



## **Tittabawassee River, Gladwin and Midland Counties Bottomlands Control Project Work Plan**

**Prepared for:**

Michigan Department of Environment, Great Lakes, and Energy  
Sanford Lake Improvement Board, and Wixom Lake Improvement Board

**Prepared by:**

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PLM Lake & Land Management Corp.  
P.O. Box 424  
Ewart, MI 49631  
616-891-1294

**May 2022 (Revised July 7, 2022)**

**Project No:** 55290102

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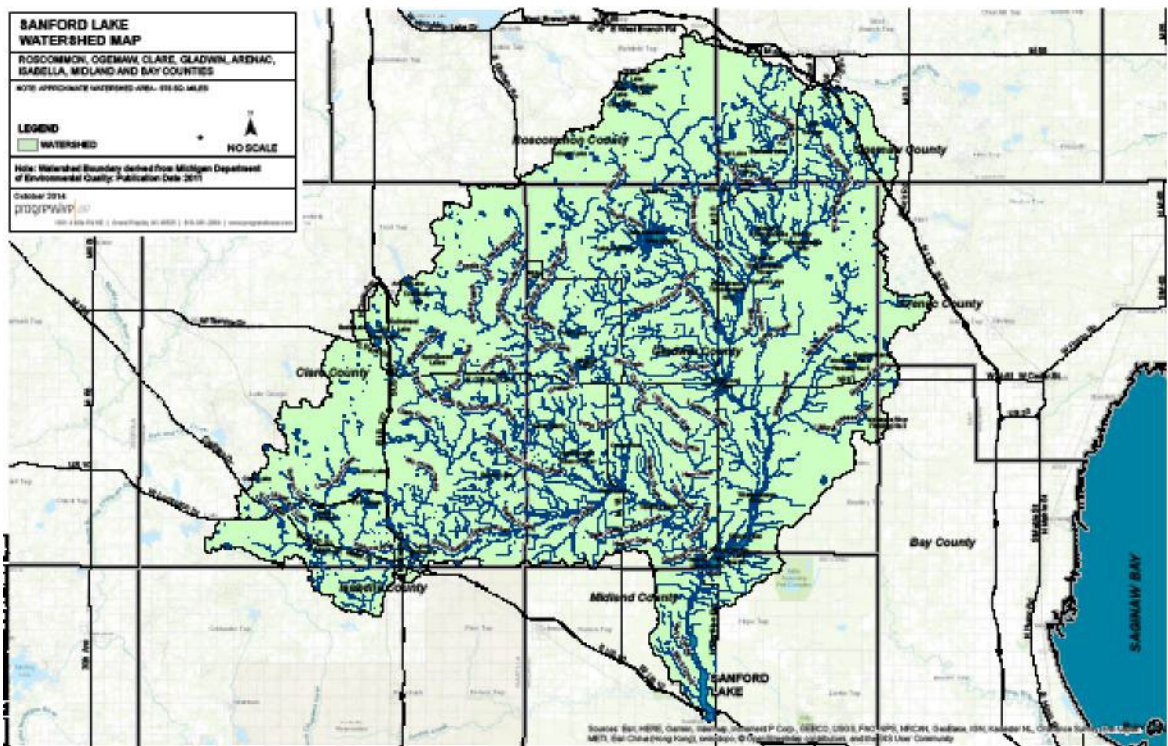
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# Introduction

## PROJECT BACKGROUND

The Second dam, Smallwood dam, Sanford dam, and Edenville dam (Wixom Lake) were all constructed as hydro-electric dams in 1924. The construction of the total of four dams in 1924 effectively flooded an area of over 4,800 acres which had been primarily forest and wetlands. The watershed area draining to Sanford Lake (the downstream extent of the watershed, comprises an area of approximately 976 square miles; Figure 1) encompassing two rivers, the Tobacco and the Tittabawassee.



**Figure 1.** Sanford Lake Watershed Map

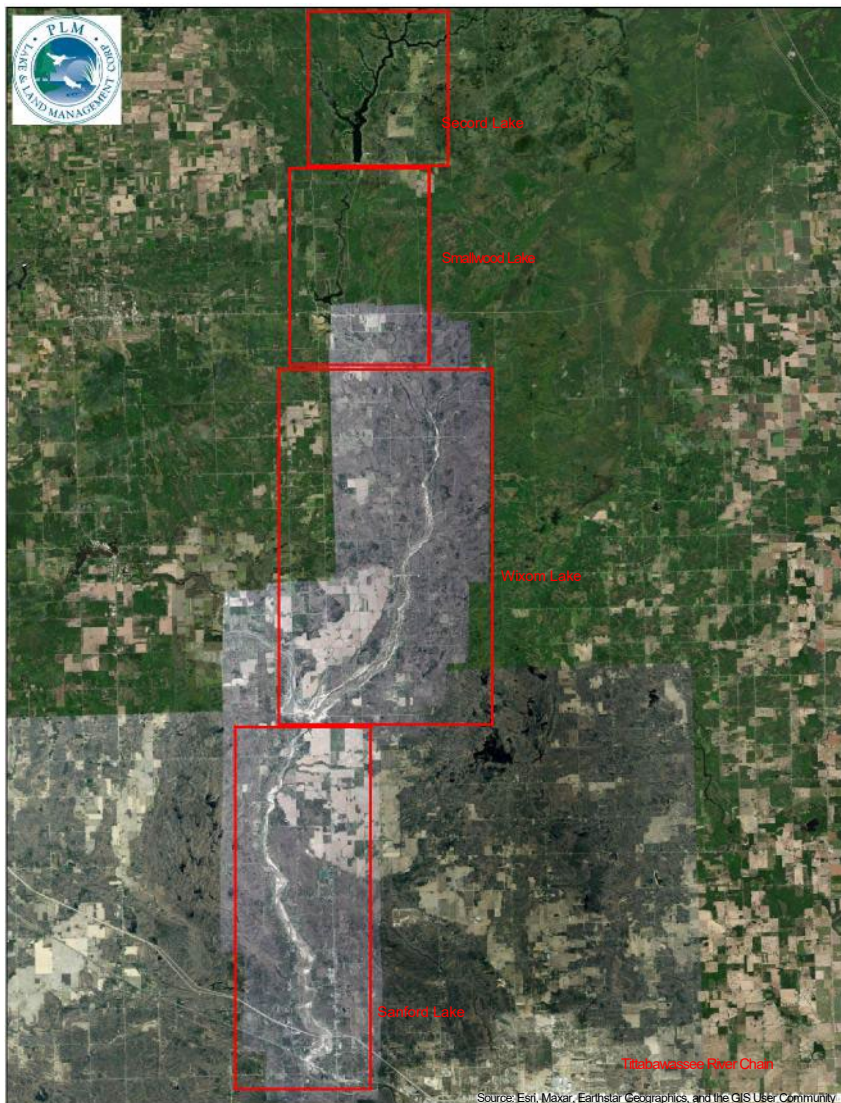
On May 19, 2020, the Edenville and Sanford Dams failed due to historic rain events. It was a catastrophic event with millions of dollars in damages and thousands of people were impacted. The event left Sanford, Second and Wixom Lakes with only a river running through the lake beds. This resulted in the rapid exposure of previously flooded bottomlands throughout much of the former Wixom Lake. The timing of this exposure corresponded with the release of millions of cottonwood seeds from adjacent shorelands as occurs annually in the life cycle of this tree species. The newly exposed fertile bottomlands provided excellent substrate for seed production of not only cottonwood but willow as well. With dam repairs lasting four to five years these pioneer species will reach nuisance growth and will inhibit future recreational opportunities including fishing, swimming, and boating once the bottomlands are flooded subsequent to the rebuilding/filling of the dams.

## GOALS AND OBJECTIVES

The goal of this project is to reduce current growth of pioneer shrub/tree species in the exposed bottomlands of the Tittabawassee River. Reduced growth will prevent issues with recreation and navigation in the future, when water returns. The objective of this project is to implement and evaluate an herbicide treatment using Triclopyr within the bottomlands of Sanford, Secord, Smallwood and Wixom Lakes (Figure 2). Upon conclusion of this project, we will have determined if Triclopyr treatments are feasible and effective at reducing large areas of cottonwoods and willow trees/shrubs.

## PROJECT TEAM

This project is led by PLM Lake and Land Management, Progressive AE and the Smallwood, Sanford, Secord and Wixom Lake Boards. Subcontracting will be determined in the coming weeks as project details finalize.

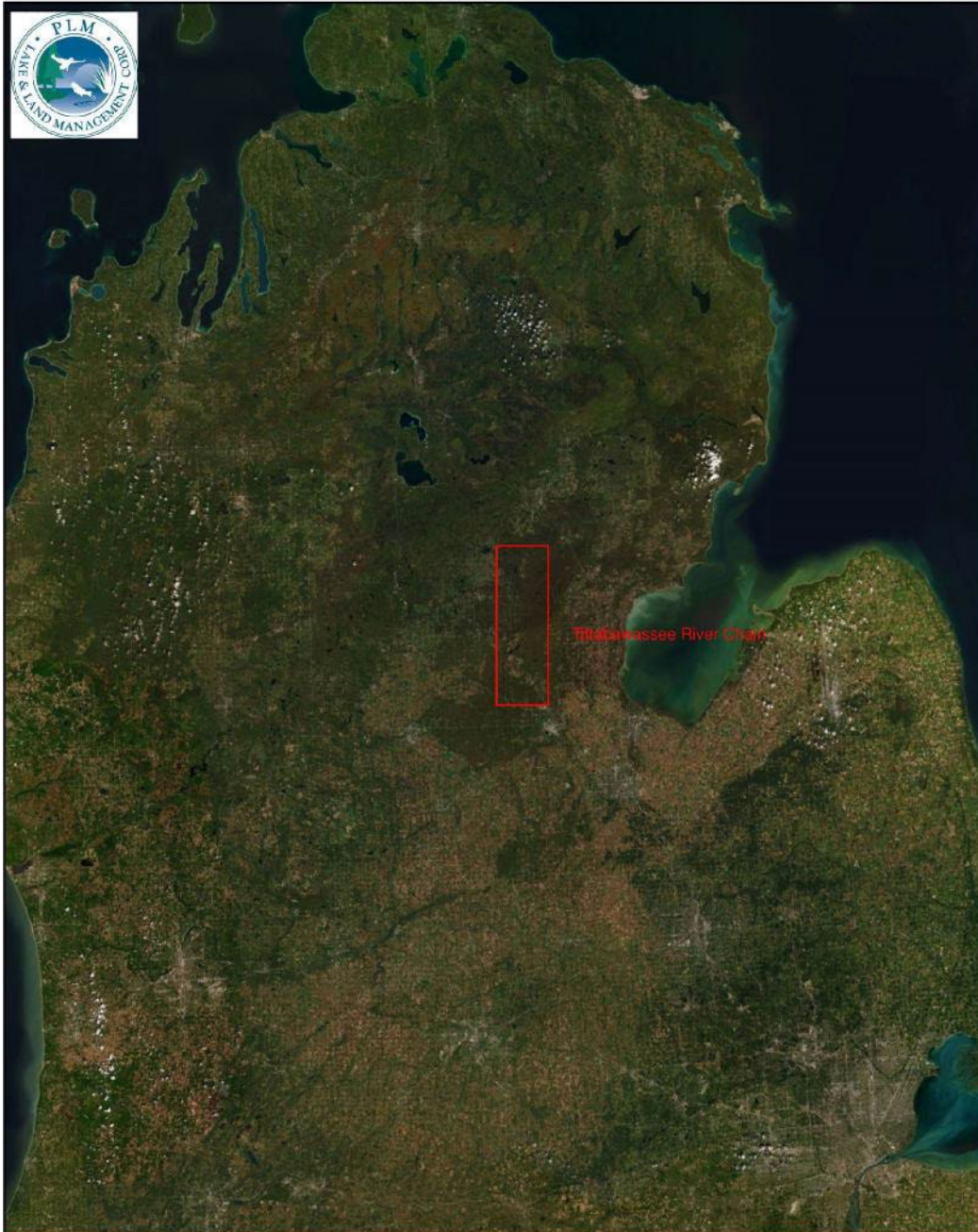


**Figure 2.** Aerial Imagery Map Showing Location of Sanford, Wixom, Smallwood, and Secord Lakes.  
(Map provided by PLM Lake and Land Management Corp.)

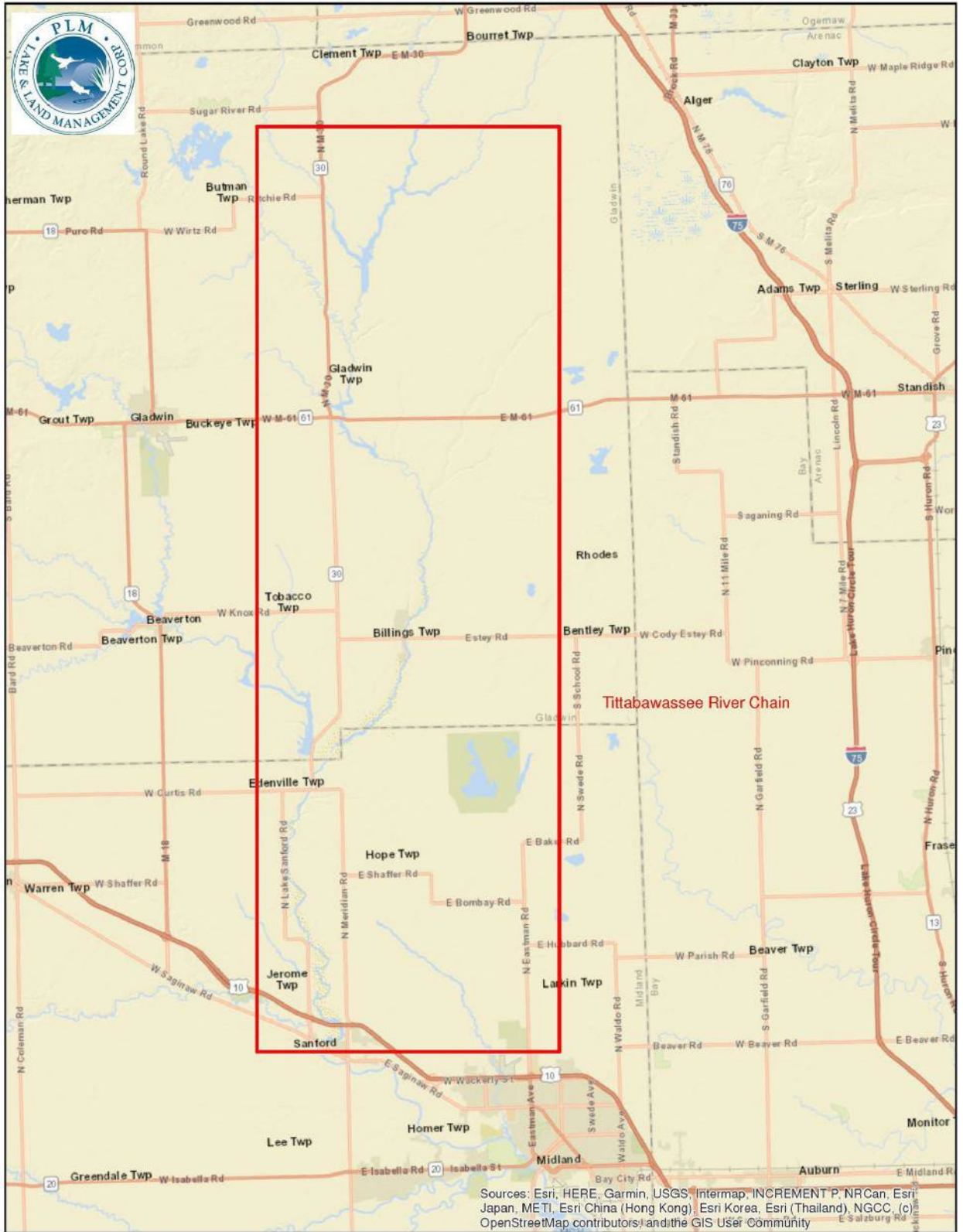


## Site Description

The management area includes the exposed bottomlands of Sanford, Secord, Smallwood and Wixom lakes excluding the course of water still existing of the Tittabawassee River. They are located in Midland and Gladwin Counties and more specifically, Secord, Hay, Clement, Bourret, Edenville, Hope, Tobacco, Jerome and Billings townships. (Figures 3-4).



**Figure 3.** Michigan Aerial Map Showing Location of the Tittabawassee River Chain.  
(Map provided by PLM Lake and Land Management Corp.)



**Figure 4.** Streets Map Showing Location of the Tittabawasse River Chain.  
 (Map provided by PLM Lake and Land Management Corp.)

## **TREATMENT SITES**

Sanford Lake is located in portions of the Village of Sanford, Jerome Township, and Edenville Township in Midland County (T15-16N, R1W, Figures 1 and 2). Sanford Lake is a reservoir of the Tittabawassee River regulated by the Sanford Dam. Originally, Sanford Lake was 1,654 acres of water. Exposed bottomland acreage is approximately 1,303 acres. Sanford Dam is under the authority of the Four Lakes Task Force. Sanford Lake has two lake authorities, Sanford Lake Improvement Board and the Edenville Township Board. The defined "Pest Management Area" (PMA) comprises the former bottomlands of Sanford Lake above the current waters edge of the Tittabawassee River. The approximate area of the PMA currently is 1,303 acres of which, approximately 1,072 acres are vegetated with nuisance woody, scrub-shrub species (Figures 5 and 6).

Secord Lake is located in Secord, Clement and Bourret Townships in Gladwin County. (T19-20N, R1-2E, Figure 2). Secord Lake is a reservoir of the Tittabawassee River and is regulated by the Secord Dam. Secord Dam did not fail, but was damaged to the point where it needed a drawdown for repairs. Secord Lake held 941 acres of water area and an estimated 300 acres are exposed following drawdown. Four Lake Task Force holds authority over the Secord Dam. Secord Lake is under the authority of Secord Township and Clement Township. The defined "Pest Management Area" (PMA) comprises the former bottomlands of Secord Lake above the current waters edge of the Tittabawassee River. The approximate area of the PMA currently is 300 acres of which, approximately 225 acres are vegetated with nuisance woody, scrub-shrub species (Figure 8).

Smallwood Lake is located in Secord and Hay Townships in Gladwin County. (T18-19N, R1E, Figure 2). Smallwood Lake is a reservoir of the Tittabawassee River and is regulated by the Smallwood Dam. Smallwood Dam did not fail, but was damaged to the point where it needed a drawdown for repairs. Smallwood Lake held 232 acres of water area and an estimated 100 acres are exposed following drawdown. Four Lake Task Force holds authority over the Smallwood Dam. Smallwood Lake is under the authority of Secord Township and Hay Township. The defined "Pest Management Area" (PMA) comprises the former bottomlands of Smallwood Lake above the current water edge of the Tittabawassee River. The approximate area of the PMA currently is 100 acres of which, approximately 75 acres are vegetated with nuisance woody, scrub-shrub species (Figure 9).

