Aquatic Plant Management

NOTE: Missing or incomplete fields are highlighted at the bottom of each page. You may save, close and return to your draft permit as often as necessary to complete your application. If there are no updates in 90 days, your draft is deleted

This Application has been Signed and Submitted by: i:0#.f|wamsmembership|hdharveyiii signed on 2025-04-24T06:59:27

Site or Project Name:	Lake Helen Protection & Rehabilitation District 2025 The permit application will be saved automatically with this name
Activity:	Chemical Control Application-Lake, River, Pond
Eligibility: (All questions must be no for it to be considered a private pond.)	**Does the waterbody have:** • More than one property owner? ◉ Yes ○ No • Uncontrolled surface water discharge? ○ Yes ◉ No • Public access? ◉ Yes ○ No

3200-004 Chemical Aquatic Control Application - Lake, River, Pond

NOTE: To be considered a private pond, a waterbody must meet all of the following requirements:

1. Confined to one property owner.
2. The pond has no uncontrolled surface water discharge.
3. No public access.

Upon submittal of your permit application, a **non-refundable $20 permit processing fee will be charged**. Additional acreage fees will be refunded if the permit request is denied or if no treatment occurs.

3200-004 Chemical Aquatic Plant Control Application

- Annually complete all pages on Form 3200-004 for chemical plant management applications. Complete form 3200-004a for large scale treatments(exceeds 10.0 acres in size or 10% of the area of the water body that is 10 feet or less in depth) as required by NR107.04(3).
  - Form 3200-004 is competed electronically through this system.
  - Form 3200-004a must be completed outside the system and uploaded to the attachments section. Please refer to this link for a copy of this form: http://dnr.wi.gov/files/pdf/forms/3200/3200-004A.pdf
- Attach a map that shows the treatment location(s), treatment dimensions and riparian landowners. If requesting WPDES coverage, attach a water body map that shows surface outflow and receiving waters.
- For a large-scale treatment, attach evidence that a public notice has been published in a regional / local newspaper and if required that a public informational meeting has been conducted as defined in NR107.04(3).
- Pay fee online.
- Sign and Submit form.
- A signed permit application certifies to the Department that a copy of the application has been provided to any affected property owner's association/district and to landowners adjacent to treatment area.

Contact Information

Applicant Information

Organization	Lake Helen Protection & Rehabilitation District
Last Name:	Ehlenbeck
First Name:	Justin
Mailing Address:	W5312 Koeser Ln
City:	Elkhart
State:	WI
Zip Code:	53020
Email:	
Phone Number: (xxx-xxx-xxxx)	
Alternative Phone Number: (xxx-xxx-xxxx)	

Waterbody Address

Last Name:	
First Name:	
Street Address:	3043 Lake Helen Drive W
City:	Rosholt
State:	WI
Zip Code:	54473
Email:	
Phone Number: (xxx-xxx-xxxx)	
Alternative Phone Number: (xxx-xxx-xxxx)	

Applicator

Name of Applicator Firm:	Schmidt's Aquatic LLC
Applicator Certification #:	000977
Business Location License #:	93-022613-020730
Restricted Use Pesticide #:	
Address:	7470 Sherman Rd
City:	Bancroft
State:	WI
Zip:	54921
Email:	hdhiii@schmidtsaquatic.com
Phone Number: (xxx-xxx-xxxx)	920-980-9190

Adjacent Riparian Property Owners

NOTE: Phone and email address will not be publicly viewable.

☑ Uploaded riparian owners to attachment tab ☐ Riparian Owners Information is not applicable for this application

Name	Address	Phone	Email Address

Site Information - Complete

Waterbody Containing Control Area(s)

Waterbody Property Owners Association or Waterbody District Representative : Lake Helen Protection & Rehabilitation District

☐ None

Water Body or Wetland Name: Lake Helen

Primary County: Portage

Latitude: 44.6182

Longitude: -89.2417

Section: 26

Township: 25

Range: 10

Direction: ◉ E ○ W

Waterbody Surface Area: 89 acres

Estimated Surface area that is 10ft or less 15 acres

Proposed Control Area(s)

Area(s) Proposed for Control:

Site Name (Optional)	Treatment Length		Treatment Width			Estimated Acreage		Average Depth		Calculated Volume	
A-24	0	ft. x	0 ft.	÷ 43,560 ft.² =		0.80	ac	7.00	ft =	5.60	ac-ft
B-24	0	ft. x	0 ft.	÷ 43,560 ft.² =		1.27	ac	7.00	ft =	8.89	ac-ft
C-24	0	ft. x	0 ft.	÷ 43,560 ft.² =		1.83	ac	7.00	ft =	12.81	ac-ft
D-24	0	ft. x	0 ft.	÷ 43,560 ft.² =		2.43	ac	7.00	ft =	17.01	ac-ft
E-24	0	ft. x	0 ft.	÷ 43,560 ft.² =		2.27	ac	7.00	ft =	15.89	ac-ft
F-24	0	ft. x	0 ft.	÷ 43,560 ft.² =		7.69	ac	7.00	ft =	53.83	ac-ft

