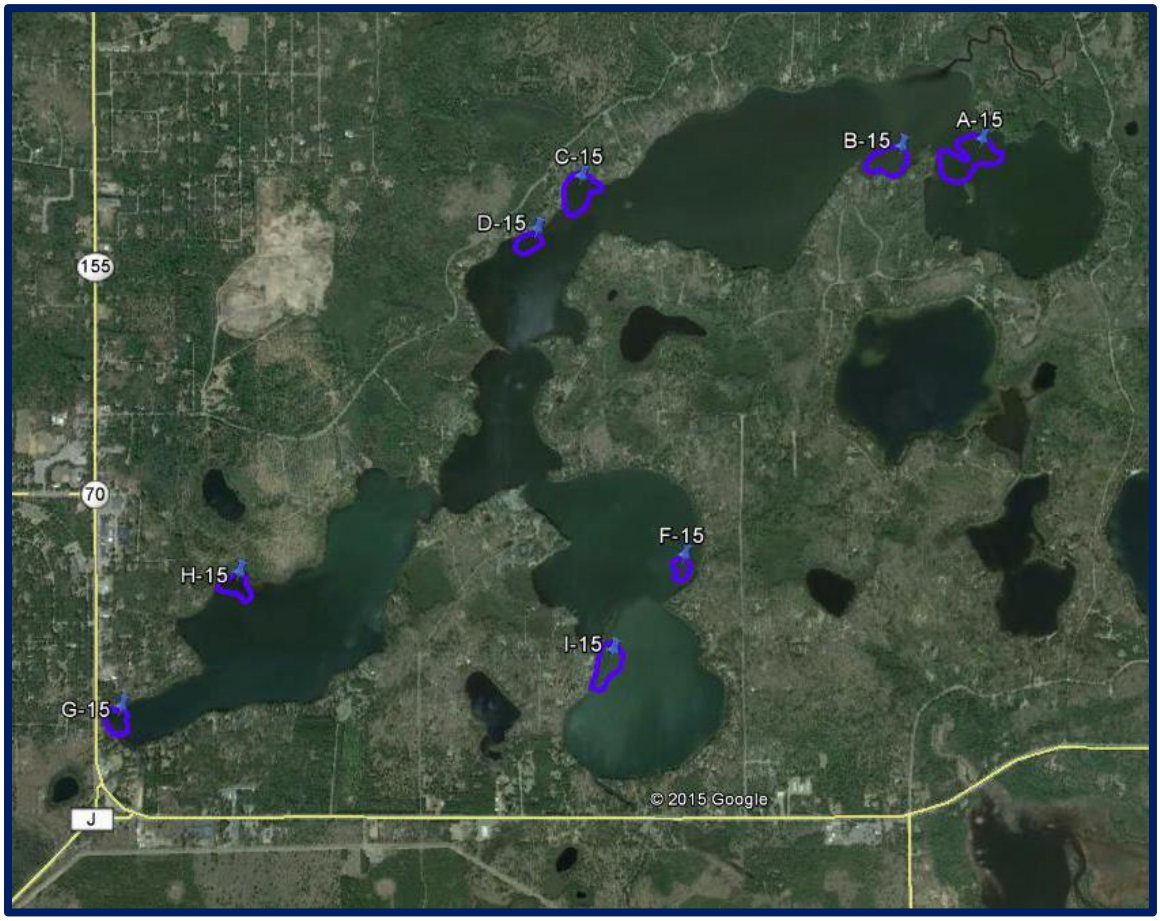
CLEAN LAKES

Little Saint Germain, Vilas County, Wisconsin
2015 AIS Aquatic Pesticide Application Plan (APAP)



Prepared by:

CLEAN LAKES

5701 Oak Park Road
Oakwood Hills, IL 60013
www.cleanlakesmidwest.com

Prepared for:
Little Saint Germain Lake Protection & Rehabilitation District
P.O Box 129
Saint Germain, WI 54558

May 2015

CLEAN LAKES

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ITEM

CLEAN LAKES

1: LIST OF PROJECT PERSONNEL

PROJECT MANAGER:

Amy Kay Wensink (Amy Kay)
WI Commercial Pesticide Applicator
Applicators Certification No. 90532
Cell Phone: 715-891-6798

SITE SAFETY AND HEALTH OFFICER:

Tom McNabb
Cell Phone: 925-766-8862
WI Commercial Pesticide Applicator
Applicators Certification No. 94984

ALTERNATE SITE SAFETY OFFICER:

Amy Kay
Cell Phone: 715-891-6798

EMERGENCY RESPONSE COORDINATOR:

Tom McNabb
Cell Phone: 925-766-8862

ALTERNATE EMERGENCY COORDINATOR:

Amy Kay
Cell Phone: 715-891-6798

FIELD SUPPORT PERSONNEL:

Steve Dahlquist
Northwoods Distribution Services
Cell Phone: 715-493-9901

Brandyn Dahlquist
Northwoods Distribution Services
Cell Phone: 715-482-9901

LITTLE SAINT GERMAIN P&R DISTRICT CONTACT:

Cheryl Kelsey
Cell Phone: 715-614-2323

2: WORK TO BE PERFORMED

AQUATIC PESTICIDE APPLICATIONS: Clean Lakes, Inc. (CLI) will be responsible for treating infestations of Eurasian watermilfoil and Curlyleaf pondweed the project areas as represented in the 2015 Final AIS Treatment Strategy Map(Onterra, LLC) approved by the Little Saint Germain Protection & Rehabilitation District (the District), outlined below in compliance with the published WI DNR AIS Treatment Protocols and the May 18, 2015 Wisconsin DNR Permit Approvals included as part of this Aquatic Pesticide Application Plan (APAP).

CLI will keep appropriate logs of the work performed and map the locations of AIS colonies treated. Copies of all such information will be provided to the District in the form of digital copy, and will be delivered to the District and Onterra within 48 hours post treatment.

CLI's Wisconsin Department of Agriculture Commercial Pesticide Applicators Business License No. is 93-018789-015570, expires 12/31/2015.

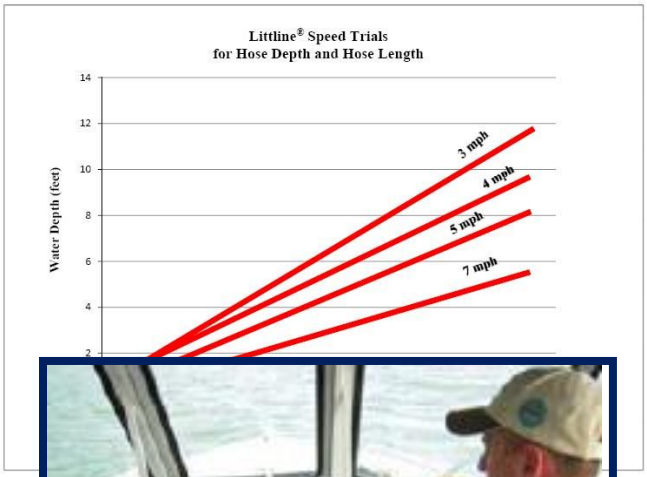
AQUATIC HERBICIDES TO BE USED: The Aquatic Herbicides to be used are Dow AgroSciences DMA 4 IVM liquid 2, 4-D, EPA Registration Number 62719-3 and United Phosphorous, Inc. Aquathol K liquid endothall, EPA Registration Number 70506-176 (Label and MSDS included as part of this APAP).

TREATMENT SCHEDULE: The target date for the treatment is Thursday, May 21, 2015. Work shall not be performed during unsafe weather conditions.

TRANSMITTAL OF SPATIAL DATA: Onterra, LLC. (Onterra) performed the 2015 growing season survey of Little Saint Germain Lake on May 6th and 7th, 2015 and provided CLI and the District with recommended/final approved treatment areas. Onterra provided CLI with the herbicide treatment area shapefiles on May 7, 2015 via email transmission. The shapefiles will be loaded into the application vessel's computer guidance system to guide the herbicide applications. The application vessel will track and record the treatment tracks within the

treatment areas, which will then be downloaded into ArcMap for the generation of Post Treatment data files.

EQUIPMENT TO BE USED: The LittLine®, CLI's state-of-the-art Littoral Zone Treatment vessel will be used to perform the aquatic herbicide application. The herbicide applications will be made to the lower portion of the water column, to increase herbicide concentration and exposure time (CET) relationships for the control of Eurasian watermilfoil and Curlyleaf pondweed.



The LittLine vessel speed and water depth in the treatment area regulates the length of aquatic herbicide discharge hose required per the depth and hose length chart shown here (left).

The aquatic vegetation treatment area shapefiles will be loaded into the LittLine computer system for vessel guidance and herbicide application data recording. The treatment tracks are automatically recorded via the LittLine vessels GPS guidance system supported by ArcView 10.0 GIS software for the production of the final treatment area maps to document the treatment areas.

Treatment area maps as well as the digital data files will be provided to the District and Onterra within 48 hours of project completion in digital format.

The LittLine systems' computerized rate controllers regulate the aquatic herbicide applications through preset treatment rates. When the vessel speeds up and or slows down, the rate controllers adjust the herbicide application rate to match the preset rate in gallons of product per acre.