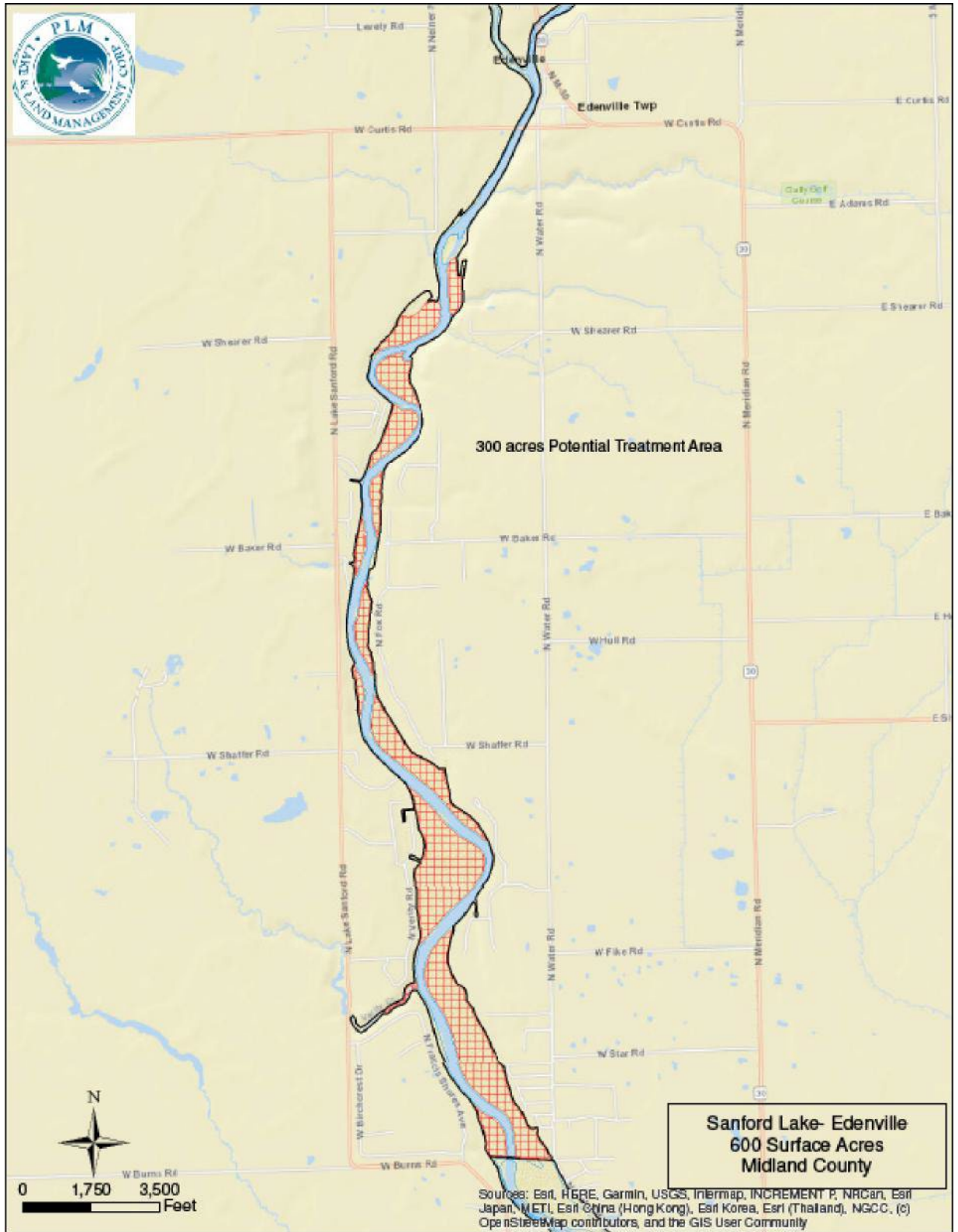
Wixom Lake is located in portions of Billings, and Tobacco Townships in Gladwin County, Michigan as well as a small portion of Edenville Township and Hope Township in Midland County, Michigan (T16-17N,R1E,1W; Figure 2). Wixom Lake is a reservoir of the Tittabawassee River and is regulated by the Edenville Dam. Wixom Lake is 1,600 acres and 938.5 acres are exposed bottomlands. The Four Lakes Task force holds authority of the Edenville Dam. Wixom Lake is under the authority of the Wixom Lake Improvement Board. The defined "Pest Management Area" (PMA) comprises the former bottomlands of Wixom Lake above the current waters edge of the Tittabawassee River. The approximate area of the PMA currently is 1,186 acres of which, approximately 938.5 acres are vegetated with nuisance woody, scrub-shrub species (Figure 7).

## **THREATENED AND ENDANGERED SPECIES**

Upon review of the Michigan Natural Features Inventory, Progressive AE and PLM Lake & Land Management Corp. noted several Threatened and Endangered species. These species have NOT been found growing/living in the treatment areas. Gladwin County has multiple threatened or endangered species. Slippershell mussel, Rusty-patched bumble bee (federally endangered), Red Shouldered hawk, Henslow's sparrow (endangered), Common Loon, Spotted turtle and the Pugnose shiner (endangered).

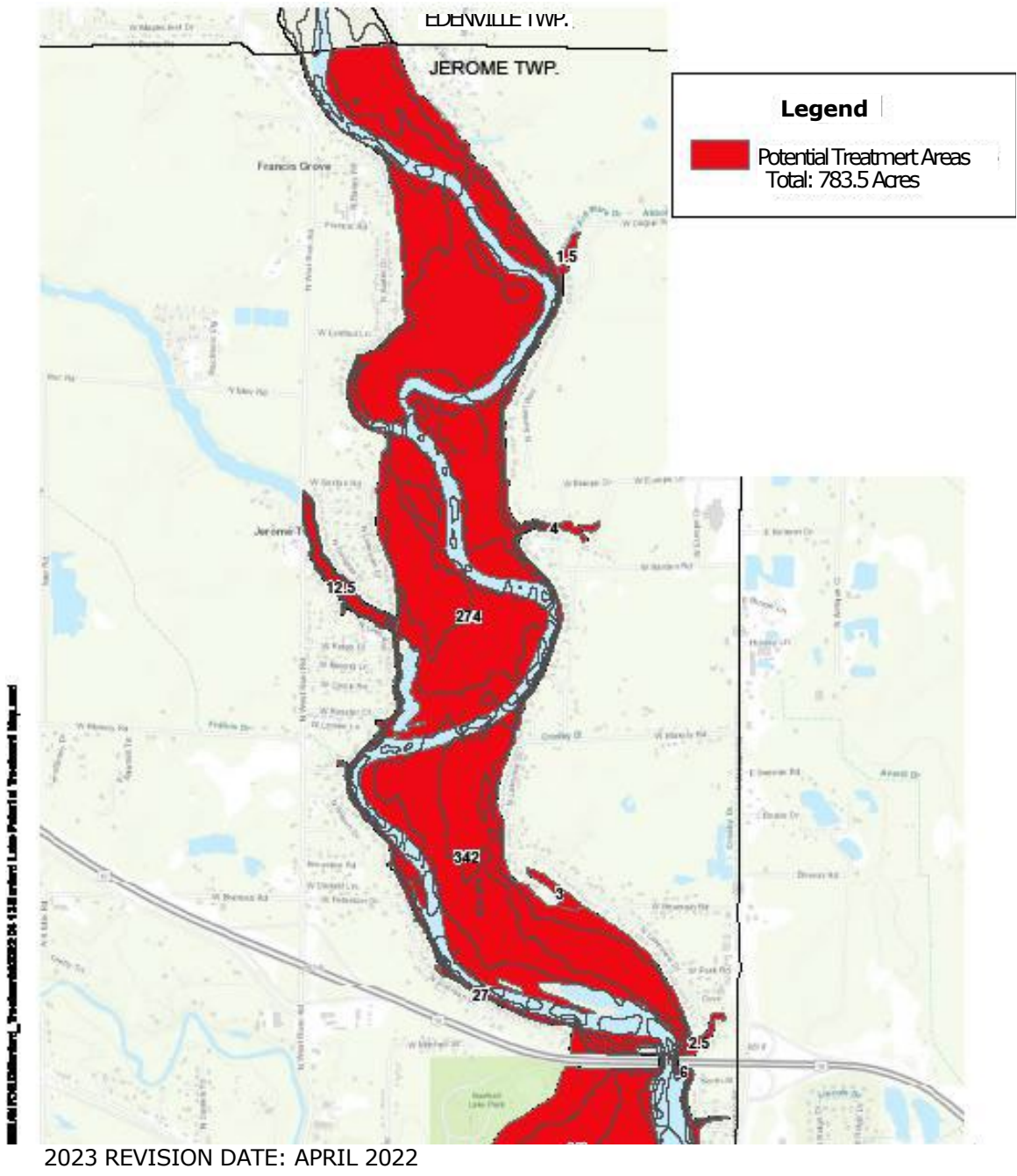
Midland County has several threatened or endangered species. The Slippershell mussel, Three-awned grass, Red-shouldered hawk, Carex seorsa (sedge), Beak grass, snuffbox mussel (endangered), Forked aster, Peregrine falcon (endangered), black sandshell mussel (endangered), Virginia water-horehound and the common tern. Again, none of these have currently been found within the treatment area.





**Figure 5.** Sanford Lake Potential Bottomland Treatment Areas (Edenville Twp.)  
(Map provided by PLM Lake and Land Management Corp.)

**SANFORD LAKE (POR71014 UNDER SUB AUTNCR11Y)  
MIDLAND COUNTY / MICHIGAN  
2022 IMNAL B0170MLANDS TREATMENT AREAS**



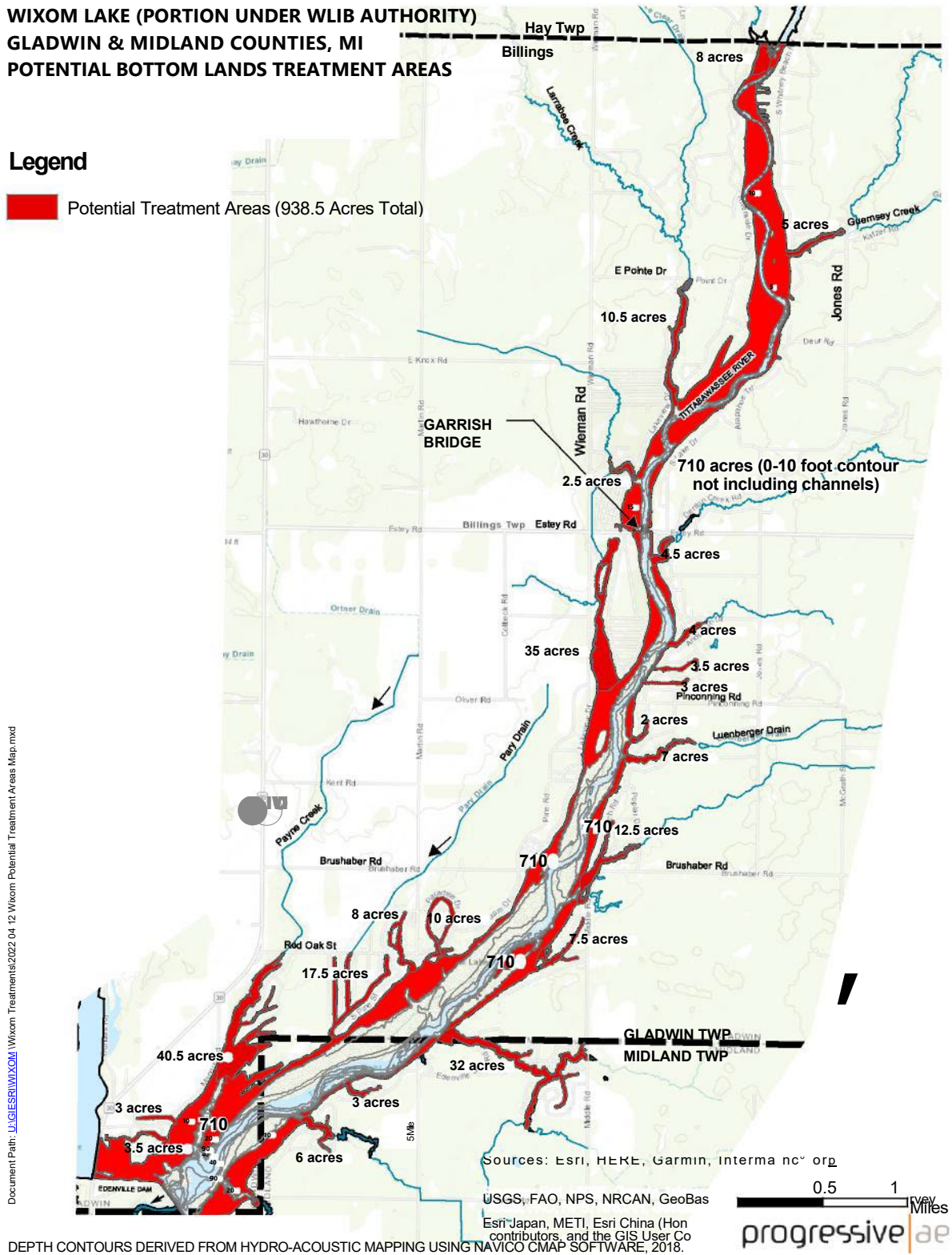
**Figure 6.** Sanford Lake Potential Bottomland Treatment Areas (Jerome Twp.).



**WIXOM LAKE (PORTION UNDER WLIB AUTHORITY)  
GLADWIN & MIDLAND COUNTIES, MI  
POTENTIAL BOTTOM LANDS TREATMENT AREAS**

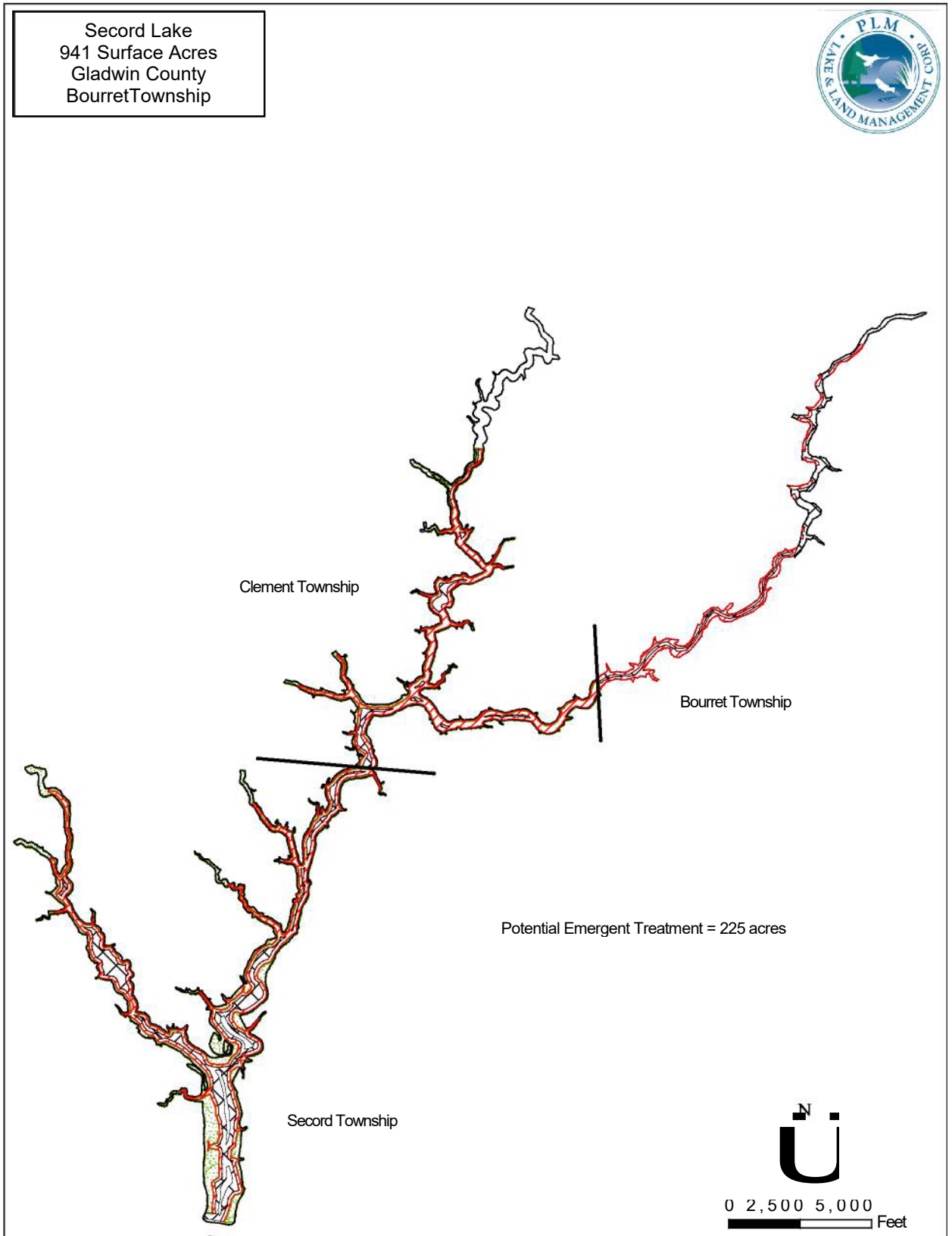
**Legend**

Potential Treatment Areas (938.5 Acres Total)

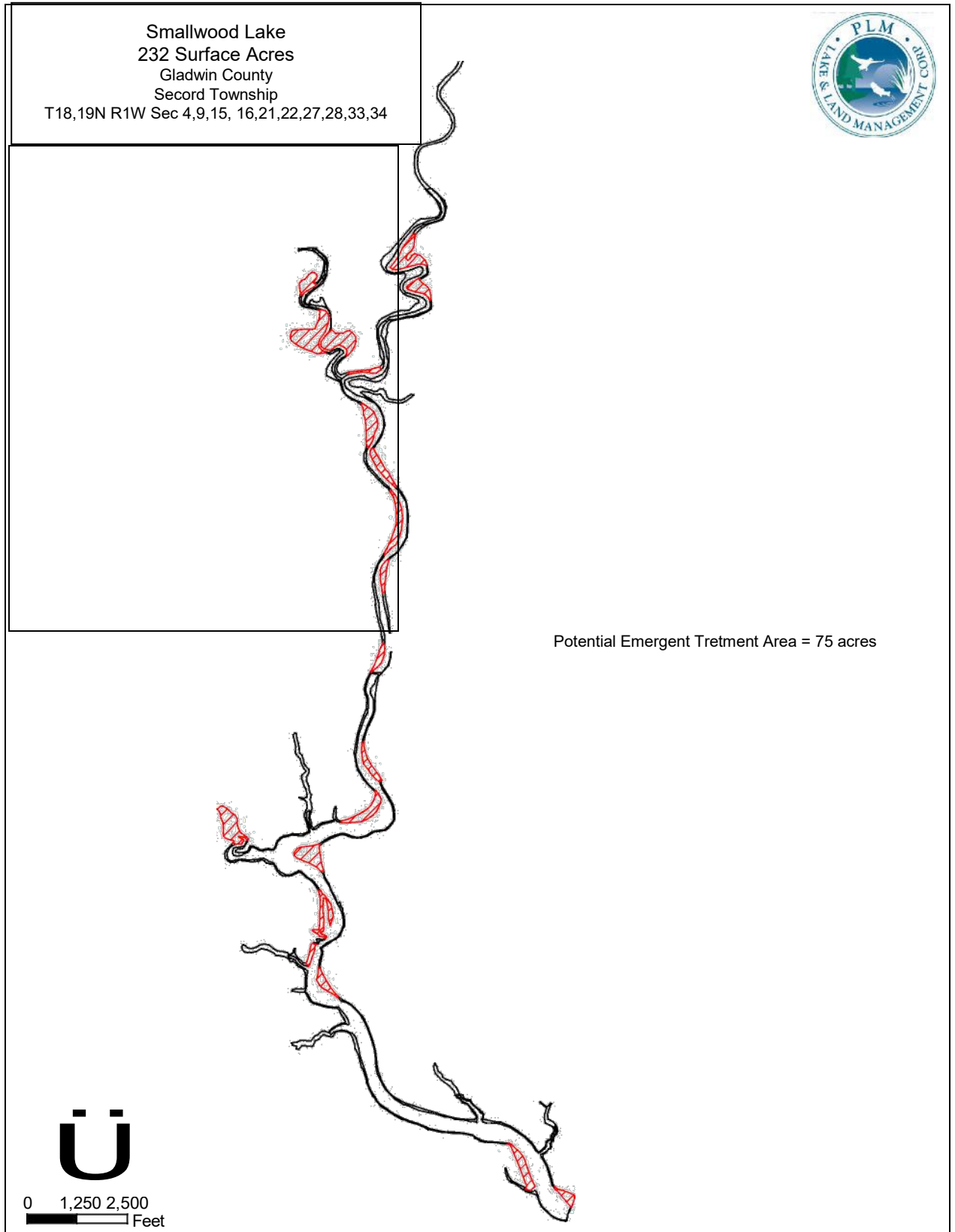


**Figure 7. Wixom Lake Potential Bottomland Treatment Areas.**





**Figure 8.** Secord Lake Potential Bottomland Treatment Areas.  
(Map provided by PLM Lake and Land Management Corp.)



**Figure 9.** Smallwood Lake Potential Bottomland Treatment Areas.  
(Map provided by PLM Lake and Land Management Corp.)