Estimated Acreage Grand Total: 16.29 ac

Calculated Volume Grand Total: 114.03 ac-ft

Is the area with in or adjacent to a sensitive area designated by the Department of Natural Resources. More Information

○ Yes ◉ No

If the estimated acreage is greater than 10 acres, or is greater than 10 percent of the estimated area 10 feet or less in depth in Section II, complete and attach Form 3200-004A, Large-Scale Treatment Worksheet.

Chemical Aquatic Plant Control Information - Lake, River, Pond Form 3200-004 (R 2/17)

Notice: Use of this form is required by the Department for any application filed pursuant to s. 281.17(2), Wis. Stats., and Chapters NR 107, 200 and 205, Wis. Adm. Code. This permit application is required to request coverage for pollutant discharge into waters of the state. Personally identifiable information on this form may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Treatment Type:

◉ *Lake* ○ *Pond* ○ *Wetland* ○ *Marina* ○ *Other*

Has a management plan been provided to the DNR?	If Yes, date approved of most current copy	Link to Approved Plan:
◉ Yes ○ No ○ Don't Know	8/10/2023	☑ Uploaded Plan copy as an Attachment

Does the proposed plant removal agree with the approved plan? ◉ Yes ○ No

If NO, explain, Attach additional sheets if necessary.

Goal of Aquatic Plant Control:

- ☐ Maintain navigation channel
- ☐ Maintain boat landing and carry in access
- ☐ Improve fish habitat
- ☐ Maintain swimming area
- ☑ Control of invasive exotics
- ☐ Other

Nuisance Caused By:

- ☐ Algae
- ☐ Emergent water plants (majority of leaves & stems growing above water surface, e.g. cattail, bulrushes)
- ☐ Floating water plants (majority of leaves floating on water surface, e.g., water lilies, duckweed)
- ☑ Submerged water plants (leaves & stems below surface, flowering parts may be exposed: milfoil, coontail)
- ☐ Other

List Target Plants

☐ Algae	☐ Flowering Rush	☐ Purple Loosestrife
☐ Common/Glossy Buckthorn	☐ Hybrid Cattail	☐ Reed Canary Grass
☐ Coontail	☐ Hybrid Watermilfoil	☐ Reed Manna Grass
☐ Curly-Leaf Pondweed	☐ Japanese Knotweed	☐ Starry Stonewort
☐ Duckweed	☐ Naiad	☐ Yellow Floating Heart
☐ Elodea	☐ Narrow-Leaf Cattail	☐ Yellow Iris
☑ Eurasian Watermilfoil	☐ Phragmites	☐ Pondweed

Other Target Plants:

Note: Different plants require different chemicals for effective treatment. Do not purchase chemical before identifying plants.

Chemical Control

Full Trade Name of Proposed Chemical(s)

☑ Agristar 2,4-D Amine	☐ Clipper	☐ K-Tea	☐ SCI-62
☐ Algimycin PWF	☐ Clipper SC	☐ Littora	☐ Sculpin G
☐ Alligare 2,4-D	☐ Current	☐ Milestone	☐ SeClear
☐ Alligare Argos	☐ Cutrine-Plus	☐ Nautique	☐ SeClear G
☐ Alligare Diquat	☐ Cutrine-Plus Granular	☐ Navigate	☐ Shoreklear-Plus
☐ Alligare Ecomazapyr	☐ Cutrine-Ultra	☐ Navitrol	☐ Shredder Amine
☐ Alligare Glyphosate 5.4	☐ DMA 4 IVM	☐ Navitrol DPF	☐ Sonar AS
☐ Aqua Neat	☐ Earthtec	☐ Phycomycin SCP	☐ Sonar Genesis
☐ Aqua Star	☐ Element 3A	☐ Polaris	☐ Sonar H4C
☐ AquaPro	☐ Flumioxazin 51% WDG	☐ Polaris AC	☐ Sonar PR
☐ Aquashade	☐ Formula F-30	☐ Pond-Klear	☐ Sonar Q
☐ Aquashadow	☐ Garlon 3A	☐ ProcellaCOR EC	☐ Sonar RTU
☐ Aquastrike	☐ Green Clean	☐ Refuge	☐ Sonar SRP
☐ Aquathol K	☐ Habitat	☐ Renovate 3	☐ SonarOne
☐ Aquathol Super K	☐ Harpoon	☐ Renovate LZR	☐ Stingray
☐ Avast! SC	☐ Harvester	☐ Renovate LZR Max	☐ Symmetry NXG
☐ Captain	☐ Havoc Amine	☐ Renovate Max G	☐ Touchdown Pro
☐ Captain XTR	☐ Hydrothol 191	☐ Renovate OTF	☐ Tribune
☐ Chinook	☐ Hydrothol Granular	☐ Reward	☐ Trycera
☐ Clearcast	☐ Komeen	☐ Rodeo	☐ Weedar 64
☐ Clearigate	☐ Komeen Crystal	☐ Roundup Custom	☐ Weedestroy AM-40