CLI will provide the required support equipment for material handling (unloading trucks, loading boats) as well as support trucks for the vessels assigned to the project. The aquatic herbicides will be delivered by Northwoods Distribution Services, Inc. of Rhinelander, WI in 250 gallon totes, 30 gallon drums, and/or 2.5 gallon containers. The aquatic herbicide containers will remain on Northwoods Distribution Services truck, and transferred via a closed system to CLI's application vessel.

PERMIT COMPLIANCE: The District provided the required Permits and approvals for the herbicide treatments from the Wisconsin Department of Natural Resources as outlined and included below as part of this APAP.

CLI has obtained coverage under Aquatic Plant, Algae & Bacteria General WPDES Permit WI-0064556-1 for Statewide Wisconsin Treatments in which the District will be covered under, also included below.

SERVICES PROVIDED BY CLI: All manpower, materials, insurance, equipment and technical advice required to perform aquatic herbicide applications in the project areas identified for control as outlined in this APAP. CLI will post the Pesticide Treatment Area Warning signs per the WDNR requirement.


WARNING

PESTICIDE TREATMENT AREA

THIS WATERBODY HAS BEEN CHEMICALLY TREATED FOR:

☐ INVASIVE PLANTS ☐ NAVIGATION/ACCESS ☐ MOSQUITO/BLACK FLY

☐ ALGAE ☐ FISH REMOVAL ☐ OTHER_____

PESTICIDE APPLIED	ACTIVE INGREDIENT	DATE TREATED

WATER USE RESTRICTIONS APPLY AS FOLLOWS:

TO ☐ 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 _____ HOUSEHOLD USE (dishes, laundry, etc.) _____