## Treatment Implementation

### VASTLAN™ PRODUCT DESCRIPTION

This project will use Triclopyr, more specifically, Vastlan™ (Triclopyr choline: 2-[(3,5,6-trichloro-2-pyridinyl)oxy] acetic acid, choline salt; Appendix 1: Vastlan product label), Renovate 3, Garlon 3A (also located in Appendix 1) or similar triclopyr formulation; a systemic herbicide with selectivity to broad leaf species as well as invasive species such as purple loosestrife. Treatment areas are outlined in the attached maps (Figure 5-6). A surfactant will be used to facilitate plant uptake. Cygnet Plus is a non-ionic sticker, penetrant, wetter, and surfactant all in one product. It helps break down the waxy cuticle on the leaf of plants as well as helps to penetrate the bud and bark area allowing for better uptake of the herbicide into the plant. Currently, Vastlan is not approved for aquatic use in Michigan, its status is pending. If Vastlan is not approved for aquatic use, Renovate 3 or Garlon 3A will be used in or around standing water. The overall goal is to use Vastlan for the dry ground vegetation and if/when approved, will be used in all treatment areas.

There will be an Aquatic Nuisance Control permit, issued by the Department of Environment, Great Lakes and Energy (EGLE) for the use of herbicides where water may be present within the bottomlands. Any area that has standing water would need to be covered by the Aquatic Nuisance Control permit. High-definition drone photography is currently underway (federal license FA3KK3AMKP) and will provide more detailed maps (utilizing ArcPro GIS software) once treatment areas have been refined. Ground truthing will be conducted to aid in determining the delineation of woody species on the aerial photography. It is expected that these maps will be available in mid-July, 2022. Triclopyr herbicide offers a broad spectrum of brush, vine and broadleaf weed control, including invasive and noxious species. It can be utilized across all vegetation management sites, including wetlands and all aquatic settings (Corteva agriscience). Vastlan was registered with the EPA on 2/25/2016 and the EPA Reg. No. 62719-687. If Vastlan is not approved for aquatic use, it will still be used in terrestrial upland areas with a 40' buffer. Renovate 3 has an EPA Reg. No. 62719-37-67690, Garlon 3A EPA Reg. No. 62719-37.

Channel areas and areas of exposed bottomlands not able to be treated with aerial application (40-foot buffer areas) will be chemically treated by foot, aqueous vehicle or terrestrial vehicle. Areas within the channel systems will be targeting emergent vegetation with Triclopyr or Glyphosate products. Treatments will be done in the correct manner to minimize the risk of drift. Nozzle size and droplet size will be decided based on weather conditions. Weather will be taken into consideration as well to increase efficacy of the treatment. If rain is expected within 24 hours of the scheduled start and stop time, we will postpone treatment. The herbicide needs adequate time to be taken in the plants. Wind speed will also be monitored days leading up to the treatment. Excessive wind speeds will postpone treatment to reduce risk of drift.

### Notification Procedures

Property owners will be notified that are within 100' of the area of impact, not less than seven days and not more than 45 days, before the initial chemical treatment. Notification records shall include at a minimum a complete list of who received notification, the method used for notification distribution, the date notification was sent or delivered, and a record of barriers to notification.

A notice of chemical application will be posted prior to each chemical application and shall remain posted for a minimum of 24 hours. The brand name and water use restrictions listed on the label for the specific product used shall be included on the posting sign.

In addition to the pre-treatment notice that will go out to all residents in the treatment area, a public statement will be published in local newspapers and township websites/social media. The information provided will include procedure for responding to citizen calls and notification procedure for local law enforcement, state and federal pollution emergency call centers. These notices will go out a minimum of 15 days prior to initial treatment but no later than 45 days.

## **HERBICIDE DISTRIBUTION AND CONTAINMENT SYSTEMS**

Treatment will be done in accordance with labeled rates. Treatments will be implemented using a helicopter aerial spray unit. Treatment logs will be kept and reported. Treatments are being done to most effectively control the growth of cottonwoods and willows. If the trees get too large, the herbicide application and then cleanup following will not be feasible.

## **TREATMENT STRATEGY AND SCHEDULE**

Spraying will be conducted by multiple aerial spray units that are certified applicators through the Department of Agriculture. Application will be done under weather conditions that limit or eliminate drift to non-target areas. Treatment will be done in accordance with product labeled rates. For Vastlan, the application rate is 9 quarts/acre. Renovate 3 and Garlon 3A application rate is 8 quarts/acre. The herbicides to be used are wetland approved by EPA and have short half-lives and residency times once they are applied. All herbicide mixing will occur away from wetlands and other sensitive areas. Treatments will be implemented using a helicopter spray unit. The unit will have a boom no greater than 75% of the rotary blades. Nozzles coming from the system will always point backward and parallel with the air stream and never pointed downwards more than 45 degrees. Nozzle size and pressure will be determined the day of treatment based on weather conditions. Droplet size will increase with heat and wind speed. Application will be done no higher than 10 feet above the highest plant unless safety is in question. Spray height is important due to the potential drift and evaporation of product. Currently anticipated treatments will occur in late summer/early fall of 2022 prior to average first frost date (October 1 for Gladwin County), and possibly annually depending upon re-growth of target species. Subsequent treatments will occur in late Spring (June) or late summer/early fall prior to average first frost date (October 1 for Gladwin County). This treatment timing is based on susceptibility of target species.

Following application, drones will survey treatment areas to assess success. It has been discussed at the township levels that mowing will then be completed to take down the dead/standing biomass in preparation for the return of water to the lakes. Mowing would take place during the winter months to improve accessibility and limit damage to bottomlands.

## **POST-TREATMENT MONITORING**

Drone photography augmented by on-site surveys and ground truthing will be used to evaluate the treatment areas. Each area will be evaluated after each application to verify presence and density of nuisance plant growth. Identification of areas for mowing will also be conducted utilizing drone technology (federal license FA3KK3AMKP) and GIS mapping software (ArcPro v. 2.1).



## Reporting

After the completion of the chemical treatment, a report will summarize the treatment including the following information:

- A copy of the PDMP
- A copy of any adverse Incident Reports
  - The rationale for any determination that reporting an identified adverse incident is not required
  - A copy of any spill, leak, or other unpermitted discharge documentation
- Documentation of any equipment cleaning, calibration, and repair
- Information on each treatment area to which pesticides were discharged, including:
  - A description of the treatment area, including location and size, and identification of any surface waters of the state, either by name or location, to which any pesticide(s) were discharged.
  - The target pest(s)
  - The name of each pesticide product used, including the United States Environmental Protection Agency (USEPA) registration number
- The quantity of pesticide applied, specifying if quantities are for the pesticide product as packaged or as formulated and applied
  - The pesticide application date(s)
  - Whether or not visual monitoring was conducted during the pesticide application and/or observable adverse incidents caused by application of pesticides.
  - Documentation of posting and notification requirements as required in NPDES permit. Weather forecast print outs will be saved from one day prior to treatment, day of treatment and one day following treatment.
  - Summary of all monitoring results and visual observations as specified in the workplan, including chemical concentrations, water quality and evaluation of treatment effectiveness
- Recommendations for future use chemicals to control cottonwood and willows along bottomlands.

## Spill and Adverse Incident Response Notification Procedure

Spill and adverse incident response notification procedure attached (appendix 2).

## References

Environmental Conservation Online System. 2022. U.S. Fish and Wildlife Service (online search by county <https://ecos.fws.gov/ecp/>).

Kulla, A. 2003. Aerial Herbicide Application for Noxious Weed Control in Northern Region. U.S. Forest Service. Appendix F & G.

Progressive AE. 2000. Sanford Lake Management Plan Report. Sanford Lake Improvement Board.

Progressive AE. 2001. Wixom Lake Improvement Plan. Wixom Lake Improvement Board.

## **APPENDIX A**

### **Triclopyr Specimen Labels and MSDS**



Conforms to HazCom 2012/United States

SDS

Renovate® 3

# SAFETY DATA SHEET



## Renovate® 3

### Herbicide

#### Section 1. Identification

**GHS product identifier** : Renovate® 3 Herbicide

**Recommended use of the chemical and restrictions on use Identified uses** : Herbicide

**Supplier's details** : SePRO Corporation  
11550 North Meridian Street  
Suite 600  
Carmel, IN 46032 U.S.A.  
Tel: 317-580-8282  
Toll free: 1-800-419-7779  
Fax: 317-580-8290  
Monday - Friday, 8am to 5pm E.S.T.  
[www.sepro.com](http://www.sepro.com)

**Emergency telephone number (with hours of operation)** : **INFOTRAC - 24-hour service 1-800-535-5053**

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

#### Section 2. Hazards identification

**Hazard classification** GHS classification in accordance with 29CFR 1910.1200.  
Flammable liquids - Category 3  
Eye irritation - Category 2A  
Specific target organ toxicity - repeated exposure - Category 2

**Label elements**  
**Hazard pictograms**



**Signal word:** WARNING!



**Hazards** Flammable liquid and vapor.  
Causes serious eye irritation.  
May cause damage to organs (kidney) through prolonged or repeated exposure.

**Precautionary statements**
**Prevention**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
Wash skin thoroughly after handling.  
Wear protective gloves/ eye protection/ face protection.

**Response**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Get medical attention if you feel unwell.

If eye irritation persists: Get medical advice/ attention.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**

Store in a well-ventilated place. Keep cool.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards** No data available

## Section 3. Composition/information on ingredients

This product is a mixture.

Component	CASRN	Concentration
Triclopyr Triethylamine Salt	57213-69-1	44.05%
Ethanol	64-17-5	2.10%
Balance	Not Available	53.85%

## Section 4. First aid measures

**Description of first aid measures**

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc.). Call a poison control center or doctor for treatment advice.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**Eye contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

## Section 5. Fire-fighting measures

**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Straight or direct water streams may not be effective to extinguish fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

**Unsuitable extinguishing media:** No data available

**Special hazards arising from the substance or mixture**

**Hazardous combustion products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn. May produce flash fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause

environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

**Special protective equipment for firefighters:**

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

## Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:**

Evacuate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Only Trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. Refer to section 7, Handling, for additional precautionary measures. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for**

**containment and cleaning up:** Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact SePRO Corporation for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

## Section 7. Handling and storage

**Precautions for safe handling:** Keep away from heat, sparks and flame. Keep out of reach of children. Do not swallow. No smoking, open flames or sources of ignition in handling and storage area. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Electrically ground and bond all equipment. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flashback may occur. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Minimize sources of ignition, such as static build-up, heat, spark or flame.

## Section 8. Exposure controls/personal protection

### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Triclopyr Triethylamine Salt	Dow IHG	TWA	2 mg/m <sup>3</sup>
	Dow IHG	TWA	SKIN, DSEN, BEI
Ethanol	ACGIH	STEL	1,000 ppm
	OSHA Z-1	TWA	1,900 mg/m <sup>3</sup> 1,000 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

### Exposure controls

Engineering controls:

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use chemical goggles.

#### Skin protection

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl "). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.



## Section 9. Physical and chemical properties

<b>Appearance</b>	
<b>Physical State</b>	Liquid
<b>Color</b>	Pink
<b>Odor</b>	Ammoniacal
<b>Odor Threshold</b>	No test data available
<b>pH</b>	9.5 10% <i>pH Electrode</i>
<b>Melting point/range</b>	Not applicable
<b>Freezing point</b>	No test data available
<b>Boiling point (760 mmHg)</b>	No test data available
<b>Flash point</b>	Closed cup 43 °C (109 °F) <i>Setaflash Closed Cup ASTM D3828</i>
<b>Evaporation Rate (Butyl Acetate =1)</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Lower explosion limit</b>	No data available
<b>Upper lower explosion limit</b>	No data available
<b>Vapor pressure</b>	No data available
<b>Relative Vapor Density (air = 1)</b>	No data available
<b>Relative Density (water = 1)</b>	1.1385 at 20 °C (68 °F) <i>Digital Density Meter (Oscillating Coil)</i>
<b>Water solubility</b>	Soluble
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Dynamic Viscosity</b>	12.5 mPa.s at 25 °C (77 °F)
<b>Kinematic Viscosity</b>	No data available
<b>Explosive properties</b>	No <i>Thermal</i>
<b>Oxidizing properties</b>	No significant increase (>5C) in temperature.
<b>Liquid Density</b>	1.1385 g/ml at 20 °C (68 °F) <i>Digital density meter</i>
<b>Molecular weight</b>	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## Section 10. Stability and reactivity

<b>Reactivity:</b>	No dangerous reaction known under conditions of use.
<b>Chemical stability:</b>	Thermally stable at recommended temperatures and pressures.
<b>Possibility of hazardous reactions:</b>	Polymerization will not occur.
<b>Conditions to avoid:</b>	Active ingredient decomposes at elevated temperatures.
<b>Incompatible materials:</b>	Avoid contact with: Oxidizers
<b>Hazardous decomposition products:</b>	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Nitrogen oxides.

## Section 11. Toxicological information

*Toxicological information appears in this section when such data is available.*

### Acute toxicity

**Acute oral toxicity** Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.  
As product: LD50, Rat, female, 4100 mg/kg

**Acute dermal toxicity** Prolonged skin contact is unlikely to result in absorption of harmful amounts.  
As product: LD50, Rabbit, male and female, > 5,000 mg/kg

**Acute inhalation toxicity** No adverse effects are anticipated from single exposure to mist. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).  
As product: LC50, Rat, male and female, 4 Hour, Mist, > 5.4 mg/l  
Maximum attainable concentration.  
No deaths occurred at this concentration.

**Skin corrosion/irritation** Brief contact is essentially nonirritating to skin.

**Serious eye damage/  
eye irritation** May cause moderate eye irritation.  
May cause moderate corneal injury.

**Sensitization** Did not demonstrate the potential for contact allergy in mice.  
For respiratory sensitization: No relevant data found.

**Specific Target Organ  
Systemic Toxicity  
(Single Exposure)** Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ  
Systemic Toxicity  
(Repeated Exposure)** For the active ingredient(s): In animals, effects have been reported on the following organs:  
Kidney.

**Carcinogenicity** For similar active ingredient(s). Triclopyr. Did not cause cancer in laboratory animals.

**Teratogenicity** For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.  
For the minor component(s): Has caused birth defects in lab animals at high doses.

**Reproductive toxicity** For similar active ingredient(s). Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

**Mutagenicity** In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard** Based on physical properties, not likely to be an aspiration hazard.

## Section 12. Ecological information

Ecotoxicological information appears in this section when such data is available.

<b>Toxicity</b>	
<b>Acute toxicity to fish</b>	LC50, <i>Oncorhynchus mykiss</i> (rainbow trout), 96 Hour, 400 mg/l, OECD Test Guideline 203 or Equivalent.  LC50, <i>Lepomis macrochirus</i> (Bluegill sunfish), semi-static test, 96 Hour, > 100 mg/l
<b>Acute toxicity to aquatic Invertebrates</b>	EC50, eastern oyster ( <i>Crassostrea virginica</i> ), static test, 48 Hour, 56 - 87 mg/l, Method Not Specified.  LC50, <i>Daphnia magna</i> (Water flea), static test, 48 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent.
<b>Acute toxicity to algae/ aquatic plants</b>	Based on information for a similar material: Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/l in the most sensitive species tested).  ErC50, <i>Pseudokirchneriella subcapitata</i> (green algae), 72hr, Growth rate inhibition, 107 mg/l, OECD Test Guideline 201 or Equivalent  ErC50, blue-green alga <i>Anabaena flos-aquae</i> , 72 Hour, Growth inhibition, > 100 mg/l  EC50, <i>Lemna gibba</i> , 7 d, Growth inhibition, > 100 mg/l  Based on information for a similar material ErC50, <i>Myriophyllum spicatum</i> , 14 day, 0.241 mg/l  Based on information for a similar material NOEC, <i>Myriophyllum spicatum</i> , 14 day, 0.0191 mg/l

### Persistence and degradability

#### Triclopyr Triethylamine Salt

<b>Biodegradability:</b>	For similar active ingredient(s). Triclopyr. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For similar active ingredient(s). Triclopyr. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
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#### Ethanol

<b>Biodegradability:</b>	Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. 10-day Window: Pass
<b>Biodegradation:</b>	> 70%
<b>Exposure time:</b>	5 d
<b>Method:</b>	OECD Test Guideline 301D or Equivalent
<b>Theoretical Oxygen Demand:</b>	2.08 mg/mg

**Photodegradation**      **Test Type:** Half-life (indirect photolysis)  
**Sensitizer:** OH radicals  
**Atmospheric half-life:** 2.99 d  
**Method:** Estimated.