Other Proposed Chemical(s):

Have the proposed chemicals been permitted in a prior year on the proposed site?

◉ *All* ○ *Some* ○ *None*

What were the results of the treatment?

Great control for 4 years

Method of Application: Injection

Other Method of Application

NOTE: Chemical fact sheets for aquatic pesticides used in Wisconsin are available from the Department of Natural Resources upon request.

Alternatives to Chemical Control:	Feasible?	If No, Why Not?
1. Mechanical harvesting	○ Yes ◉ No	May spread EWM
2. Manual removal	○ Yes ◉ No	Area too large and too costly
3. Sediment screens/covers	○ Yes ◉ No	Not practical for this application
4. Dredging	○ Yes ◉ No	Not practical for this application
5. Waterbody drawdown	○ Yes ◉ No	Not Practical for this application
6. Nutrient controls in watershed	○ Yes ◉ No	N/A
7. Other:	○ Yes ◉ No	N/A

Note: If proposed treatment involves multiple properties, consider feasibility of EACH alternative for EACH property owner.

Will surface water outflow and/or overflow be controlled to prevent chemical loss?

○ *Yes* ◉ *No*

Is the treatment area greater than 5% of surface area?

◉ *Yes* ○ *No*

Waterbody concentration calculations (in ppm.)

Refer to DNR Waterbody pages http://dnr.wi.gov/lakes and https://dnr.wisconsin.gov/topic/lakes/plants/forms to answer the following:

Does the waterbody stratify? ◉ *Yes* ○ *No*

- If yes, calculate whole waterbody concentration using volume above thermocline.
- If no, calculate whole waterbody concentration using total lake value

Herbicide Name	Other Herbicide	E PA Reg. No.	Whole Waterbody Concentration (mg/l = ppm)
Agristar 2,4-D Amine 4 Herbicide		42750-19	0.300

WPDES Permit Request

Is WPDES coverage being requested? Refer to http://dnr.wi.gov/topic/wastewater/aquaticpesticides.html for more information

○ *Yes - complete section VII with signature.*

◉ *No*

- ◉ *Already have WPDES*
- ○ *WPDES coverage not needed*

Required Attachments and Supplemental Information

Upload Required Attachments (15 MB per file limit) - Help reduce file size and trouble shoot file uploads

* indicates completion of this item is required

Note: To add additional attachments using the down arrow icon. To replace an existing file, use the 'Click here to attach file ' link. To remove additional items, select the item and press CNTRL Delete.

Riparian Owners	File Attachment	Lake Helen Riparian Owners 2025.xlsx
Public Notice	File Attachment	Lake Helen 2025 Newspaper Notification.pdf
Large Scale Worksheet	File Attachment	Form 3200-4A Lake Helen 2025 Signed.pdf
Site Map	File Attachment	Lake Helen Map & Dosing 2025.docx
Lake Management Plan	File Attachment	Lake Helen LakeManagementPlanUpdate2023.docx-compressed.pdf
Lake Management Plan	File Attachment	Lake Helen Newspaper Notice Close up 2025.pdf

Fee Calculation

Chemical Control Application

1. s. NR 107.11(1), Wis. Adm. Code, lists the conditions under which the permit fee is limited to the $20 minimum charge.
2. s. NR 107.11(4), Wis. Adm. Code, lists the uses that are exempt from permit requirements.
3. s. NR 107.04(2), Wis. Adm. Code, provides for a refund of acreage fees if the permit is denied or if no treatment occurs.

