (MSDS) for use as recommendations about fighting a fire where large amounts of the material are involved (e.g., fire in storage warehouse). For typical labeled use in herbicide treatments, this is not a hazard.

9. Impact to riparian trees – As with most herbicides, treatment of high dosages will likely result in the removal of some tree species. This is not the intended site of treatment nor would it occur under treatment dosages for labeled control of aquatic vegetation.