**Balance**  
**Biodegradability:**      No relevant data found.

**Bioaccumulative potential**

**Triclopyr Triethylamine Salt**  
**Bioaccumulation:**      For similar active ingredient(s). Bioconcentration potential is low (BCF < 100 or Log Pow <3).

**Ethanol**  
**Bioaccumulation:**      Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or Log Pow <3). **Partition Coefficient:** n-octanol/water(log Pow) = -0.31 Measured.

**Balance**  
**Bioaccumulation:**      No relevant data found.

**Mobility in soil**

**Triclopyr Triethylamine Salt** For similar active ingredient(s).  
 Potential for mobility in soil is very high (Koc between 0 and 50).

**Ethanol**      Potential for mobility in soil is very high (Koc between 0 and 50).  
**Partition coefficient (Koc):** 1.0 Estimated.

**Balance**      No relevant data found.

**Section 13. Disposal considerations**

**Disposal methods:**      If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

**Section 14. Transport information**

**DOT**  
**Proper shipping name**      Combustible liquid, n.o.s. (Triclopyr Triethylamine Salt, Ethanol)  
**UN Number**      NA 1993  
**Class**      CBL  
**Packing Group**      III

**Classification for SEA transport (IMO-IMDG):**

**Proper shipping name** FLAMMABLE LIQUID, N.O.S. (Triclopyr Triethylamine Salt, Ethanol)  
**UN number** UN 1993  
**Class** 3  
**Packing group** III  
**Marine pollutant** Triclopyr Triethylamine Salt  
**Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code** Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

**Proper shipping name** Flammable liquid, n.o.s.( Triclopyr Triethylamine Salt, Ethanol)  
**UN number** UN 1993  
**Class** 3  
**Packing group** III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

## Section 15. Regulatory information

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

Flammable (gasses, aerosols, liquids, or solids)  
 Serious eye damage or eye irritation  
 Specific target organ toxicity (single or repeated exposure)

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**

Components	CASRN
Triclopyr Triethylamine Salt	57213-69-1

**Pennsylvania Right-To-Know**

The following chemicals are listed because of the additional requirements of Pennsylvania Law.

Components	CASRN
Ethanol	64-17-5

**California Proposition 65**

WARNING: This product can expose you to chemicals including Propylene oxide, Ethylene Oxide, which is/are known to the State of California to cause cancer, and Ethylene Oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**United States TSCA Inventory (TSCA)**

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.



**Federal Insecticide,  
Fungicide and Rodenticide  
Act**

EPA Registration Number: 62719-37-67690

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**DANGER**

Corrosive

Causes irreversible eye damage

Harmful if swallowed or absorbed through skin

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Section 16. Other information****Hazard Rating System****NFPA**

Health: 3      Fire: 2      Instability: 0

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
DOW IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
SKIN, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indice
STEL	Short-term exposure limit
TWA	Time Weighted Average

**History****Date of issue mm/dd/yyyy:**                      07/17/2018**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

# Renovate® 3

## PRECAUTIONARY STATEMENTS

Hazard to Humans and Domestic Animals  
DANGER



**Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed Or Absorbed Through Skin • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction in Some Individuals**

Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

### Personal Protective Equipment (PPE)

#### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear
- Chemical resistant gloves (>14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

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## FIRST AID

<b>If in eyes:</b>	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
<b>If on skin or clothing:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
<b>If swallowed:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency endangering health or the environment involving this product, call <b>INFOTRAC at 1-800-535-5053</b> .	
<b>Note to Applicator:</b> Allergic skin reaction is not expected from exposure to spray mixtures of Renovate 3 herbicide when used as directed.	
<b>Note to Physician:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	

### Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may contribute to fish suffocation. This loss can cause fish suffocation. Therefore, to minimize this hazard, do not treat more than one-third to one-half 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. Consult with the State agency for fish and game before applying to public water to determine if a permit is needed.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

### Physical or Chemical Hazards

**Combustible.** Do not use or store the product near heat or open flame.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation

**Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Protective eyewear
- Chemical-resistant gloves (>14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber



### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Entry Restrictions for Non-WPS Uses:** For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handler PPE is worn.

### STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.

**Pesticide Storage:** Store above 28°F or agitate before use. **Pesticide**

**Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

#### Nonrefillable containers 5 gallons or less:

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

#### Nonrefillable containers 5 gallons or larger:

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### Product Information for Aquatic and Wetland Sites

Use Renovate 3 herbicide for control of emersed, submersed and floating aquatic plants in aquatic sites such as ponds, lakes, reservoirs, non-irrigation canals, and ditches which have little or no continuous outflow, marshes and wetlands, including broadleaf and woody vegetation on banks and shores within or adjacent to these and other aquatic sites.

**Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

### Use Precautions

When making applications to control unwanted plants on banks or shorelines of moving water sites, minimize overspray to open water.

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### Use Restrictions

For use in New York State, comply with Section 24(c) Special Local Need labeling for Renovate® 3, SLN NY-060001.

**Chemigation:** Do not apply this product through any type of irrigation system.

Do not apply Renovate 3 directly to, or otherwise permit it to come into direct contact with grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants, and do not permit spray mists containing it to drift into them.

Do not apply to salt water bays or estuaries.

Do not apply directly to un-impounded rivers or streams.

Do not apply on ditches or canals currently being used to transport irrigation water or that will be used for irrigation within 4 months following treatment. It is permissible to treat irrigation and non-irrigation ditch banks.

Do not apply where runoff water may flow onto agricultural land as injury to crops may result.

Do not apply with a mistblower.

**Irrigation:** Do not use treated water for irrigation for 120 days following application. As an alternative to waiting 120 days, treated water may be used for irrigation once the triclopyr level in the intake water is determined to be non-detectable by laboratory analysis (immunoassay). There is no restriction on use of water from the treatment area to irrigate established grasses.

Water treated with Renovate 3 may not be used for irrigation purposes for 120 days after application or until residue levels of Renovate 3 are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Seasonal Irrigation Waters:** Renovate 3 may be applied during the off-season to surface waters that are used for irrigation on a seasonal basis provided that there is a minimum of 120 days between applying Renovate 3 and the first use of treated water for irrigation purposes, or until residue levels of Renovate 3 are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Irrigation Canals/Ditches:** Do not apply Renovate 3 to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or residue levels of Renovate 3 are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

### Maximum Use Rates

- Apply no more than 6 lb ae of triclopyr (2 gallons of Renovate 3) per acre per year on aquatic sites.
- Apply no more than 2 lb ae of triclopyr (2/3 gallon of Renovate 3) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting of hay is allowed.
- On forestry sites, Renovate 3 may be used at rates up to 6 lb ae of triclopyr (2 gallons of Renovate 3) per acre per year.
- For all terrestrial use sites other than range, pasture, forestry sites, and grazed/hayed areas, the maximum application rate is 9 lb ae of triclopyr (3 gallons of Renovate 3) per acre per year.

### Grazing and Haying Restrictions

#### Grazing green forage:

- There are no grazing restrictions for livestock or dairy animals on treated areas.

#### Haying (harvesting of dried forage)

- Do not harvest hay for 14 days after application.

**Slaughter Restrictions:** During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

### Avoiding Injurious Spray Drift

Applications should be made only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Aerial Application:** For aerial application near susceptible crops, apply through a Microfoil<sub>+</sub> or Thru-Valve boom<sub>+</sub>, or use a drift control additive

labeled for aquatic use. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing thickening agents labeled for use in aquatics or applications made with the Microfoil or Thru-Valve boom. Keep spray pressures low enough to provide coarse spray droplets. Spray boom should be no longer than  $\frac{3}{4}$  of the rotor length. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use recommendations and precautions on the product label.

† Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by SePRO Corporation is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than SePRO Corporation, in selecting and determining how to use its equipment.

## Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

## Aerial Drift Reduction Advisory

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

### Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Equipment:** To aid in reducing spray drift, Renovate 3 should be used in thickened (high viscosity) spray mixtures using a labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low (follow state regulations). In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine-droplet spray.

**High Volume Leaf-Stem Treatment:** To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. A labeled thickening agent may be used to reduce drift.

### Weed Resistance Management:

Triclopyr, the active ingredient in this product, is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain or develop plants resistant to Group 4 herbicides. Resistant weeds may dominate the weed population if these herbicides are used repeatedly in the same field. Such resistant weed plants may not be effectively managed using Group 4 herbicides but may be effectively managed utilizing other herbicides alone or in mixtures from a different herbicide Groups that are labeled for control of these weeds and/or by using cultural or mechanical practices. However, a herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your local company representative, state cooperative extension service, professional consultants or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

### Best Management Practices:

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistant weeds. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One

of the best ways to contain resistant weed populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in reducing the spread of resistant weed seed.

**Plants Controlled**

**Woody Plant Species**

alder	cascara	maples
arrowwood	ceanothus	mulberry
ash	cherry	oaks
aspen	Chinese tallow	poison ivy
bear clover (bearmat)	chinquapin	poison oak
beech	choke cherry	poplar
birch	cottonwood	salt-bush ( <i>Baccharis</i> spp.)
blackberry	crataegus (hawthorn)	sweetgum
blackgum	locust	waxmyrtle
Brazilian pepper	maleleuca (seedlings)	willow

**Annual and Perennial Broadleaf Weeds**

burdock	plantain	tropical sodaapple
Canada thistle	smartweed	vetch
curly dock	tansy ragwort	wild lettuce
elephant ear		

**Aquatic Weeds**

alligatorweed	nuphar (spatterdock)	purple loosestrife
American lotus	parrotfeather†	waterhyacinth
American frogbit	pennywort	waterlily
aquatic sodaapple	phragmites	watershield
Eurasian watermilfoil	pickerelweed	water primrose
milfoil species	pennywort	

†Re-treatment may be needed to achieve desired level of control.

**Application Methods**

**Floating and Emerged Weeds**

For control of waterhyacinth, alligatorweed (see specific directions below), and other susceptible emerged and floating herbaceous weeds and woody plants, apply 1 1/2 to 6 lb ae of triclopyr (2 to 8 quarts of Renovate 3) per acre as a foliar application using surface or aerial equipment. Use higher rates in the rate range when plants are mature, when the weed mass is dense, or for difficult to control species. Repeat as necessary to control regrowth and plants missed in the previous operation, but do not exceed a total of 6 lb ae of triclopyr (8 quarts of Renovate 3) per acre per annual growing season.

Use a non-ionic surfactant in the spray mixture to improve control. Follow all directions and use precautions on the aquatic surfactant label.

Apply when plants are actively growing.

**Surface Application**

Use a spray boom, handgun or other similar suitable equipment mounted on a boat or vehicle. Thorough wetting of foliage is essential for maximum effectiveness. Use 20 to 200 gallons per acre of spray mixture. Special precautions such as the use of low spray pressure, large droplet producing nozzles or addition of a labeled thickening agent may minimize spray drift in areas near sensitive crops.

**Aerial Application (Helicopter Only)**

Apply with a helicopter using a Microfoil or Thru-Valve boom, or a drift control additive in the spray solution. Apply in a minimum of 10 gallons of total spray mix per acre. Do not apply when weather conditions favor drift to sensitive areas. See label section on aerial application directions and precautions.

**Waterhyacinth (*Eichhornia crassipes*)**

Apply Renovate 3 at 1 1/2 to 6 lb ae of triclopyr (2 to 8 quarts of Renovate 3) per acre to control waterhyacinth. Apply when plants are actively growing. Use the higher rate in the rate range when the weed mass is dense. It is important to thoroughly wet all foliage with the spray mixture. Use a non-ionic surfactant in the spray mixture. A repeat treatment may be needed to control regrowth or plants missed in the previous treatment.

**Alligatorweed (*Alternanthera philoxeroides*)**

Apply Renovate 3 at 2 to 6 lb ae of triclopyr (3 to 8 quarts of Renovate 3) per acre to control alligatorweed. It is important to thoroughly wet all foliage with the spray mixture. For best results, add an approved non-ionic aquatic surfactant to the spray mixture. Alligatorweed growing outside the margins of a body of water can be controlled with this treatment. However, alligatorweed growing in water will only be partially

controlled. Top growth above the water will be controlled, but the plant will likely regrow from tissue below the water surface.

**Precautions for Potable Water Intakes – Lakes, Reservoirs, Ponds:**

For applications of Renovate 3 to control floating and emerged weeds in lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption, see chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

Renovate 3 Application Rate				
Area Treated (acres)	2 qt/acre	4 qt/acre	6 qt/acre	8 qt/acre
	Setback Distance (ft)			
<4	0	200	400	500
>4 - 8	0	200	700	900
>8 - 16	0	200	700	1,000
>16	0	200	900	1,300

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

To apply Renovate 3 around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.
- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Submerged Weeds**

**For control of Eurasian watermilfoil (*Myriophyllum spicatum*) and other susceptible submerged weeds** in ponds, lakes, reservoirs, and in non-irrigation canals or ditches that have little or no continuous outflow, apply Renovate 3 as either a surface or subsurface application. Select rates according to the rate chart below to provide a triclopyr concentration of 0.75 to 2.5 ppm ae in treated water. Use higher rates in the rate range in areas of greater water exchange. These areas may require a repeat application. However, total application of Renovate 3 must not exceed an application rate of 2.5 ppm of triclopyr for the treatment area per annual growing season.

Apply in spring or early summer when Eurasian watermilfoil or other submersed weeds are actively growing.

Areas near susceptible crops or other desirable broadleaf plants may be treated by subsurface injection applied by boat to avoid spray drift.

**Subsurface Application**

Apply desired amount of Renovate 3 per acre directly into the water through boat-mounted distribution systems. When treating target plants that are 6 feet below the surface of the water, trailing hoses should be used along with an aquatic approved sinking agent (except California).

**Surface Application**

Apply the desired amount of Renovate 3 as either a concentrate or a spray mixture in water. However, use a minimum spray volume of 5 gallons per acre. Do not apply when weather conditions favor drift to sensitive areas.

Average water depth (feet) x 0.905 x target concentration (ppm) = gallons of Renovate 3 per surface acre treated.

**Example:** to achieve a 2 ppm concentration of triclopyr in water averaging 4 feet deep

4 x 0.905 x 2 ppm = 7.2 gallons of Renovate 3 per surface acre treated.



Concentration of Triclopyr Acid in Water (ppm ae)					
Water Depth (ft)	0.75 ppm	1.0 ppm	1.5 ppm	2.0 ppm	2.5 ppm
	Gallons of Renovate 3 per Surface Acre at Specified Depth				
1	0.7	0.9	1.4	1.8	2.3
2	1.4	1.8	2.7	3.6	4.6
3	2.1	2.7	4.1	5.4	6.8
4	2.7	3.6	5.4	7.2	9.1
5	3.4	4.5	6.8	9.0	11.3
6	4.1	5.4	8.1	10.9	13.6
7	4.8	6.3	9.5	12.7	15.8
8	5.5	7.2	10.9	14.5	18.1
9	6.1	8.1	12.2	16.3	20.4
10	6.8	9.0	13.6	18.1	22.6
15	10.2	13.6	20.4	27.2	33.9
20	13.6	18.1	27.2	36.2	45.3

**Precautions for Potable Water Intakes – Lakes, Reservoirs, Ponds:**

For applications of Renovate 3 to control submerged weeds in lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption, see the chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

Concentration of Triclopyr Acid in Water (ppm ae)					
Area Treated (acres)	0.75 ppm	1.0 ppm	1.5 ppm	2.0 ppm	2.5 ppm
	Required Setback Distance (ft) from Potable Water Intake				
<4	300	400	600	800	1,000
>4 - 8	420	560	840	1,120	1,400
>8 - 16	600	800	1,200	1,600	2,000
>16 - 32	780	1,040	1,560	2,080	2,600
>32 acres, calculate a setback using the formula for the appropriate rate	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 3.33$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 2.50$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 1.67$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 1.25$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160)$

**Example Calculation 1:** to apply 2.5 ppm Renovate 3 to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times \ln(50 \text{ acres}) - 160) \\ &= (800 \times 3.912) - 160 \\ &= 2,970 \text{ feet} \end{aligned}$$

**Example Calculation 2:** to apply 0.75 ppm Renovate 3 to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= \frac{(800 \times \ln(50 \text{ acres}) - 160)}{3.33} \\ &= \frac{(800 \times 3.912) - 160}{3.33} \\ &= 892 \text{ feet} \end{aligned}$$

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

To apply Renovate 3 around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.
- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Wetland Sites**

Wetlands include flood plains, deltas, marshes, swamps, bogs, and transitional areas between upland and lowland sites. Wetlands may occur

within forests, wildlife habitat restoration and management areas and similar sites as well as areas adjacent to or surrounding domestic water supply reservoirs, lakes and ponds.

For control of woody plants and broadleaf weeds in these sites, follow use directions and application methods on this label for terrestrial sites associated with wetland areas.

**Use Precautions:** Minimize overspray to open water when treating target vegetation in and around non-flowing, quiescent or transient water. When making applications to control unwanted plants on banks or shorelines of flowing water, minimize overspray to open water. **Note:** Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

**Purple Loosestrife (*Lythrum salicaria*)**

Purple loosestrife can be controlled with foliar applications of Renovate 3. For broadcast applications, use a minimum of 4 1/2 to 6 lb ae of triclopyr (6 to 8 quarts of Renovate 3) per acre. Apply Renovate 3 when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of regrowth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant labeled for aquatics should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 1% to 1.5% Renovate 3 or 5 to 7.6 fl oz of Renovate 3 per 4 gallons of water should be used. All purple loosestrife plants should be thoroughly wetted.

**Phragmites (*Phragmites australis*)**

Phragmites can be selectively controlled with foliar applications of Renovate 3. For broadcast applications, a minimum of 2 1/4 lb ae of triclopyr (3 quarts of Renovate 3) per acre should be used. For optimum control, apply Renovate 3 when phragmites is in the early stage of growth, 1/2 to 3 feet in height, prior to seed head development. Follow-up applications for control of regrowth may be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant labeled for aquatics should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If a backpack sprayer is used, a spray mixture containing 1% to 1.5% of Renovate 3 or 5 to 7.6 fl oz of Renovate 3 per 4 gallons of water should be used. All phragmites foliage should be thoroughly wetted.

Aerial application by helicopter may be needed when treating restoration sites that are inaccessible, remote, difficult to traverse, isolated, or otherwise unsuited to ground application, or in circumstances where invasive exotic weeds dominate native plant populations over extensive areas and efforts to restore native plant diversity are being conducted. By air, apply in a minimum spray volume of 30 gallons per acre using Thru-Valve or Microfoil boom only.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.
- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Terrestrial Sites Associated With Wetland Areas**

- Apply no more than 2 lb ae of triclopyr (2/3 gallon of Renovate 3) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting of hay is allowed.
- On forestry sites, Renovate 3 may be used at rates up to 6 lb ae of triclopyr (2 gallons of Renovate 3) per acre per year.