If Proposed treatment is over 0.25, calculate acreage fee: (round up to nearest whole acre, to maximum of 50 acres)	16.29
acres X $25 per acre = $	$425.00
If proposed treatment is less than 0.25 acre, acreage fee is $0	
Basic Permit Fee (non-refundable)	$20.00
Total Fee	$445

Payment Information

Invoice Number:

	WP-00052886
Payment Confirmation Number:	WS2WT3012367767
Amount Paid:	$445

Sign and Submit

Applicant Responsibilities and Certification

1. The applicant has prepared a detailed map which shows the length, width and average depth of each area proposed for the control of rooted vegetation and the surface area in acres or square feet for each proposed algae treatment.
2. The applicant understands that the Department of Natural Resources may require supervision of any aquatic plant management project involving chemicals. Under s.NR 107.07 Wis. Adm. Code, supervision may include inspection of the proposed treatment area, chemicals and application equipment before, during or after treatment. The applicant is required to notify the regional office 4 working days in advance of each anticipated treatment with the date, time, location and size of treatment unless the Department waives this requirement. Do you request the Department to waive the advance notification requirement?
   - (●) **Yes** ( ) **No**
3. The applicant agrees to comply with all terms or conditions of this permit, if issued, as well as all provisions of Chapter NR 107, Wis. Adm. Code. The required application fee is attached.
4. The applicant will provide a copy of the current application to any affected property owners' association inland Lake District and, in the case of chemical applications for rooted aquatic plants, to all owners of property riparian or adjacent to the treatment area. The applicant has also provided a copy of the current chemical fact sheet for the chemicals proposed for use to any affected property owner's association or inland Lake District.
5. Conditions related to invasive species movement. The applicant and operator agree to the following methods required under s.NR 109.05(2), Wis. Adm. Code for controlling, transporting and disposing of aquatic plants and animals, and moving water:
   - Aquatic plants and animals shall be removed and water drained from all equipment as required by s.30.07, Wis. Stats., and ss. NR 19.055 and 40.07, Wis. Adm. Code.
   - Operator shall comply with the most recent Department-approved 'Boat, Gear, and Equipment Decontamination and Disinfection Protocol', Manual Code #9183.1, available at http://dnr.wi.gov/topic/invasives/disinfection.html

All portions of this permit, map and accompanying cover letter must be in possession of the chemical applicator at the time of treatment. During treatment all provisions of Chapter NR 107 107.07 and NR 107.08, Wis. Adm. Code, must be complied with, as well as the specific conditions contained in the permit cover letter.

I hereby certify that that the above information is true and correct and that copies of the application shall be provided to all affected property owners promptly and that the conditions of the permit will be adhered to. All portions of this permit, map and accompanying cover letter must be in possession of the applicant or their agent at time of plant removal. During plant removal activities, all provisions of applicable Wisconsin Administrative Rules must be complied with, as well as the specific conditions contained in the permit cover letter.

Steps to Complete the signature process

IMPORTANT: All email correspondence will be sent to the address associated with your WAMS ID).

1. Read and Accept the Responsibilities and Certification
2. Press the Initiate Signature Process button
3. Open the confirmation email for a one time confirmation code and instructions to complete the signature process.

You will receive a final acknowledgement email upon completing these steps .

☑ Check if you are signing as Agent for Applicant. i:0#.f|wamsmembership|hdharveyiii signed on 202.

☑ I hereby certify that the above information is true and correct and that copies of this submittal shall be provided to the appropriate parties named in the contact section and that the conditions of the permit and pesticide use will be adhered to.

Clear Data

State of Wisconsin
Department of Natural Resources

WORKSHEET FOR LARGE-SCALE
CHEMICAL AQUATIC PLANT TREATMENT
Form 3200-4A 3-89

NOTE: Completion of this form is required by the Department, pursuant to s. 144.025(2)(i), Wis. Stats., and Chapter NR 107, Wis. Adm. Code, once every five years for proposed treatments that would cover more than 10 acres on one lake, or more than 10 percent of that portion of the lake that is 10 feet or less in depth.

The purpose of this form is to identify the: (1) recreational needs of the property owners and visitors;
(2) value of the proposed treatment area to fish and wildlife;
(3) cause(s) of the excess plant growth problem; and
(4) short and long-term solutions to the problem.

Please furnish a detailed map(s) of the lake and its watershed. Indicate the watershed boundaries on the map. If you do not have a watershed map for the lake you wish to treat, your DNR lake management coordinator can help you locate or prepare one.

SECTION I. BACKGROUND

Name of Applicant: Justin Ehlenbeck - Lake Helen Protection & Rehabilitation District

Date Completed: 4/24/2025

Name of Lake: Lake Helen

SECTION II. RECREATIONAL USES

Check those uses that apply and complete the information requested:

☐ 1. SWIMMING: Indicate on your lake map the portions of the proposed treatment area that are used for swimming.
What distance from shore is needed to provide adequate swimming space? _____ feet
What is the average depth at this distance? _____ feet

☐ 2. FISHING: Indicate on your lake map any fishing areas that are within the proposed treatment area.

☐ 3. HUNTING: Indicate on your lake map any hunting areas that are within or adjacent to the proposed treatment area.

☐ 4. BOATING/NAVIGATION: Indicate on your lake map where the following boating activities take place within the proposed treatment area:
Sailing ☐ Water skiing ☐ Fishing ☐
Pleasure boating ☐ Jet skiing ☐ Other _____

☐ 5. AESTHETIC: Indicate on your lake map any wildlife or nature observation areas within the proposed treatment area.
Do you object to the aesthetic quality (appearance, odor) of the proposed treatment area? ☐ Yes ☐ No

☒ 6. OTHER: What other activities occur in the proposed treatment area? Lake is used for all activites including fishing, swimming, and boating.

SECTION III. FISH AND WILDLIFE VALUE

1. Fisheries: To maintain a quality fishery, a lake must provide good spawning, rearing and feeding habitat. Please indicate on your lake map the location of any quality fisheries habitat. (Contact your local DNR fish manager or your local fishing club for information about your lake's fishery.)

2. Wildlife: Indicate on your lake map any portions of the proposed treatment area or adjacent shoreline that are considered to be good wildlife habitat. (Constact your local DNR wildlife manager or your local wildlife or hunting club for additional information about the wildlife around (and in) your lake.)

3. Which organization(s) or individual(s) did you contact for your information? WI DNR and Golden Sands

SECTION IV. CAUSES OF THE PROBLEM

What are perceived to be the local or regional causes of the problem? (Check all those that apply.)

☐ A. Agricultural runoff (from barnyards or croplands) that contributes sediment, nutrients and/or bacteria to the lake.

☐ B. Urban runoff (from stormwater) that contributes sediment, nutrients and other pollutants to the lake.

☐ C. Sewage treatment or industrial discharges upstream of the lake.

☐ D. Possible faulty septic systems in the area around the lake.

☐ E. Runoff from fertilized lawns near the lake.

☐ F. Sediments contaminated with nutrients from past pollution activities.

☒ G. Naturally fertile - no known human sources of excessive sediment, nutrients or other pollutants.

☒ H. Other: EWM introduced into Lake Helen several years ago.

Please identify on your watershed map the locations of any land use practices that are perceived to be contributing to excess plant growth problems in the lake.

SECTION V. SOLUTIONS

Control of aquatic plant problems can be temporarily accomplished with short-term measures, but no strategy will be successful without long-term planning to address the source of the problem. A sound plant management program should combine both short-term and long-term control strategies.

1. What level of short-term control do you wish to achieve?

- ☐ Remove 100% of the plants in the treatment area.
- ☒ Remove 70-99% of the plants in the treatment area.
- ☐ Remove less than 70% of the plants in the treatment area.

2. Which plants do you wish to remove in the short-term?

- ☐ Remove all plant species.
- ☒ Remove specific plant species only. (Name(s) of species: Eurasian Water Milfoil)

3. How often will it be necessary to:

A. Chemically treat? 0 times per year for algae; 1 times per year for other plants

B. Mechanically harvest? 0 times per year

4. What long-term control alternatives have you begun to implement?

- ☐ Developed a lake plant management plan.
- ☒ Developed a lake protection plan.
- ☒ Formed a Lake District, Lake Association or other organization. (Name: _____)
- ☒ Established a monitoring program for the lake.
- ☐ Contacted the Soil Conservation Service or Land Conservation Commission to identify land use controls that are needed in the watershed.
- ☐ Conducted a septic survey with the county sanitarian.
- ☒ Other: Have worked with Golden Sands and WI DNR for several years.

Long-term planning can provide an organized approach to solving the problems that are affecting the water quality of your lake. Your DNR lake management coordinator, county extension agent, or regional planning commission can provide specific technical information and assistance.

SECTION VI. PUBLIC INVOLVEMENT

1. Before you conduct a large-scale chemical aquatic plant treatment, you are required to provide the public with formal notice of the planned treatment (s. NR 107.04(3), Wis. Adm. Code). Please attach evidence (e.g., newspaper clipping) that such notice has been made.

2. You are also required to conduct a public informational meeting on the proposed large-scale treatment if 5 or more individuals, organizations or local or special units of government request such a meeting within 5 days of the notice (s. NR 107.04(3), Wis. Adm. Code).

   Was a public informational meeting required for the proposed treatment? ☐ Yes ☒ No

   If yes, please attach evidence that such a meeting was held.