Use Renovate 3 at rates of 3/4 to 6 lb ae of triclopyr (1/4 to 2 gallons of Renovate 3) per acre to control broadleaf weeds and woody plants. In all cases use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Use only water suitable for spraying. Use a labeled non-ionic surfactant for all foliar applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. The order of addition to the spray tank is water, spray thickening agent (if used), additional herbicide (if used), and Renovate 3. A labeled aquatic surfactant should be added to the spray tank last or as recommended on the product label. If combined with

emulsifiable concentrate herbicides, moderate continuous adequate agitation is required.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

For best results, apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, maples, or oaks are prevalent and during applications made in late summer when the plants are mature and during drought conditions, use the higher rates of Renovate 3.

When using Renovate 3 in combination with a 2,4-D herbicide approved for aquatic use, such as DMA 4 IVM, generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, re-sprouting may occur the year following treatment.

### High Volume Foliage Treatment

For control of woody plants, use Renovate 3 at the rate of 3 to 6 lb ae of triclopyr (1 to 2 gallons of Renovate 3) per 100 gallons of spray solution, or Renovate 3 at  $\frac{3}{4}$  to 3 lb ae of triclopyr (1 to 4 quarts of Renovate 3) may be tank mixed with 2,4-D amine, like DMA 4 IVM, diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars. (See General Use Precautions and Restrictions.) Do not exceed the maximum allowable use rate of 6 lb ae of triclopyr (2 gallons of Renovate 3) per acre per growing season.

### Low Volume Foliage Treatment

To control susceptible woody plants, apply up to 15 lb ae of triclopyr (5 gallons of Renovate 3) in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rates section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry sites 6 lb ae, and all other sites 9 lb ae triclopyr). The spray concentration of Renovate 3 and total spray volume per acre may be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see Use Precautions and Restrictions). For best results, a labeled aquatic surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

### Cut Surface Treatments (Woody Plants)

Individual plant treatments such as basal bark and cut surface applications may be used on any use site listed on this label at a maximum use rate of 2.67 gallons of Renovate 3 (8 lb ae of triclopyr) per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of  $\frac{2}{3}$  of a gallon of Renovate 3 (2 lb ae of triclopyr) per acre.

To control unwanted trees and other listed woody plants, apply Renovate 3, either undiluted or diluted in a 1 to 1 ratio with water as directed below.

### With Tree Injector Method

Apply by injecting  $\frac{1}{2}$  milliliter of undiluted Renovate 3 or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

### With Hack and Squirt Method

Make cuts at a convenient height around the tree trunk with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray  $\frac{1}{2}$  milliliter of undiluted Renovate 3 or 1 milliliter of the diluted solution into each cut.

### With Frill or Girdle Method

Make a single girdle through the bark completely around the tree at a convenient height. Wet the cut surface with undiluted or diluted solution.

Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species - for example, maples.

### Stump Treatment

Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted Renovate 3. The cambium area next to the bark is the most vital area to wet.

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### Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

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### Warranty Disclaimer

SePRO Corporation warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, SEPRO CORPORATION MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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### Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of SePRO Corporation or the seller. All such risks shall be assumed by buyer.

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### Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at SePRO Corporation's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

SePRO Corporation shall not be liable for losses or damages resulting from handling or use of this product unless SePRO Corporation is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall SePRO Corporation be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of SePRO Corporation or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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SePRO Corporation

11550 North Meridian Street, Suite 600  
Carmel, IN 46032 U.S.A.

**Product name:** GARLON™ 3A Herbicide

**Issue Date:** 10/26/2020

**Print Date:** 10/26/2020

DOW AGROSCIENCES LLC encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

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## 1. IDENTIFICATION

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**Product name:** GARLON™ 3A Herbicide

**Recommended use of the chemical and restrictions on use**

**Identified uses:** End use herbicide product

### COMPANY IDENTIFICATION

DOW AGROSCIENCES LLC  
9330 ZIONSVILLE RD  
INDIANAPOLIS, IN, 46268-1053  
UNITED STATES

**Customer Information Number** : 800-992-5994

**E-mail address** : [customerinformation@corteva.com](mailto:customerinformation@corteva.com)

### EMERGENCY TELEPHONE

**24-Hour Emergency Contact** : 800-992-5994

**Local Emergency Contact** : 352-323-3500

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## 2. HAZARDS IDENTIFICATION

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### Hazard classification

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids - Category 3

Eye irritation - Category 2A

Specific target organ toxicity - repeated exposure - Category 2

### Label elements

#### Hazard pictograms



Signal Word: **WARNING!**

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**Hazards**

Flammable liquid and vapor.  
 Causes serious eye irritation.  
 May cause damage to organs (Kidney) through prolonged or repeated exposure.

**Precautionary statements**

**Prevention**

Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
 Keep container tightly closed.  
 Ground/bond container and receiving equipment.  
 Use explosion-proof electrical/ ventilating/ lighting equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
 Wash skin thoroughly after handling.  
 Wear protective gloves/ eye protection/ face protection.

**Response**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 Get medical advice/ attention if you feel unwell.  
 If eye irritation persists: Get medical advice/ attention.  
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**

Store in a well-ventilated place. Keep cool.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

<b>Component</b>	<b>CASRN</b>	<b>Concentration</b>
Triclopyr Triethylamine Salt	57213-69-1	44.05%
Ethanol	64-17-5	2.1%
Balance	Not available	53.85%

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**Eye contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

#### Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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## 5. FIRE-FIGHTING MEASURES

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**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

**Unsuitable extinguishing media:** No data available

#### Special hazards arising from the substance or mixture

**Hazardous combustion products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn. May produce flash fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

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**6. ACCIDENTAL RELEASE MEASURES**

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**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Keep unnecessary and unprotected personnel from entering the area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. Refer to section 7, Handling, for additional precautionary measures. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact the company for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

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**7. HANDLING AND STORAGE**

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**Precautions for safe handling:** Keep away from heat, sparks and flame. Keep out of reach of children. Do not swallow. No smoking, open flames or sources of ignition in handling and storage area. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Electrically ground and bond all equipment. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Minimize sources of ignition, such as static build-up, heat, spark or flame.

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## 0. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Control parameters**

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Triclopyr Triethylamine Salt	Dow IHG	TWA	2 mg/m <sup>3</sup>
	Dow IHG	TWA	SKIN, DSEN, BEI
Ethanol	ACGIH	STEL	1,000 ppm
	OSHA Z-1	TWA	1,900 mg/m <sup>3</sup> 1,000 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

**Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use chemical goggles.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 8. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

Physical state                      Liquid.



<b>Color</b>	Pink to purple
<b>Odor</b>	Ammoniacal
<b>Odor Threshold</b>	No data available
<b>pH</b>	9.54 10% <i>pH Electrode</i>
<b>Melting point/range</b>	Not applicable to liquids
<b>Freezing point</b>	No data available
<b>Boiling point (760 mmHg)</b>	No data available
<b>Flash point</b>	<b>closed cup</b> 43 °C ( 109 °F) <i>Setaflash Closed Cup ASTM D3828</i>
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Lower explosion limit</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Relative Vapor Density (air = 1)</b>	No data available
<b>Relative Density (water = 1)</b>	1.1385 at 20 °C (68 °F) <i>Digital Density Meter (Oscillating Coil)</i>
<b>Water solubility</b>	Soluble
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Dynamic Viscosity</b>	12.5 mPa.s at 25 °C (77 °F)
<b>Kinematic Viscosity</b>	No data available
<b>Explosive properties</b>	No <i>Thermal</i>
<b>Oxidizing properties</b>	No significant increase (>5C) in temperature.
<b>Liquid Density</b>	1.1385 g/ml at 20 °C (68 °F) <i>Digital density meter</i>
<b>Molecular weight</b>	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Thermally stable at recommended temperatures and pressures. **Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Active ingredient decomposes at elevated temperatures.

**Incompatible materials:** Avoid contact with: Oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product:

LD50, Rat, female, 4,100 mg/kg

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rabbit, male and female, > 5,000 mg/kg

#### **Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to mist. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

As product:

LC50, Rat, male and female, 4 Hour, Mist, > 5.4 mg/l

Maximum attainable concentration.

No deaths occurred at this concentration.

### **Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

### **Serious eye damage/eye irritation**

May cause moderate eye irritation.

May cause moderate corneal injury.

### **Sensitization**

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

### **Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

### **Specific Target Organ Systemic Toxicity (Repeated Exposure)**

For the active ingredient(s):

In animals, effects have been reported on the following organs:

Kidney.

**Carcinogenicity**

For similar active ingredient(s). Triclopyr. Did not cause cancer in laboratory animals.

**Teratogenicity**

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the minor component(s): Has caused birth defects in lab animals at high doses.

**Reproductive toxicity**

For similar active ingredient(s). Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

**Mutagenicity**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**Acute toxicity to fish**

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 400 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Lepomis macrochirus (Bluegill sunfish), semi-static test, 96 Hour, > 100 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, eastern oyster (Crassostrea virginica), static test, 48 Hour, 56 - 87 mg/l, Method Not Specified.

LC50, Daphnia magna (Water flea), static test, 48 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

Based on information for a similar material:

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 107 mg/l, OECD Test Guideline 201 or Equivalent

ErC50, blue-green alga Anabaena flos-aquae, 72 Hour, Growth inhibition, > 100

mg/l EC50, Lemna gibba, 7 d, Growth inhibition, > 100 mg/l

Based on information for a similar material:

ErC50, Myriophyllum spicatum, 14 d, 0.241 mg/l

Based on information for a similar material:  
NOEC, Myriophyllum spicatum, 14 d, 0.0191 mg/l

### Persistence and degradability

#### Triclopyr Triethylamine Salt

**Biodegradability:** For similar active ingredient(s). Triclopyr. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).  
For similar active ingredient(s). Triclopyr. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

#### Ethanol

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.  
10-day Window: Pass  
**Biodegradation:** > 70 %  
**Exposure time:** 5 d  
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.08 mg/mg

#### **Photodegradation**

**Test Type:** Half-life (indirect photolysis)  
**Sensitization:** OH radicals  
**Atmospheric half-life:** 2.99 d  
**Method:** Estimated.

#### Balance

**Biodegradability:** No relevant data found.

### Bioaccumulative potential

#### Triclopyr Triethylamine Salt

**Bioaccumulation:** For similar active ingredient(s). Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

#### Ethanol

**Bioaccumulation:** Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient: n-octanol/water(log Pow):** -0.31 Measured

#### Balance

**Bioaccumulation:** No relevant data found.

### Mobility in soil

#### Triclopyr Triethylamine Salt

For similar active ingredient(s).  
Potential for mobility in soil is very high (Koc between 0 and 50).

#### Ethanol

Potential for mobility in soil is very high (Koc between 0 and 50).  
**Partition coefficient (Koc):** 1.0 Estimated.

**Balance**

No relevant data found.

**13. DISPOSAL CONSIDERATIONS**

**Disposal methods:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

**14. TRANSPORT INFORMATION****DOT**

<b>Proper shipping name</b>	Combustible liquid, n.o.s.(Triclopyr Triethylamine Salt, Ethanol)
<b>UN number</b>	NA 1993
<b>Class</b>	CBL
<b>Packing group</b>	III

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Triclopyr Triethylamine Salt, Ethanol)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	Triclopyr Triethylamine Salt
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Flammable liquid, n.o.s.(Triclopyr Triethylamine Salt, Ethanol)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids)

Serious eye damage or eye irritation

Specific target organ toxicity (single or repeated exposure)

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

#### Components

Triclopyr Triethylamine Salt

#### CASRN

57213-69-1

### Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

#### Components

Ethanol

#### CASRN

64-17-5

### California Prop. 65

WARNING: This product can expose you to chemicals including Propylene oxide, Ethylene Oxide, which is/are known to the State of California to cause cancer, and Ethylene Oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### United States TSCA Inventory (TSCA)

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

### Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number: 62719-037

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

#### DANGER

#### Corrosive

Causes irreversible eye damage

Harmful if swallowed or absorbed through skin

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.



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## 16. OTHER INFORMATION

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**Hazard Rating System****NFPA**

Health	Flammability	Instability
3	2	0

**Revision**

Identification Number: 4861 / Issue Date: 10/26/2020 / Version: 13.0

DAS Code: XRM-3724

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
SKIN, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indice
STEL	Short-term exposure limit
TWA	Time Weighted Average (TWA):

**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version. US

# Specimen Label

4



# Garlon<sup>®</sup> 3A

## HERBICIDE

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**For the control of woody plants, broadleaf weeds in range and pasture, forests and non-crop areas, including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings; and applications to grazed areas, and establishment and maintenance of wildlife openings, and in Christmas tree plantations and aquatic sites.**

**For use in New York State, comply with Section 24(c) Special Local Need labeling for Garlon 3A, SLN NY-110005.**

#### Active Ingredient:

Triclopyr: 2-[(3,5,6-trichloro-2-pyridinyl)oxy] acetic acid, triethylamine salt .....	44.4%
Other Ingredients .....	55.6%
Total .....	100.0%

Acid equivalent: triclopyr - 31.8% - 3 lb/gal

### Precautionary Statements

#### Hazard to Humans and Domestic Animals

EPA Reg. No. 62719-37

### Keep Out of Reach of Children

## DANGER

**Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed Or Absorbed Through Skin • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

**Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.**

#### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear
- Chemical resistant gloves (≥14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### First Aid

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

**Note to Applicator:** Allergic skin reaction is not expected from exposure to spray mixtures of Garlon 3A herbicide when used as directed.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

### Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may contribute to fish suffocation. This loss can cause fish suffocation. Therefore, to minimize this hazard, do not treat more than one-third to one-half 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. Consult with the State agency for fish and game before applying to public water to determine if a permit is needed.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

### Physical or Chemical Hazards

**Combustible.** Do not use or store the product near heat or open flame.

### Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Protective eyewear
- Chemical-resistant gloves (≥14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Entry Restrictions for Non-WPS Uses:** For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handler PPE is worn.

### Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.

**Pesticide Storage:** Store above 28°F or agitate before use.

**Pesticide Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

#### Nonrefillable containers 5 gallons or less:

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

#### Refillable containers 5 gallons or larger:

**Container Handling:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

#### Nonrefillable containers 5 gallons or larger:

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### Product Information

Use Garlon® 3A specialty herbicide for the control of woody plants and broadleaf weeds in range and pasture, forests and non-crop areas including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings, and applications to grazed areas, and establishment and maintenance of wildlife openings, and in Christmas tree plantations and aquatic sites. **Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

### Use Precautions

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs), and transitional areas between upland and lowland sites.

When making applications to control unwanted plants on banks or shorelines of moving water sites, minimize overspray to open water.

### Use Restrictions

**For use in New York State, comply with Section 24(c) Special Local Need labeling for Garlon 3A, SLN NY-110005.**

**Chemigation:** Do not apply this product through any type of irrigation system.

Do not apply Garlon 3A directly to, or otherwise permit it to come into direct contact with, grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants. Do not permit spray mists containing Garlon 3A to drift onto such plants.

Do not apply to salt water bays or estuaries.

Do not apply directly to un-impounded rivers or streams.

Do not apply on ditches or canals currently being used to transport irrigation water or that will be used for irrigation within 4 months following treatment. It is permissible to treat irrigation and non-irrigation ditch banks.

Do not apply where runoff water may flow onto agricultural land as injury to crops may result.

Do not apply with a mistblower.

Water treated with Garlon 3A may not be used for irrigation purposes for 120 days after application or until residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Seasonal Irrigation Waters:** Garlon 3A may be applied during the off-season to surface waters that are used for irrigation on a seasonable basis provided that there is a minimum of 120 days between applying Garlon 3A and the first use of treated water for irrigation purposes, or until residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Irrigation Canals/Ditches:** Do not apply Garlon 3A to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

### Maximum Use Rates

- Apply no more than 6 lb ae of triclopyr (2 gallons of Garlon 3A ) per acre per year on aquatic sites.
- Apply no more than 2 lb ae of triclopyr (2/3 gallon of Garlon 3A) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting of hay is allowed.
- On forestry sites, Garlon 3A may be used at rates up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year.
- For all terrestrial use sites other than range, pasture, forestry sites, and grazed/hayed areas, the maximum application rate is 9 lb ae of triclopyr (3 gallons of Garlon 3A) per acre per year.

### Precautions for Potable Water Intakes for Emerged Aquatic Weed Control

See chart below for specific setback distances near functioning potable water intakes. **Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

Area Treated (acres)	Garlon 3A Application Rate			
	2 qt/acre	4 qt/acre	6 qt/acre	8 qt/acre
	Setback Distance (ft)			
4	0	200	400	500
>4 - 8	0	200	700	900
>8 - 16	0	200	700	1000
>16	0	200	900	1300

To apply Garlon 3A around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

**Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.

**Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

### Grazing and Haying Restrictions

#### Grazing green forage:

- There are no grazing restrictions for livestock or dairy animals on treated areas.

#### Haying (harvesting of dried forage)

- Do not harvest hay for 14 days after application.

**Slaughter Restrictions:** During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

### Avoiding Injurious Spray Drift

Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Aerial Application:** For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil† or Thru-Valve boom†, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru-Valve boom. Keep spray pressures low enough to provide coarse spray droplets. Spray boom should be no longer than 3/4 of the rotor length. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use recommendations and precautions on the product label.

† Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

### Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

### Aerial Drift Reduction Advisory

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential.

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Equipment:** To aid in reducing spray drift, Garlon 3A should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low (follow state regulations). In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine-droplet spray.

**High Volume Leaf-Stem Treatment:** To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. An agriculturally labeled thickening agent may be used to reduce drift.

### Weed Resistance Management:

Triclopyr, the active ingredient in this product, is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain or develop plants resistant to Group 4 herbicides. Resistant weeds may dominate the weed population if these herbicides are used repeatedly in the same field. Such resistant weed plants may not be effectively managed using Group 4 herbicides but may be effectively managed utilizing other herbicides alone or in mixtures from a different herbicide Groups that are labeled for control of these weeds and/or by using cultural or mechanical practices. However, a herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your local company representative, state cooperative

extension service, professional consultants or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

**Best Management Practices:**

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistant weeds. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant weed populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in reducing the spread of resistant weed seed.

**Plants Controlled**

**Woody Plant Species**

alder	dogwood	salt cedar <sup>2</sup>
arrowwood	elderberry	salmonberry
ash	elm	sassafras
aspen	gallberry	scotch broom
Australian pine	hazel	sumac
bear clover (bearmat)	hornbean	sweetbay magnolia
beech	Kudzu <sup>1</sup>	sweetgum
birch	locust	sycamore
blackberry	madrone	tanoak
blackgum	maples	thimbleberry
Brazilian pepper	mulberry	tulip poplar
cascara	oaks	waxmyrtle
ceanothus	persimmon	western hemlock
cherry	pine	wild rose
chinquapin	poison ivy	willow
choke cherry	poison oak	winged elm
cottonwood	poplar	
crataegus	salt-bush	
	(hawthorn)	( <i>Baccharis</i> spp.)
Douglas fir		

<sup>1</sup>For complete control, re-treatment may be necessary.

<sup>2</sup>Use cut surface treatments for best results.