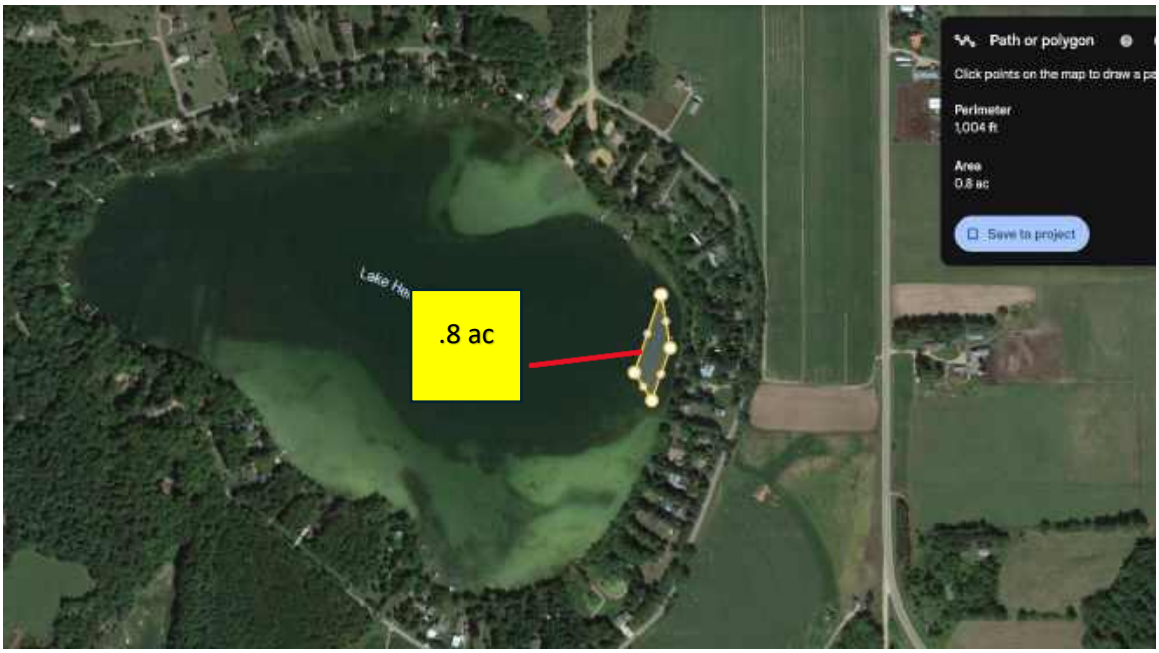
3. These public notice and public meeting provisions apply each year that a treatment is proposed.

NOTE: This form is to be updated once every 5 years to include new information. Modifications of the proposed treatment within the 5-year period also require re-submittal of this form if the location or target organisms are changed, or if the treatment area is expanded by more than 10 percent.

I hereby certify that the above information is true and correct and that copies of this application have been provided to the appropriate parties named in Section II of Form 3200-4, Application for Permit for Chemical Aquatic Plant Control.

Applicant's Signature Justin Ehlenbeck

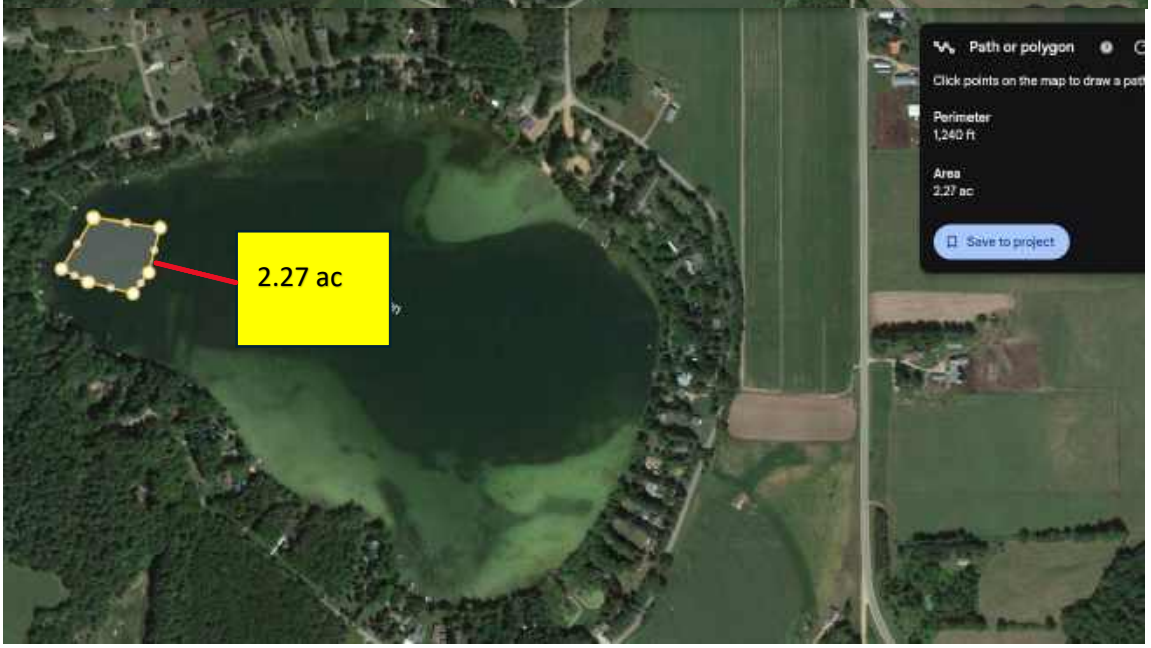
Please attach with map(s) to Form 3200-4, Application for Permit for Chemical Aquatic Plant Control.


Path or polygon
Perimeter
1,004 ft
Area
0.8 ac
Save to project
.8 ac


Path or polygon
Click points on the map to draw a path or polygon
Perimeter
1,458 ft
Area
1.27 ac
Save to project
1.27 ac


Path or polygon
Perimeter
1,199 ft
Area
1.83 ac
Save to project
1.83 ac


Path or polygon
Click points on the map to draw a path or
Perimeter
1,824 ft
Area
2.43 ac
Save to project
2.43 ac


Path or polygon
Click points on the map to draw a pat
Perimeter
1,240 ft
Area
2.27 ac
Save to project
2.27 ac


7.69 ac
Path or polygon
Click points on the map to draw a path or
Perimeter
2,310 ft
Area
7.69 ac
Save to project

2,4-D CHEMICAL FACT SHEET

Formulations

2,4-D has been widely used since 1946 as a household weed-killer, agricultural herbicide and aquatic herbicide. It was registered with the U.S. EPA in 1986 and re-reviewed in 2005. It is currently under registration review. An interim registration review decision is expected in 2023. The active ingredient is 2,4-dichloro-phenoxyacetic acid. There are three types of 2,4-D used as aquatic herbicides: dimethyl amine salt, butoxyethyl ester and choline salt. 2,4-D is available in both liquid and granular formulations. It is labeled for control of emergent, floating-leaf and submerged vegetation using direct foliar, surface or subsurface application. Commercial formulations approved for aquatic use in Wisconsin include Weedar® 64, Sculpin® G and Freelexx®.[*]

Aquatic Use and Considerations

2,4-D is a systemic herbicide (i.e., it moves throughout the plant tissue) that primarily affects broadleaf plants. It is a WSSA Group 4 herbicide, meaning that the mechanism of action is by mimicking the plant growth hormone auxin. Following treatment, 2,4-D is taken up by the plant and translocated through the roots, stems and leaves, resulting in bending and twisting of stems followed by growth inhibition. Plants begin to decay within one to two weeks after application, but it can take several weeks for plants to fully decompose. Treatments should be made when plants are actively growing.

It is important to note that repeated use of herbicides in the same WSSA group (i.e., with the same mechanism of action) can lead to herbicide-resistant plants, even in aquatic environments. In order to reduce the risk of developing resistant genotypes, avoid using the same type of herbicides year after year, and utilize effective integrated pest management strategies as part of any long-term control program.

For many years, 2,4-D has been used primarily in small-scale spot treatments. Some recent studies have found that 2,4-D moves quickly through the water and mixes throughout the waterbody regardless of where it is applied. Accordingly, 2,4-D has been used in Wisconsin experimentally for whole-lake treatments.

2,4-D is labeled to control the invasive plant species Eurasian watermilfoil (*Myriophyllum spicatum*). Native species that are labeled as susceptible to 2,4-D include native milfoils (*Myriophyllum* spp.), coontail (*Ceratophyllum demersum*), common waterweed (*Elodea canadensis*), naiads (*Najas* spp.), waterlilies (*Nymphaea* spp. and *Nuphar* spp.), bladderworts (*Utricularia* spp.) and duckweeds (*Lemna* spp.).[†]

Post-Treatment Water Use Restrictions

There are no post-treatment restrictions on treated water use for fishing or livestock drinking water. Following the last registration review in 2005, the butoxyethyl ester products require a 24-hour waiting period for swimming. Minimum setback distances may apply for applications on waterbodies with potable water intakes. If 2,4-D is applied within the minimum setback distance, treated water should not be used as human drinking water for at least 7 to 21 days after treatment, depending on product and application rate. However, in one study, 2,4-D persisted in the

[*] Product names are provided solely for your reference and should not be considered exhaustive nor endorsements.