**Annual and Perennial Broadleaf Weeds**

bindweed	Mexican petunia	tansy ragwort
burdock	plantain	tropical soda apple
Canada thistle	purple loosestrife	vetch
chicory	ragweed	wedelia
curly dock	smartweed	wild lettuce
dandelion field	Spanish needles/ common beggarthicks	
bindweed		
lambsquarter		

**Purple Loosestrife (*Lythrum salicaria*)**

Purple loosestrife can be controlled with foliar applications of Garlon 3A. For broadcast applications, use a minimum of 4 1/2 to 6 lb ae of triclopyr (6 to 8 quarts of Garlon 3A) per acre. Apply Garlon 3A when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of regrowth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant should be added to the spray mixture.

Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is needed for ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 1% to 1.5% Garlon 3A or 5 to 7.6 fl oz of Garlon 3A per 4 gallons of water should be used. All purple loosestrife plants should be thoroughly wetted.

**Application Methods**

Use Garlon 3A at rates of 3/4 to 9 lb ae of triclopyr (1/4 to 3 gallons of Garlon 3A) per acre to control broadleaf weeds and woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Use only water suitable for spraying. Use an agriculturally labeled non-ionic surfactant for all foliar applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. The order of addition to the spray tank is water, spray thickening agent (if used), additional herbicide (if used), and Garlon 3A. Surfactant should be added to the spray tank last or as recommended on the product label. If combined with emulsifiable concentrate herbicides, moderate continuous adequate agitation is required.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels. **Note:** If tank mixing with Rodeo<sup>®</sup> herbicide, mix the Garlon 3A with at least 75% of the total spray volume desired and ensure that Garlon 3A is well mixed before adding the Rodeo to avoid incompatibility.

For best results, apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples, oaks, pines, or winged elm are prevalent and during applications made in late summer when the plants are mature and during drought conditions, use the higher rates of Garlon 3A alone or in combination with Tordon<sup>®</sup> 101 Mixture specialty herbicide. (Tordon 101 Mixture is a restricted use pesticide. See product label.) Tordon 101 Mixture is not registered for use in the states of California and Florida.

When using Garlon 3A in combination with 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile ester herbicides, generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those listed may be effective. Consult State or Local Extension personnel for such information.

**Foliage Treatment With Ground Equipment  
High Volume Foliage Treatment**

For control of woody plants, use Garlon 3A at the rate of 3 to 9 lb ae of triclopyr (1 to 3 gallons of Garlon 3A) per 100 gallons of spray solution, or Garlon 3A at 3/4 to 3 lb ae of triclopyr (1 to 4 quarts of Garlon 3A) may be tank mixed with 2,4-D amine, like DMA 4 IVM, or low volatile ester or Tordon 101 Mixture and diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars. (See Use Precautions and Restrictions.) Do not exceed maximum allowable use rates per acre (see table below). Tordon 101 Mixture is not registered for use in the states of California and Florida.

**Maximum Labeled Rate versus Spray Volume per Acre**

Total Spray Volume (gal/acre)	Maximum Rate of Garlon 3A		
	Range and Pasture Sites <sup>1</sup> (gal/100 gal of spray)	Forestry Sites <sup>2</sup> (gal/100 gal of spray)	Other Non-Cropland Sites <sup>3</sup> (gal/100 gal of spray)
400	Do not use	0.5	0.75
300	Do not use	0.67	1
200	Do not use	1	1.5
100	0.67	2	3
50	1.33	4	6
40	1.67	5	7.5
30	2.33	6.65	10
20	3.33	10	15
10	6.67	20	30

<sup>1</sup>Do not exceed the maximum use rate of 2 lb ae of triclopyr (2/3 gal of Garlon 3A)/acre/year.

<sup>2</sup>Do not exceed the maximum use rate of 6 lb ae of triclopyr (2 gal of Garlon 3A)/acre/year.

<sup>3</sup>Do not exceed the maximum use rate of 9 lb ae of triclopyr (3 gal of Garlon 3A)/acre/year on non-cropland use sites other than rangeland, pasture, forestry, and grazed/hayed areas.

### Low Volume Foliage Treatment

To control susceptible woody plants, apply up to 15 lb ae of triclopyr (5 gallons of Garlon 3A) in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rates section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry sites 6 lb ae, and all other sites 9 lb ae triclopyr). The spray concentration of Garlon 3A and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

**Tank Mixing:** As a low volume foliar spray, up to 9 lb ae of triclopyr (3 gallons of Garlon 3A) may be applied in tank mix combination with Tordon K or Tordon 101 Mixture in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rates section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry sites 6 lb ae, and all other sites 9 lb ae triclopyr). Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

When applying this product in tank mix combination, follow all applicable use directions, precautions and limitations on each manufacturer's label.

**Note:** If tank mixing with Rodeo<sup>®</sup> herbicide, mix the Garlon 3A with at least 75% of the total spray volume desired and ensure that Garlon 3A is well mixed before adding the Rodeo to avoid incompatibility.

### Broadcast Applications With Ground Equipment

Apply using equipment that will assure uniform coverage of the spray volumes applied. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described later under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

### Woody Plant Control

**Foliage Treatment:** Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of Garlon 3A) in enough water to make 20 to 100 gallons of total spray per acre or 1 1/2 to 3 lb ae of triclopyr (1/2 to 1 gallon of Garlon 3A) may be combined with 2,4-D amine, like DMA 4 IVM, or low volatile esters or Tordon 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre. Tordon 101 Mixture is not registered for use in the states of California and Florida.

### Broadleaf Weed Control

Use Garlon 3A at rates of 1 to 4 1/2 lb ae of triclopyr (1/3 to 1 1/2 gallons of Garlon 3A) in a total volume of 20 to 100 gallons of water per acre. Apply any time during the growing season. Garlon 3A at 1 to 3 lb ae of triclopyr (1/3 to 1 gallon of Garlon 3A) may be tank mixed with Tordon K, Tordon 101 Mixture or 2,4-D amine, like DMA 4 IVM, or low volatile herbicides to improve the spectrum of activity. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### Aerial Application (Helicopter Only)

Aerial sprays should be applied using suitable drift control. (See Use Precautions and Restrictions.) Add an agriculturally labeled non-ionic surfactant as described under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

### Foliage Treatment (Non-Grazed Rights-of-Way)

**Non-grazed areas:** Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of Garlon 3A) or 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of Garlon 3A) in a tank mix combination with 2,4-D amine, like DMA 4 IVM, or low volatile esters or Tordon 101 Mixture, and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions. Tordon 101 Mixture is not registered for use in the states of California and Florida.

Interspersed areas in non-grazed rights-of-ways that may be subject to grazing may be spot treated if the treated area comprises no more than 10% of the total grazable area.

### Cut Surface Treatments

Individual plant treatments such as basal bark and cut surface applications may be used on any use site listed on this label at a maximum use rate of 2.67 gallons of Garlon 3A (8 lb ae of triclopyr) per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of 2/3 of a gallon of Garlon 3A (2 lb ae of triclopyr) per acre.

To control unwanted trees of hardwood species such as elm, maple, oak and conifers in labeled sites, apply Garlon 3A, either undiluted or diluted in a 1 to 1 ratio with water, as directed below.

### With Tree Injector Method

Apply by injecting 1/2 milliliter of undiluted Garlon 3A or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

### With Hack and Squirt Method

Make cuts around the tree trunk at a convenient height with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1/2 milliliter of undiluted Garlon 3A or 1 milliliter of the diluted solution into the pocket created between the bark and the inner stem/trunk by each cut.

### With Frill or Girdle Method

Make a single girdle through the bark completely around the tree at a convenient height. The frill should allow for the herbicide to remain next to the inner stem and absorb into the plant. Wet the cut surface with undiluted or diluted solution.

Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species - for example, maples.

### Stump Treatment

Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted Garlon 3A. The cambium area next to the bark is the most vital area to wet.

### Forest Management Applications

For best control from broadcast applications of Garlon 3A, use a spray volume which will provide thorough plant coverage. Recommended spray volumes are usually 10 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. To improve spray coverage of spray volumes less than 50 gallons per acre, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. Application systems should be used to prevent hazardous drift to off-target sites. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

### Forest Site Preparation (Not for Conifer Release)

Use up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) and apply in a total spray volume of 10 to 30 gallons per acre or Garlon 3A at 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of Garlon 3A) may be used with Tordon 101 Mixture or 2,4-D low volatile ester in a tank mix combination in a total spray volume of 10 to 30 gallons per acre. Use a non-ionic agricultural surfactant for all foliar applications as described under Directions for Use. Tordon 101 Mixture is not registered for use in the states of California and Florida.

**Note:** Conifers planted sooner than one month after treatment with Garlon 3A at less than 4 lb ae of triclopyr (1 1/3 gallons of Garlon 3A) per acre or sooner than two months after treatment at 4 to 6 lb ae of triclopyr (1 1/3 to 2 gallons of Garlon 3A) per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture must be consulted and the longest recommended waiting period before planting observed.

### Directed Spray Applications for Conifer Release

To release conifers from competing hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, and pin cherry, mix 3 to 6 lb ae of triclopyr (1 to 2 gallons of Garlon 3A) in enough water to make 100 gallons of spray mixture. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. The spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration. The majority of treated hardwoods should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray away from contact with conifer foliage, particularly foliage of desirable pines.

**Note:** Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

### Broadcast Applications for Conifer Release in the Northeastern United States

To release spruce, fir, red pine and white pine from competing hardwoods, such as red maple, sugar maple, striped maple, alder, birch (white, yellow or gray), aspen, ash, pin cherry and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 3A at rates of 1 1/2 to 3 lb ae of triclopyr (2 to 4 quarts of Garlon 3A) per acre alone or with 2,4-D amine, like DMA 4 IVM, or 2,4-D ester to provide no more than 4 lb ae per acre



from both products. Apply in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

### Broadcast Applications for Douglas-Fir Release in the Pacific Northwest and California

To release Douglas-fir from susceptible competing vegetation such as broadleaf weeds, alder, blackberry or Scotch broom, apply Garlon 3A at 1 to 1 1/2 lb ae of triclopyr (1 1/3 to 2 quarts of Garlon 3A) per acre alone or in combination with 4 lb per acre of atrazine. Mix all sprays in a water carrier with a non-ionic surfactant. Apply in early spring after hardwoods begin growth and before Douglas fir bud break ("early foliar" hardwood stage) or after Douglas fir seasonal growth has "hardened off" (set winter buds) in late summer, but while hardwoods are still actively growing. When treating after Douglas fir bud set, apply prior to onset of autumn coloration in hardwood foliage. **Note:** Treatments applied during active Douglas fir shoot growth (after spring bud break and prior to bud set) may cause injury to Douglas fir trees.

### Christmas Tree Plantations

Use Garlon 3A for the control of woody plants and annual and perennial broadleaf weeds in established Christmas tree plantations. For best results, apply when woody plants and weeds are actively growing. Garlon 3A does not control weeds which have not emerged at the time of application. If lower rates are used on hard to control woody species, resprouting may occur the year following treatment. Brush over 8 feet tall is difficult to treat efficiently using hand equipment such as backpack or knapsack sprayers. When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use the higher rates of Garlon 3A or use cut surface application methods. For foliar applications, apply in enough water to give uniform and complete coverage of the plants to be controlled. Applications made under drought conditions may provide less than desirable results.

#### Use Precautions:

- Newly seeded turf (alleyways, etc.) should be mowed two or three times before any treatment with Garlon 3A.

#### Use Restrictions:

- Do not use on newly seeded grass until well established as indicated by vigorous growth and development of secondary root system and tillering
- Do not reseed Christmas tree areas treated with Garlon 3A for a minimum of three weeks after application.
- Do not use Garlon 3A if legumes, such as clover, are present and injury cannot be tolerated.

#### Spray Preparation

The order of addition to the spray tank is water, drift control agent (if used), non-ionic agricultural surfactant and Garlon 3A. Continue moderate agitation while mixing and spraying. Use a non-ionic agricultural surfactant for all applications. When using surfactants, follow use directions and precautions listed on the manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. **Note:** If tank mixing with Rodeo herbicide, mix the Garlon 3A with at least 75% of the total spray volume desired and ensure that Garlon 3A is well mixed before adding the Rodeo to avoid incompatibility.

#### Application

Apply in late summer or early autumn after terminal growth of Christmas trees has hardened off, but before leaf drop of, target weeds. Apply at a rate of 3/4 to 1 3/4 lb ae of triclopyr (2 to 5 pints of Garlon 3A) per acre as a foliar spray directed toward the base of Christmas trees. Use sufficient spray volume to provide uniform coverage of target plants (20 to 100 gallons per acre). **Do not apply with 2,4-D.** Application rates of Garlon 3A directed for Christmas trees will only suppress some well established woody plants that are greater than 2 to 3 years old (see table below). Broadcast sprays may also be applied in bands between the rows of planted trees. Use spray equipment that will assure uniform coverage of the desired spray volume.

**Spray solution from Garlon 3A can cause needle and branch injury to Christmas trees.** To minimize injury to Christmas trees, direct sprays so as to minimize contact with foliage. Blue spruce, white spruce, balsam fir and Fraser fir are less susceptible to injury than white pine and Douglas fir.

**Restriction:** Apply Garlon 3A only to established Christmas trees that were planted at least one full year prior to application.

### Application Rates and Species Controlled:

Garlon 3A		
2 pints/acre (3/4 lb ae of triclopyr)	3 to 4 pints/acre (1 1/2 lb ae of triclopyr)	5 pints/acre (1 3/4 lb ae of triclopyr)
clover dandelion dock, curly lambsquarters lespedeza plantain, broadleaf plantain, buckhorn ragweed, common vetch	bindweed, field (TG) blackberry <sup>1</sup> chicory (s) fireweed ivy, ground lettuce, wild oxalis poison ivy smartweed (TG) thistle, Canada (TG) violet, wild Virginia creeper <sup>1</sup>	arrowwood (SDL) aspens beech (SDL) birch (SDL) chinquapin cottonwood (SDL) elderberry grape, wild mulberry (SDL) poplar (SDL) sassafras (SDL) sumac (SDL) sycamore (SDL)

(TG) Top growth control, retreatment may be necessary

(S) Suppression

(SDL) Seedlings less than 2 to 3 years old

<sup>1</sup>Use 4 pint per acre rate

### Directed Applications

To control hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, alder, birch, aspen, and pin cherry, mix 4 to 20 fl oz of Garlon 3A in enough water to make 3 gallons of spray mixture. For directed applications, do not exceed 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year. To improve coverage, add a non-ionic agricultural surfactant to the spray. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration (when plants are actively growing). The majority of treated hardwoods should be less than 8 feet in height to ensure adequate spray coverage. **Note:** To prevent Christmas tree injury, care should be taken to direct spray away from contact with Christmas tree foliage.

### Cut Surface Treatments

When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks, salt cedar or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use cut surface treatments. (See directions for Cut Surface Treatments in preceding section of this label.)

### Wetland Sites in Forests and Non-Crop Areas

Garlon 3A may be used within forests and non-crop sites to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes and transition areas between upland and lowland sites.

For control of woody plants and broadleaf weeds in these sites, follow use directions and application methods on this label for forestry and non-cropland sites.

#### Use Precautions:

Minimize overspray to open water when treating target vegetation in and around non-flowing, quiescent or transient water. When making applications to control unwanted plants on banks or shorelines of flowing water, minimize overspray to open water. **Note:** Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

### Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

### Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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### **Inherent Risks of Use**

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It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

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### **Limitation of Remedies**

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To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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**Produced for  
Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268**

Label Code: CD02-101-020

Replaced Label: D02-101-041

EPA accepted 02/25/16

### **Revisions:**

Only minor changes made, including updated trademark statement.

# Specimen Label

TRICLOPYR CHOLINE GROUP 4



# Vastlan®

## HERBICIDE

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For the control of woody plant species and annual and perennial broadleaf weeds on

- range and permanent grass pastures, grasses grown for hay, Conservation Reserve Program (CRP) sites;
- forest sites, conifer and tree plantations, and Christmas tree plantations;
- non-crop areas for example, airports, barrow ditches, communication transmission lines or structures, manufacturing and storage sites, electrical power and utility rights-of-way, fencerows, gravel pits, industrial sites, military lands, mining and drilling areas, non-irrigation ditch banks, oil and gas pads, parking lots, petroleum tank farms, pipelines, railroads, roadsides, storage areas, storm water retention areas, substations, unimproved rough turf grasses, vacant lots and other non-crop residential areas, and around farm buildings;
- natural areas (open space) for example, campgrounds, parks, prairie management, trails and trailheads, recreation areas, wildlife openings and wildlife habitat and management areas;
- including grazed areas on these sites; and
- aquatic sites

For use in New York State, comply with Section 24(c) Special Local Need labeling for Vastlan, SLN NY-160004.

Active Ingredient:

Triclopyr choline: 2-[(3,5,6-trichloro-2-pyridinyl)oxy]

acetic acid, choline salt.....54.72%

Other Ingredients.....45.28%

Total.....100.0%

Acid equivalent: triclopyr – 39.02% - 4 lb/gal

### Precautionary Statements

#### Hazard to Humans and Domestic Animals

EPA Reg. No. 62719-687

Keep Out of Reach of Children

## WARNING

May be fatal if swallowed • Causes substantial but temporary eye injury • Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Protective eyewear
- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### First Aid

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

### Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may contribute to fish suffocation. This loss can cause fish suffocation. Therefore, to minimize this hazard, do not treat more than one-third to one-half 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. Consult with the State agency for fish and game before applying to public water to determine if a permit is needed.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

### Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

### Agricultural Use Requirements (Cont.)

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Protective eyewear
- Coveralls
- Shoes plus socks
- Waterproof gloves

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Entry Restrictions for Non-WPS Uses:** For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handlers PPE is worn.

### Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.

**Pesticide Storage:** Agitate before use.

**Pesticide Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**Nonrefillable containers 5 gallons or less:**

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable containers 5 gallons or larger:**

**Container Handling:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**Nonrefillable containers 5 gallons or larger:**

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### Product Information for All Use Sites

Use Vastlan® for the control of woody plants and broadleaf weeds in range and pasture, grasses grown for hay, Conservation Reserve Program (CRP) sites; forest sites, conifer and tree plantations, and Christmas tree plantations; non-crop areas for example, airports, barrow ditches, communication transmission lines or structures, manufacturing and storage sites, electrical power and utility rights-of-way, fencerows, gravel pits, industrial sites, military lands, mining and drilling areas, non-irrigation ditch banks, oil and gas pads, parking lots, petroleum tank farms, pipelines, railroads, roadsides, storage areas, storm water retention areas, substations, unimproved rough turf grasses, vacant lots and other non-crop residential areas, and around farm buildings; natural areas (open space) for example, campgrounds, parks, prairie management, trails and trailheads, recreation areas, wildlife openings and wildlife habitat and management areas and aquatic sites.

**Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

### Use Precautions

When making applications to control unwanted plants on banks or shorelines of moving water sites, minimize overspray to open water.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs), and transitional areas between upland and lowland sites.