[†] May vary by formulation, application rate and/or product. Every product label must be carefully read and followed by the user.

water at levels above the irrigation threshold 93 days after treatment, suggesting that the current restrictions may not be sufficient under all application scenarios. Treated water can be used as potable water sooner if the concentration of 2,4-D falls below 70 parts per billion (ppb). Restrictions on treated water use for irrigation may apply based on application rate, product and irrigation site.[†]

Herbicide Degradation, Persistence and Trace Contaminants

The half-life of 2,4-D (the time it takes for half of the active ingredient to degrade) ranges from 13 to 40 days. In anaerobic lab conditions, the half-life has been measured up to 333 days. After treatment, the 2,4-D concentration in the water is reduced primarily through microbial activity, off-site movement by water, or adsorption to small particles in silty water. 2,4-D degradation in water is highly variable depending on numerous factors such as microbial presence, temperature, nutrients, light, oxygen, organic content of substrate, pH and whether the water has been previously exposed to 2,4-D. It is slower to degrade in cold or acidic water and appears to be slower to degrade in lakes that have not been treated with 2,4-D previously.

Once in contact with water, both the ester and amine formulations dissociate to the acid form of 2,4-D, with a faster dissociation to the acid form under more alkaline conditions.

Impacts on Fish and Other Aquatic Organisms

Toxicity of aquatic 2,4-D products vary depending on whether the formulation is an amine or an ester. The ester formulations are moderately to highly toxic to freshwater fish and invertebrates; the amine formulations are slightly toxic to practically non-toxic to freshwater fish and invertebrates.

2,4-D does not accumulate at significant levels in fish tissues. Although fish exposed to 2,4-D may take up very small amounts of its breakdown products to then be metabolized, most of these products are rapidly excreted in urine.

On a short-term exposure basis, 2,4-D is practically non-toxic to honeybees and slightly to moderately toxic to birds and mammals.

As with all chemical herbicide applications it is very important to read and follow all label instructions to prevent adverse environmental impacts.

Human Health

Adverse health effects are possible after short- and long-term exposure to 2,4-D. It can cause irreversible eye damage and is harmful if swallowed, inhaled or absorbed through the skin. Wear proper personal protective equipment and follow label instructions while handling. In its consideration of exposure risks, the U.S. EPA believes no significant risks will occur to recreational users of water treated with 2,4-D.

There is not a clear link between exposure to 2,4-D and elevated cancer risk. The U.S. EPA has determined that there is not sufficient evidence to classify 2,4-D as a human carcinogen.

For Additional Information

U.S. Environmental Protection Agency (EPA)
Office of Pesticide Programs
epa.gov/pesticides

Wisconsin Department of Agriculture, Trade, and Consumer Protection
datcp.wi.gov/Pages/Programs_Services/ACMOverview.aspx

Wisconsin Department of Natural Resources
608-266-2621
dnr.wi.gov/lakes/plants

Wisconsin Department of Health Services
dhs.wisconsin.gov

National Pesticide Information Center
1-800-858-7378
npic.orst.edu

WARNING

PESTICIDE TREATMENT AREA

THIS WATERBODY HAS BEEN CHEMICALLY TREATED FOR:

- [x] INVASIVE PLANTS
- [ ] ALGAE
- [ ] NAVIGATION/ACCESS
- [ ] FISH REMOVAL
- [ ] MOSQUITO/BLACK FLY
- [ ] OTHER _____

PESTICIDE APPLIED	ACTIVE INGREDIENT	DATE TREATED
Agri-Star Amine 2,4-D	Liquid Dimethylamine Salt 2,4-D	

WATER USE RESTRICTIONS APPLY AS FOLLOWS:

- TO [x] THE ENTIRE WATERBODY
- TO [ ] WATER WITHIN ____ FT OF THIS NOTICE AND ____ FT FROM SHORE

DO NOT USE TREATED WATER FOR THE FOLLOWING PURPOSES UNTIL:

SWIMMING	0 Days	HOUSEHOLD USE (dishes, laundry, etc.)	0 Days
CONSUMING FISH	0 Days	IRRIGATION (CROP)	21 Days
DRINKING WATER	21 days	IRRIGATION (OTHER)	21 Days
PET/LIVESTOCK WATER	0 Days		

WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin Dept. of Natural Resources
101 S. Webster St., P.O. Box 7921
Madison, WI 53707-7921
www.dnr.state.wi.us/lakes/plants/factsheets

SPONSOR Lake Helen Protection & Rehabilitation District
CONTACT Justin Ehlenbeck
PHONE 920-418-4690

PUB-FH-443 2011