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### Use Restrictions

**For use in New York State, comply with Section 24(c) Special Local Need labeling for Vastlan, SLN NY-160004.**

**Chemigation:** Do not apply this product through any type of irrigation system.

Do not apply Vastlan directly to, or otherwise permit it to come into direct contact with, grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants. Do not permit spray mists containing Vastlan to drift onto such plants.

Do not apply to salt water bays or estuaries.

Do not apply directly to un-impounded rivers or streams.

Do not apply where runoff water may flow onto agricultural land as injury to crops may result.

Do not apply with a mistblower.

**Irrigation waters:**

**Do not** apply on ditches or canals currently being used to transport irrigation water or that will be used for irrigation within 4 months following treatment. It is permissible to treat non-irrigation ditch banks and the outer banks of irrigation ditches.

Water treated with Vastlan may not be used for irrigation purposes for 120 days after application or until residue levels of Vastlan are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Seasonal Irrigation Waters:** Vastlan may be applied during the off-season to surface waters that are used for irrigation on a seasonal basis provided that there is a minimum of 120 days between applying Vastlan and the first use of treated water for irrigation purposes, or until residue levels of Vastlan are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Irrigation Canals/Ditches:** **Do not** apply Vastlan to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or residue levels of Vastlan are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Restrictions for Potable Water Intakes for Emerged Aquatic Weed Control – Lakes, Reservoirs, Ponds:**

See chart below for specific setback distances near functioning potable water intakes.

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

Area Treated (acres)	Vastlan Application Rate			
	1.5 qt/acre	3 qt/acre	4.5 qt/acre	6 qt/acre
4	0	200	400	500
>4 - 8	0	200	700	900
>8 - 16	0	200	700	1000
>16	0	200	900	1300

**Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.

**Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Restrictions for Potable Water Intakes for Submerged Weed Control – Lakes, Reservoirs, Ponds:**

For applications of Vastlan to control submerged weeds in lakes, reservoirs, or ponds that contain a functioning potable water intake for human consumption, see the chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

To apply Vastlan around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

Area Treated (acres)	Concentration of Triclopyr Acid in Water (ppm ae)				
	0.75 ppm	1 ppm	1.5 ppm	2 ppm	2.5 ppm
	Required Setback Distance (ft) from Potable Water Intake				
<4	300	400	600	800	1000
>4 – 8	420	560	840	1120	1400
>8 – 16	600	800	1200	1600	2000
>16 – 32	780	1040	1560	2080	2600
>32 acres, calculate a setback using the formula for the appropriate rate	Setback (ft) = (800*ln (acres) – 160)/3.33	Setback (ft) = (800*ln (acres) – 160)/2.50	Setback (ft) = (800*ln (acres) – 160)/1.67	Setback (ft) = (800*ln (acres) – 160)/1.25	Setback (ft) = (800*ln (acres) – 160)

**Example Calculation 1:** to apply 2.5 ppm Vastlan to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times \ln (50 \text{ acres}) - 160) \\ &= (800 \times 3.912) - 160 \\ &= 2970 \text{ feet} \end{aligned}$$

**Example Calculation 2:** to apply 0.75 ppm Vastlan to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times \ln (50 \text{ acres}) - 160) \\ &\quad 3.33 \\ &= (800 \times 3.912) - 160 \\ &\quad 3.33 \\ &= 892 \text{ feet} \end{aligned}$$

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

To apply Vastlan around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

**Maximum Use Rates**

- Apply no more than 6 lb ae of triclopyr (6 quarts of Vastlan) per acre per year on aquatic sites.
- Apply no more than 2 lb ae of triclopyr (2 quarts of Vastlan) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting of hay is allowed.
- On forestry sites, Vastlan may be used at rates up to 6 lb ae of triclopyr (6 quarts of Vastlan) per acre per year.
- For all terrestrial use sites other than range, pasture, forestry sites, and grazed/hayed areas, the maximum application rate is 9 lb ae of triclopyr (9 quarts of Vastlan) per acre per year.
- See Maximum Labeled Rate versus Spray Volume per Acre table below for relationship between mixing rate, spray volume and maximum application rate.

**Maximum Labeled Rate versus Spray Volume per Acre**

Total Spray Volume (gal/acre)	Maximum Rate of Vastlan		
	Range and Pasture Sites <sup>1</sup> (gal/100 gal of spray)	Forestry Sites <sup>2</sup> (gal/100 gal of spray)	Non-Cropland Sites <sup>3</sup> (gal/100 gal of spray)
400	Do not use	0.375	0.57
300	Do not use	0.5	0.75
200	Do not use	0.75	1.125
100	0.5	1.5	2.25
50	1	3	4.5

**Maximum Labeled Rate versus Spray Volume per Acre (Cont.)**

Total Spray Volume (gal/acre)	Maximum Rate of Vastlan		
	Range and Pasture Sites <sup>1</sup> (gal/100 gal of spray)	Forestry Sites <sup>2</sup> (gal/100 gal of spray)	Non-Cropland Sites <sup>3</sup> (gal/100 gal of spray)
40	1.25	3.75	5.63
30	1.67	5	7.5
20	2.5	7.5	11.25
10	5	15	22.5

<sup>1</sup> Do not exceed the maximum use rate of 2 lb ae of triclopyr (2 quarts of Vastlan)/acre/year.

<sup>2</sup> Do not exceed the maximum use rate of 6 lb ae of triclopyr (6 quarts of Vastlan)/acre/year.

<sup>3</sup> Do not exceed the maximum use rate of 9 lb ae of triclopyr (9 quarts of Vastlan)/acre/year on non-cropland use sites other than rangeland, pasture, forestry, and grazed/hayed areas.

Use the higher dosage rates in the chart when woody plants approach an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, resprouting may occur the year following treatment.

**Haying Restrictions**

**Haying (harvesting of dried forage)**

- Do not harvest hay for 14 days after application.

**Slaughter Restriction:** During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

**Avoiding Injurious Spray Drift**

Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Spray Drift Management**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

**Aerial Application:**

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications with aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory, below.

#### **Aerial Drift Reduction Advisory**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil† or Thru-Valve boom†, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru-Valve boom. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. If a spray thickening agent is used, follow all use directions and precautions on the product label.

† Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

#### **Controlling Droplet Size:**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** The distance of the outer most operating nozzles on the boom must not exceed 75% of wingspan or rotor diameter.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential.

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high.

Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Equipment:** To aid in reducing spray drift, Vastlan should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low (follow state regulations). In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine-droplet spray.

**High Volume Leaf-Stem Treatment:** To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. An agriculturally labeled thickening agent may be used to reduce drift.

#### **Use Information**

Use Vastlan at rates of 0.75 to 9 quarts of Vastlan per acre to control broadleaf weeds and woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Refer to Maximum Use Rates paragraph - follow defined rates restrictions based on use sites and whether or not grazing or haying is involved.

#### **Surfactants**

For best results, use a surfactant with foliar applications and apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples, oaks, pines, or winged elm are prevalent and during applications made in late summer when the plants are mature or during drought conditions, use the higher rates of Vastlan alone or in combination with Milestone, Opensight, Tordon® or other herbicides to broaden the spectrum of activity.

#### **Tank Mixing**

Before using any recommended tank mixtures, read the directions and all use precautions and restrictions on all labels in the tank mix. Prior to large scale batch mixing, conduct a "jar test" for spray mixture compatibility by mixing each component in the required order and proportion in a clear glass jar. **Note:** If tank mixing with glyphosate herbicides, mix the Vastlan with at least 75% of the total spray volume desired and ensure that Vastlan is well mixed before adding the glyphosate herbicides to avoid incompatibility. When using Vastlan in combination with Freelexx, 2,4-D amine (like DMA 4 IVM) or low volatile ester herbicides, generally the higher rates should be used for satisfactory brush control.

A surfactant should be added to the spray tank last or as recommended on the product label. If combined with emulsifiable concentrate herbicides, moderate continuous adequate agitation is required. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

#### **Broadcast Applications With Ground Equipment**

Apply using equipment that will ensure uniform coverage of the spray volumes applied. To improve spray coverage, add a non-ionic surfactant. See Maximum Labeled Rate versus Spray Volume per Acre table below for relationship between mixing rate, spray volume and maximum application rate.

#### **Aerial Application**

Aerial sprays should be applied using suitable drift control. (See Use Precautions and Restrictions.) Add a non-ionic surfactant. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

## Woody Plant Control With Ground Equipment for Noncropland sites

### High Volume Foliage Treatment

For control of woody plants, use Vastlan at the rate of 3 to 9 quarts per 100 gallons of spray solution, or Vastlan at 0.75 to 3 quarts may be tank mixed with Freelexx, 2,4-D (like DMA 4 IVM, or low volatile esters), or products such as Milestone, Opensight, Tordon\* and diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Applications should be sufficient to provide thorough plant coverage. (See Use Precautions and Restrictions.) Do not exceed maximum allowable use rates per acre.

\* Tordon is not registered for use in the states of California and Florida. This product is a restricted use pesticide. Check to ensure tank mix partners are state registered before use. See this product label for more information.

### Low Volume Foliage Treatment

To control susceptible woody plants, apply up to 9 quarts of Vastlan in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rate section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry and aquatic sites 6 lb ae, and all other sites 9 lb ae triclopyr). For best results, a surfactant should be added to all spray mixtures. The spray concentration of Vastlan and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see Use Precautions and Restrictions). Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

**Tank Mixing:** As a low volume foliar spray, up to 9 quarts of Vastlan may be applied in tank mix combination with Tordon\* or Graslan L\* in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rate section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry and aquatic sites 6 lb ae, and all other sites 9 lb ae triclopyr).

\* Tordon and Graslan L are not registered for use in the states of California and Florida. These products are restricted use pesticides. See product labels for more information.

### Foliage Treatment (Non-Grazed/Non-Hayed Areas)

Use 6 to 9 quarts of Vastlan alone or in a tank mix combination with other herbicides such as Freelexx, 2,4-D (like DMA 4 IVM, or low volatile esters) or Milestone, Opensight, Tordon\*, or Graslan L\* and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions.

Interspersed areas in non-grazed/hayed rights-of-ways that may be subject to grazing or haying may be spot treated with this rate if the treated area comprises no more than 10% of the total grazed/hayed area.

\* Tordon and Graslan L are not registered for use in the states of California and Florida. These products are restricted use pesticides. See product labels for more information.

### Foliage Treatment (Range and Pasture and Grazed/Hayed Areas)

Use 1 to 2 quarts of Vastlan per acre. Apply as a broadcast spray in a total volume of 10 gallons or more per acre. Apply anytime the weeds are actively growing. Tank mixtures can be made with other herbicides registered for use on grazed/hayed sites such as Milestone, Opensight, PastureGard HL, Surmount, Freelexx, or Tordon\* or Graslan L.

\* Tordon and Graslan L are not registered for use in the states of California and Florida. These products are restricted use pesticides. Check to ensure tank mix partners are state registered before use. See product labels for more information.

### Weed Resistance Management

Triclopyr, the active ingredient in this product, is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain or develop plants resistant to Group 4 herbicides. Resistant weeds may dominate the weed population if these herbicides are used repeatedly in the same field. Such

resistant weed plants may not be effectively managed using Group 4 herbicides but may be effectively managed utilizing other herbicides alone or in mixtures from different herbicide Groups that are labeled for control of these weeds and/or by using cultural or mechanical practices. Consult your local company representative, state cooperative extension service, professional consultants, or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

### Best Management Practices:

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistant weeds. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant weed populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in reducing the spread of resistant weed seed.

### Woody Plants and Weeds Controlled

alder	dogwood	salt cedar <sup>2</sup>
arrowwood	elderberry	salmonberry
ash	elm	sassafras
aspen	gallberry	scotch broom
Australian pine	gorse	sumac
bear clover (bearmat)	hazel	sweetbay magnolia
beech	hornbeam	sweetgum
birch	kudzu <sup>1</sup>	sycamore
blackberry	locust	tanoak
blackgum	madrone	thimbleberry
Brazilian pepper	maples	tulip poplar
broom, Scotch, French, melaleuca (seedlings)	mulberry	waxmyrtle
Spanish, Portugese	oaks	western hemlock
casacara	persimmon	wild rose
ceanothus	pine	willow
cherry	poison ivy	winged elm
chinquapin	poison oak	
choke cherry	poplar	
cottonwood	Russian olive 1/	
crataegus (hawthorn)	salt-bush ( <i>Baccharis</i> spp.)	
Douglas fir		

<sup>1</sup>For complete control, re-treatment may be necessary.

<sup>2</sup>Use cut surface treatments for best results.

### Annual and Perennial Broadleaf Weeds

bindweed	lambquarter	Spanish needles/
burdock	lespedeza	common
Canada thistle	Mexican petunia	beggarthicks
chicory	plantain purple	tansy ragwort
clover	loosestrife 2/	thistle
curly dock	oxalis	tropical soda apple
dandelion	ragweed	vetch
field bindweed	smartweed	wedelia
ground ivy		wild lettuce

### Aquatic Weeds

alligatorweed	nuphar (spatterdock)	purple loosestrife
American lotus	parrotfeather	Waterhyacinth
American frogbit	phragmites 3/	Waterlily
aquatic	pickerelweed	Waterprimrose
sodaapple	pennywort	Watershield
Eurasian		

\*Re-treatment may be needed to achieve desired level of control.

### 1/ Russian olive

Apply Vastlan at 3 quarts per acre plus Milestone® and a non-ionic surfactant at 0.25 to 0.5% v/v or 1 quart/acre of crop oil concentrate or methylated seed oil. Treatments can be made to small (usually less than 6 feet in height) trees or to regrowth of trees after cutting, mowing, or shredding operations. For foliar applications, apply until foliage is wet, but not to runoff. When treating regrowth of mowed trees, allow time for the plants to re-grow and develop adequate leaf area for a foliar application. This may mean the application will need to be done the year after cutting or, at least, in September or October after mowing the previous winter or

These treatments may need to be re-applied in subsequent years to achieve the desired level of long term control if trees resprout after the initial treatment

## 2/ Purple Loosestrife

Purple loosestrife can be controlled with foliar applications of Vastlan. For broadcast applications, use a minimum of 4.5 to 6 quarts of Vastlan per acre. Apply Vastlan when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of regrowth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is needed for ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 0.75% to 1.25% Vastlan should be used. All purple loosestrife plants should be thoroughly wetted.

## 3/ Phragmites (*Phragmites australis*)

Phragmites can be selectively controlled with foliar applications of Vastlan. For broadcast applications, a minimum of 2 1/4 lb ae of triclopyr (2 1/4 quarts of Vastlan) per acre should be used. For optimum control, apply Vastlan when phragmites is in the early state of growth, 1/2 to 3 feet in height, prior to seed head development. Follow-up applications for control of regrowth may be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant labeled for aquatics should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If a backpack sprayer is used, a spray mixture containing 0.75% to 1.25% of Vastlan should be used. All phragmites foliage should be thoroughly wetted.

Aerial application by helicopter may be needed when treating restoration sites that are inaccessible, remote, difficult to traverse, isolated, or otherwise unsuited to ground application, or in circumstances where invasive exotic weeds dominate native plant populations over extensive areas and efforts to restore native plant diversity are being conducted. By air, apply in a minimum spray volume of 30 gallons per acre.

## Cut Surface Treatments

Individual plant treatments such as cut surface applications may be used on any use site listed on this label at a maximum use rate of 6 or 9 quarts of Vastlan (6 lb ae on forestry sites and 9 lb ae of triclopyr on other sites) per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of 2 quarts of Vastlan (2 lb ae of triclopyr) per acre on a grazed site.

To control unwanted hardwood trees such as elm, maple, oak and conifers in labeled sites, apply Vastlan, either undiluted or diluted in a 1 to 1 ratio with water, as directed below.

### Tree Injector Method

Apply by injecting 1/2 milliliter of undiluted Vastlan or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

### Hack and Squirt Method

Make cuts around the tree trunk at a convenient height with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1/2 milliliter of undiluted Vastlan or 1 milliliter of the diluted solution into the pocket created between the bark and the inner stem/trunk by each cut.

### Frill or Girdle Method

Make a single girdle through the bark completely around the tree at a convenient height. The frill should allow for the herbicide to remain next to the inner stem and absorb into the plant. Wet the cut surface with undiluted or diluted solution.

Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species - for example, maples.

### Stump Treatment

Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted Vastlan. The cambium area next to the bark is the most vital area to wet.

## Chemical Mowing

Vastlan may be applied to the cut surfaces of weed or brush stubble under the deck of a rotary mower such as the Brown Brush Monitor or other equipment that is designed to uniformly apply the herbicide. This method of application may be used for control of annual and perennial broadleaf weeds and for suppression and stem density reduction of woody species. Apply when growing conditions are favorable and there is active plant growth.

### Application

**Broadleaf Weed Control:** Apply at labeled rates for Vastlan under the section "Broadcast Applications with Ground Equipment - Broadleaf Weed Control". Apply the specified rate in a minimum spray volume of 3 gallons per acre. Follow label directions for herbicides that may be applied in tank mix combination with Vastlan to improve weed control or broaden the spectrum of weeds controlled.

**Woody Plant Control:** For suppression and stem density reduction of woody species, use 2.25 to 4.5 quarts of Vastlan in a minimum spray volume of 5 gallons per acre. Follow label directions under the woody plant control for herbicides that may be applied in tank mix combination with Vastlan to improve control or broaden the spectrum of woody plants controlled.

**Tank mixing:** For possible increased effectiveness of this treatment, Vastlan may be tank mixed with other herbicides such as Milestone, Tordon\*, Graslan L\* or imazapyr. Follow all product use directions and do not exceed maximum labeled use rates.

\* Tordon and Graslan L are not registered for use in the states of California and Florida. These products are restricted use pesticides. See product labels for more information.

## Forest Management Applications

For best control from broadcast applications of Vastlan, add a surfactant and use a spray volume which will provide thorough plant coverage. Recommended spray volumes are usually 10 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. For spray volumes less than 50 gallons per acre the addition of a non-ionic surfactant will improve spray coverage. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

### Forest Site Preparation

Use up to 6 quarts of Vastlan alone and apply in a total spray volume of 10 to 30 gallons per acre or Vastlan may be used in a tank mix with other herbicides such as Graslan L\*, Freelexx, or 2,4-D amine or low volatile ester in a total spray volume of 10 to 30 gallons per acre. Use a non-ionic surfactant for all foliar applications.

\*Graslan L is not registered for use in the states of California and Florida. This product is a restricted use pesticide. Check to ensure tank mix partners are state registered before use. See product label for more information.

**Note:** Conifers planted sooner than one month after treatment with Vastlan at less than 4 lb ae of triclopyr (4 quarts of Vastlan) per acre or sooner than two months after treatment at 4 to 6 lb ae of triclopyr (4 to 6 quarts of Vastlan) per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture must be consulted and the longest waiting period before conifer planting must be used.

### Directed Spray Applications in Tree Plantations such as for Conifer Release

To release conifers or desirable trees from competing vegetation, mix 3 to 6 quarts of Vastlan in enough water to make 100 gallons of spray mixture. To improve spray coverage, add a non-ionic surfactant. The spray mixture should be directed onto foliage of competitive vegetation using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after vegetation has reached full leaf size, but before autumn coloration. When treating woody plants, it is best if the majority of treated plants are less than 6 feet in height to ensure adequate spray coverage. Use care to direct spray away from contact with foliage of conifers and desirable vegetation as injury or death could occur.

**Note:** Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

### Broadcast Applications for Conifer Release in the Northeastern United States

To release spruce, fir, red pine and white pine from competing hardwoods, such as red maple, sugar maple, striped maple, alder, birch (white, yellow or gray), aspen, ash, pin cherry and *Rubus* spp. and perennial and annual broadleaf weeds, use Vastlan at rates of 1.5 to 3 quarts per acre alone or with Freelexx, 2,4-D (like DMA 4 IVM), or a low volatile ester to provide no more than 4 lb ae per acre from both products. Apply in late summer or early fall after conifers have formed their over wintering buds and hardwoods are in full leaf and prior to autumn coloration.



**Broadcast Applications for Douglas-fir Release in the Pacific Northwest and California**

To release Douglas-fir from susceptible competing vegetation such as broadleaf weeds, alder, blackberry, or Scotch broom, apply Vastlan at 1 to 1.5 quarts per acre alone or in combination with other herbicides to broaden the spectrum of activity. Apply in early spring after hardwoods begin growth and before Douglas-fir bud break ("early foliar" hardwood stage) or after Douglas-fir seasonal growth has "hardened off" (set winter buds) in late summer, but while hardwoods are still actively growing. When treating after Douglas-fir bud set, apply prior to onset of autumn coloration in hardwood foliage. **Note:** Treatments applied during active Douglas-fir shoot growth (after spring bud break and prior to bud set) may cause injury to Douglas-fir trees.

**Christmas Tree Plantations**

Use Vastlan for the control of woody plants and annual and perennial broadleaf weeds in established Christmas tree plantations. For best results, apply when woody plants and weeds are actively growing. Vastlan does not control weeds which have not emerged at the time of application. If lower rates are used on hard to control woody species, resprouting may occur the year following treatment. Brush over 8 feet tall is difficult to treat efficiently using hand equipment such as backpack or knapsack sprayers. When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use the higher rates of Vastlan or use cut surface applications (see Cut Surface section above). For foliar applications, use a surfactant and apply in enough water to give uniform and complete coverage of the plants to be controlled. Applications made under drought conditions may provide less than desirable results.

**Use Precautions:**

- Newly seeded turf (alleyways, etc.) should be mowed two or three times before treatment with Vastlan.
- Use Vastlan where legumes, such as clover, are present only if injury and possible control of legumes can be tolerated.

**Use Restrictions:**

- Do not use on newly seeded grass until well established as indicated by vigorous growth and development of secondary root system and tillering
- Do not reseed Christmas tree areas treated with Vastlan for a minimum of three weeks after application.
- Apply Vastlan only to established Christmas trees that were planted at least one full year prior to application.
- **Do not apply with 2,4-D containing products.**

**Application**

Apply in late summer or early autumn after terminal growth of Christmas trees has hardened off but before leaf drop of the target weeds. Apply at a rate of 0.75 to 1.75 quarts of Vastlan per acre as a foliar spray directed toward the base of Christmas trees. Use sufficient spray volume to provide uniform coverage of target plants (20 to 100 gallons per acre). Application rates of Vastlan directed for Christmas trees will only suppress some well established woody plants that are greater than 2 to 3 years old (see table below). Broadcast sprays may also be applied in bands between the rows of planted trees. Use spray equipment that will ensure uniform coverage of the desired spray volume.

**Vastlan can cause needle and branch injury to Christmas trees.**

To minimize injury to Christmas trees, direct sprays so as to avoid or minimize contact with foliage. Blue spruce, white spruce, balsam fir, and Fraser fir are less susceptible to injury than white pine and Douglas-fir.

**Application Rates and Species Controlled (or also see list above):**

Vastlan		
0.75 quart/acre	1.25 to 1.5 quarts/acre	1.75 quarts/acre
clover	bindweed, field (TG)	arrowwood (SDL)
dandelion	blackberry <sup>1</sup>	aspen
dock, curly	chicory (s)	beech (SDL)
lambquarters	fireweed	birch (SDL)
lespedeza	ivy, ground	chinquapin
plantain, broadleaf	lettuce, wild	cottonwood (SDL)
plantain, buckhorn	oxalis	elderberry
ragweed, common	poison ivy	grape, wild
vetch	smartweed (TG)	mulberry (SDL)
	thistle, Canada (TG)	poplar (SDL)
	violet, wild	sassafras (SDL)
	Virginia creeper <sup>1</sup>	sumac (SDL)
		sycamore (SDL)

(TG) Top growth control, retreatment may be necessary

(S) Suppression

(SDL) Seedlings less than 2 to 3 years old

<sup>1</sup>Use 1.5 quarts per acre rate

**Directed Applications**

To control hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, alder, birch, aspen, and pin cherry, mix 0.19 to 1 pint of Vastlan in enough water to make 3 gallons of spray mixture. For directed applications, do not exceed 6 quarts of Vastlan per acre per year. To improve coverage, add a non-ionic agricultural surfactant to the spray. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration (when plants are actively growing). The majority of treated hardwoods should be less than 8 feet in height to ensure adequate spray coverage. **Note:** To prevent Christmas tree injury, care should be taken to direct spray away from contact with Christmas tree foliage.

**Aquatic and Wetland Sites**

Use Vastlan for control of emersed, submersed and floating aquatic plants in aquatic sites such as ponds, lakes, reservoirs, non-irrigation canals, and ditches which have little or no continuous outflow, marshes and wetlands, including broadleaf and woody vegetation on banks and shores within or adjacent to these and other aquatic sites.

**Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

**Aquatic Application Methods**

Use a non-ionic surfactant in the spray mixture to improve control with foliar applications. Follow all directions and use precautions on the aquatic surfactant label.

**Surface Application**

Use a spray boom, handgun or other similar suitable equipment mounted on a boat or vehicle. Thorough wetting of foliage is essential for maximum effectiveness. Use 20 to 200 gallons per acre of spray mixture. Special precautions such as the use of low spray pressure, large droplet producing nozzles, or addition of a labeled thickening agent may minimize spray drift in areas near sensitive crops.

**Aerial Application (Helicopter Only)**

Apply with a helicopter using a Microfoil or Thru-Valve boom, or a drift control additive in the spray solution. Apply in a minimum of 10 gallons of total spray mix per acre. Do not apply when weather conditions favor drift to sensitive areas. See label section on aerial application directions and precautions.

**Floating and Emerged Weeds**

Apply when plants are actively growing. For control of waterhyacinth, alligatorweed (see specific directions below), and other susceptible emerged and floating herbaceous weeds and woody plants, apply 1.5 to 6 quarts of Vastlan per acre as a foliar application using surface or aerial equipment. Use higher rates in the rate range when plants are mature, when the weed mass is dense, or for difficult to control species. Repeat as necessary to control regrowth and plants missed in the previous operation, but do not exceed a total of 6 quarts of Vastlan per acre per annual growing season.

**Aquatic Weeds**

- |                       |                            |                    |
|-----------------------|----------------------------|--------------------|
| alligatorweed         | parrotfeather <sup>1</sup> | purple loosestrife |
| aquatic sodaapple     | phragmites                 | waterprimrose      |
| Eurasian watermilfoil | pickerelweed               |                    |
| milfoil species       | pennywort                  |                    |

<sup>1</sup>Re-treatment may be needed to achieve desired level of control.

**Alligatorweed**

Apply Vastlan at 2 to 6 quarts per acre to control alligatorweed. It is important to thoroughly wet all foliage with the spray mixture. For best results, add an approved non-ionic aquatic surfactant to the spray mixture. Alligatorweed growing outside the margins of a body of water can be controlled with this treatment. However, alligatorweed growing in water will only be partially controlled. Top growth above the water will be controlled, but the plant will likely regrow from tissue below the water surface.

**Restrictions for Potable Water Intakes for Emerged Aquatic Weed Control – Lakes, Reservoirs, Ponds:**

See chart below for specific setback distances near functioning potable water intakes.

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

Area Treated (acres)	Vastlan Application Rate			
	1.5 qt/acre	3 qt/acre	4.5 qt/acre	6 qt/acre
4	0	200	400	500
>4 - 8	0	200	700	900
>8 - 16	0	200	700	1000
>16	0	200	900	1300

To apply Vastlan around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

**Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.

**Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

### Submerged Weeds

**For control of Eurasian watermilfoil and other susceptible submerged weeds** in ponds, lakes, reservoirs, and in non-irrigation canals or ditches that have little or no continuous outflow, apply Vastlan as either a surface or subsurface application. Select rates according to the rate chart below to provide a triclopyr concentration of 0.75 to 2.5 ppm ae in treated water. Use higher rates in the rate range in areas of greater water exchange.

These areas may require a repeat application. However, total application of Vastlan must not exceed an application rate of 2.5 ppm of triclopyr for the treatment area per annual growing season.

Apply in spring or early summer when Eurasian watermilfoil or other submerged weeds are actively growing.

Areas near susceptible crops or other desirable broadleaf plants may be treated by subsurface injection applied by boat to avoid spray drift.

### Surface Application

Apply the desired amount of Vastlan as either a concentrate or a spray mixture in water. However, use a minimum spray volume of 5 gallons per acre. Do not apply when weather conditions favor drift to sensitive areas.

Average water depth (feet) x 0.678 x target concentration (ppm) = gallons of Vastlan per surface acre treated.

**Example:** to achieve a 2 ppm concentration of triclopyr in water averaging 4 feet deep

$$4 \times 0.678 \times 2 \text{ ppm} = 5.4 \text{ gallons of Vastlan per surface acre treated}$$

Water Depth (ft)	Concentration of Triclopyr Acid in Water (ppm ae)				
	0.75 ppm	1 ppm	1.5 ppm	2 ppm	2.5 ppm
	Gallons of Vastlan per Surface Acre at Specified Depth				
1	0.5	0.7	1.0	1.4	1.7
2	1.0	1.4	2.0	2.7	3.4
3	1.5	2.0	3.1	4.1	5.1
4	2.0	2.7	4.1	5.4	6.8
5	2.5	3.4	5.1	6.8	8.5
6	3.1	4.1	6.1	8.1	10.2
7	3.6	4.7	7.1	9.5	11.9
8	4.1	5.4	8.1	10.8	13.6
9	4.6	6.1	9.2	12.2	15.3
10	5.1	6.8	10.2	13.6	17.0
15	7.6	10.2	15.3	20.3	25.4
20	10.2	13.6	20.3	27.1	33.9

### Subsurface Application

Apply desired amount of Vastlan per acre directly into the water through boat-mounted distribution systems. When treating target plants that are 6 feet below the surface of the water, trailing hoses should be used along with an aquatic approved sinking agent (except California).

### Restrictions for Potable Water Intakes for Submerged Weed Control – Lakes, Reservoirs, Ponds:

For applications of Vastlan to control submerged weeds in lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption, see the chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

Area Treated (acres)	Concentration of Triclopyr Acid in Water (ppm ae)				
	0.75 ppm	1 ppm	1.5 ppm	2 ppm	2.5 ppm
	Required Setback Distance (ft) from Potable Water Intake				
<4	300	400	600	800	1000
>4 – 8	420	560	840	1120	1400
>8 – 16	600	800	1200	1600	2000
>16 – 32	780	1040	1560	2080	2600
>32 acres, calculate a setback using the formula for the appropriate rate	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 3.33$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 2.50$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 1.67$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160) / 1.25$	Setback (ft) = $(800 \times \ln(\text{acres}) - 160)$

**Example Calculation 1:** to apply 2.5 ppm Vastlan to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times \ln(50 \text{ acres}) - 160) \\ &= (800 \times 3.912) - 160 \\ &= 2970 \text{ feet} \end{aligned}$$

**Example Calculation 2:** to apply 0.75 ppm Vastlan to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times \ln(50 \text{ acres}) - 160) / 3.33 \\ &= (800 \times 3.912) - 160 / 3.33 \\ &= 892 \text{ feet} \end{aligned}$$

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

To apply Vastlan around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

### Wetland Sites

Wetlands include flood plains, deltas, marshes, swamps, bogs, and transitional areas between upland and lowland sites. Wetlands may occur within noncropland, rangeland, pastures, forests, wildlife habitat restoration and management areas and similar sites as well as areas adjacent to or surrounding domestic water supply reservoirs, lakes and ponds.

For control of woody plants and broadleaf weeds in wetland sites, follow use directions and application methods on this label for terrestrial sites.

**Note:** Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

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### Terms and Conditions of Use

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If terms of the following Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

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### Warranty Disclaimer

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Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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### Inherent Risks of Use

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It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

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To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

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The terms of the Warranty Disclaimer, Inherent Risks of Use and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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**Dow AgroSciences LLC**  
**9330 Zionsville Road**  
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EPA accepted 12/06/17

### Revisions:

Rebranded for Corteva.

## APPENDIX B

# Spill Response Notification Procedure for The Tittabawassee River Work Plan

The following will be used in the event of a chemical spill within the Tittabawassee River Project implementation. This plan acts as a guide for an individual to follow if a spill occurs.

### Pesticide Spill Kit

The following equipment will be available with vehicles used to transport pesticides and in the immediate vicinity of all treatment operations.

- Adverse Incident Response Procedure
- Labels and Material Safety Data Sheets (MSDS) of all pesticides on hand
- Copy of the Spill Plan
- Personal Protective Equipment (PPE): nitrile or rubber gloves, rubber boots or waders, eye protection, and apron
- First aid supplies
- Containment pads
- 20 pounds of absorbent materials (cat litter)
- Shovel
- Coarse broom and dust pan
- Heavy plastic bags for material storage
- Sturdy, leak-proof, plastic container that will hold the largest quantity of pesticide on hand

### Clean-up of pesticide spills

Minor Spills (less than 5 Gallons):

1. Put on PPE prior to any control or containment activities. No clean-up activities will proceed if the spill cannot be contained without endangering personnel.
2. Address source of the spill first (e.g., pumps, valves turned off; plugs replaced; container set upright). Response will be focused on containing spill to as small as possible.
3. Spills of the formulations should not be washed away.
4. Soak up any spill with absorbent material such as kitty litter or spill containment pads/rolls.
5. Sweep/shovel into a plastic garbage and dispose of it as directed on the pesticide product label.
6. Report incident following the adverse incident response procedure.

Major Spills (Greater than 5 Gallons):

1. Put on PPE prior to any control or containment activities. No clean-up activities will proceed if the spill cannot be contained without endangering personnel.
2. If possible, address source of the spill (e.g., pumps, valves turned off; plugs replaced; container set upright). Response will be focused on containing spill to as small as possible. The cleanup of a major spill may be too difficult for you to handle.
3. If needed, call emergency services listed below to get assistance or advice with spill clean-up.
4. Report incident following the adverse incident response procedure

## Organizations for emergency and technical assistance

- Emergency Responders: 911 [depending on size of incident]
- American Association of Poison Control Centers (24 hours): 1-800-222-1222
- Centers for Disease Control: 1-800-232-4636 (for technical assistance regarding etiologic agents)
- CHEMTREC – Chemical Transportation Emergency Center (24 hours): 1-800-262-8200 (for assistance in any transportation emergency involving chemicals)
- EPA's National Response Center for Toxic Chemical and Oil Spills (24 hours): 1-800-424-8802
- EPA Region 5 (IL, IN, MI, MN, OH, and WI) Emergency Response Branch: 1-312-353-2000
- Michigan Department of Health and Human Services: 1-231-873-7251
- Michigan Department of Agriculture and Rural Development (MDARD) Spill Response 1-800-405-0101
- Michigan Department of Environment, Great Lakes, and Energy Pollution Emergency Alerting System hotline 1-800-292-4706
- Michigan State Police Headquarters: 517-332-2521 (call highway patrol if major spills occur on highway)

# Adverse Incident Response Notification Procedure for The Tittabawassee River Work Plan

The following will be used in the event of an adverse incident including negative interactions with landowners, off-target negative impacts, or chemical spills, contact one of the project staff in this order until you reach someone.

1. Paul Hausler- Progressive AE, Lake Manager  
Work Phone: 616-361-2664  
Cell Phone: 616-450-4716
2. Bre Grabill- PLM Lake & Land Management, Regional Manager  
Work Phone: 800-382-4434  
Cell Phone: 616-826-8896
3. Casey Shoaff PLM Lake & Land Management, Northeast Manager  
Work Phone: 800-382-4434  
Cell Phone: 715-6171

In compliance with Part II. C. 7 of the General Permit, staff is required to give a 24-hour notification of the adverse incidents followed by a 30-day written adverse incident report. The notification and written report should be presented to Darrin McCullough and the appropriate EGLE District Office:

Darrin McCullough- Aquatic Biologist with EGLE Water Resources Division

Office Phone: (517) 242-8647

Email: [McCulloughD@michigan.gov](mailto:McCulloughD@michigan.gov)

Saginaw Bay District Office: 401 Ketchum St. Suite B, Bay City, MI 48708, (989) 894-6200

Counties: Clare, Gladwin, Gratiot, Isabella, Midland

If the incident presents a potential threat to human health, contact the nearest medical facility:

- Gladwin County- MidMichigan Medical Center – Gladwin: 515 Quarter St, Gladwin, MI, 48624, (989) 246-6258
- Midland County – MidMichigan Medical Center – Midland: 4000 Wellness Dr, Midland, MI 48670, (989) 839-3100
- Clare County – MidMichigan Medical Center – Clare: 703 N McEwan St, Clare, MI, 48617, (989) 802-5120
- Gratiot County – MidMichigan Medical Center – Gratiot: 300 Warwick Dr, Alma, MI, 48801, (989) 466-3228
- Isabella County – MidMichigan Medical Center – Mt. Pleasant: 4851 E Pickard Rd Suite 1000, Mt. Pleasant, MI, (989) 956-9060

## Organizations for emergency and technical assistance

- American Association of Poison Control Centers (24 hours): 1 (800) 222-1222
- Centers for Disease Control: 1 (800) 232-4636 (for technical assistance regarding etiologic agents)
- CHEMTREC – Chemical Transportation Emergency Center (24 hours): 1 (800) 262-8200 (for assistance in any transportation emergency involving chemicals)
- EGLE's Pollution Emergency Alerting System (24 hours): 1 (800) 292-4706
- EPA's National Response Center for Toxic Chemical and Oil Spills (24 hours): 1 (800) 424-8802
- EPA Region 5 (IL, IN, MI, MN, OH, and WI) Emergency Response Branch: (312) 353-2000
- Michigan Department of Health and Human Services: (231) 873-7251
- Michigan State Police Headquarters: (517) 332-2521 (call highway patrol if major spills occur on highway)
- National Agricultural Chemicals Association: (513) 961-4300 (for pesticide technical assistance and information referral)