CONSUMING FISH _____ IRRIGATION (CROP) _____

DRINKING WATER _____ IRRIGATION (OTHER) _____

PET/LIVESTOCK WATER _____

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

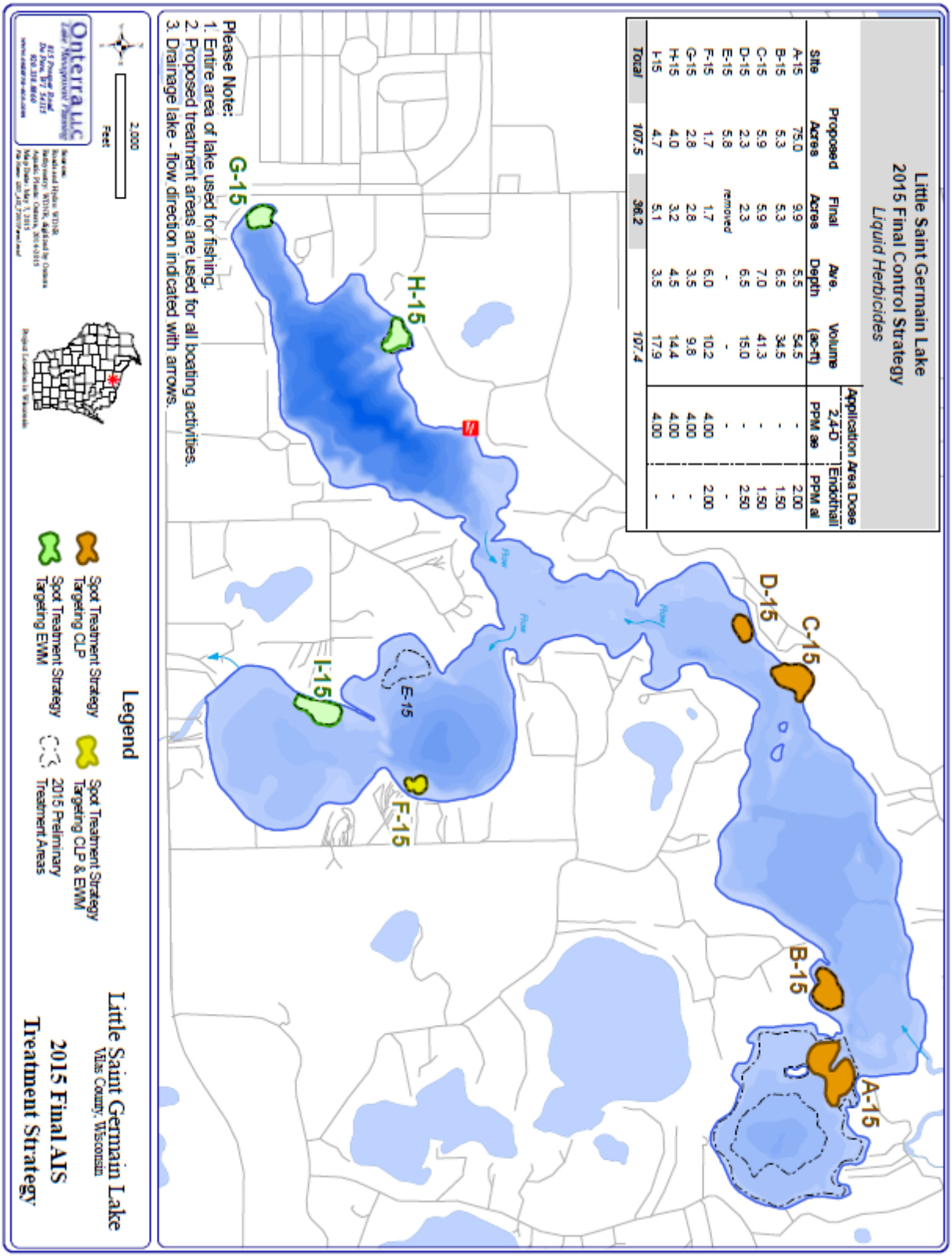
SPONSOR _____

CONTACT _____

PHONE _____ PUB-FH-443 2011

SERVICES PROVIDED BY THE DISTRICT: The District provided the required permits, published notices, and provided approval with WDNR permission on final treatment areas. The District will provide a suitable boat ramp. The District will be sure the Warning signs are removed when water use restrictions have been lifted and the signs will be properly recycled and/or disposed of.

3: Treatment Site Layout (Onterra 2015 Final AIS Treatment Strategy Map)



CLEAN LAKES

4: Treatment Site Data & Herbicide Application Rate Schedule

2015 Little St. Germain Lake Herbicide Rate Data				Aquathol K (Liquid endothall)			DMA 4 (Liquid 2,4-D)		
ID	Acreage	Mean Depth Estimate	Volume	Rate	Qty/Acre	Total	Rate	Qty/Acre	Total
A-15	9.9	5.5	54	2.00	6.60	65.3			
B-15	5.3	6.5	34	1.50	5.85	31.0			
C-15	5.9	7.0	41	1.50	6.3	37.2			
D-15	2.3	6.5	15	2.50	9.75	22.4			
F-15	1.7	6.0	10	2.00	7.2	12.2	2.0	8.6	14.6
G-15	2.8	3.5	10				2.0	5.0	14.0
H-15	3.2	4.5	14				2.0	6.4	20.6
I-15	5.1	3.5	18				2.0	5.0	25.6
Totals	36.2		197			168.2			74.8

5: Wisconsin DNR Approval Letter & Permit Application

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Northern Region Headquarters
107 Sutliff Avenue
Rhinelander WI 54501-3348

Scott Walker, Governor
Cathy Stepp, Secretary
John Gozdzialski, Regional Director
Telephone 715-365-8900
FAX 715-365-8932
TTY Access via relay - 711

May 18, 2015

Little Saint Germain Lake Protection and Rehabilitation District
PO Box 129
St Germain, WI 54558

Subject: 2015 EWM Control Permit, Little Saint Germain Lake, Vilas County

I have received your application to chemically treat Eurasian Water Milfoil (EWM) on Little Saint Germain Lake in Vilas County. Your permit application has been reviewed and meets the minimum requirements by law and a permit is being issued. Issuance of the permit is not an endorsement or approval for the action authorized. The following conditions must be followed:

1. It is the responsibility of the Little Saint Germain Lake Protection and Rehabilitation District and Clean Lakes Inc. to follow the treatment plan and permit conditions. The permit conditions and treatment plan are required to ensure efficacy of the treatment is well documented.

2. Treatment for native species is prohibited.

3. Proper notification to riparian owners and those adjacent to a treatment area must meet the minimum requirements of NR107.04(4).

4. Must contact the interim Water Resource Management Specialist, Carol Warden, at least four working days prior to the scheduled treatment to arrange a possible site supervision and pre-treatment assessment.

5. The permit holder, according to NR 107.08(8), shall submit the enclosed Aquatic Plant Management Treatment record for treatment as follows:
    1. Immediately, if any unusual circumstances occur during treatment.
    2. Within 30 days, if treatment occurs.
    3. By October 1 of this year if no treatment occurred.

6. Treatment of EWM must be done before the water temperature is 60° F at the depth of plant growth. Final treatment areas and final treatment strategy that are attached to the application must be followed. Follow all pesticide label guidance and precautions.

7. Treatment cannot conflict with the Memorial Day Holiday weekend (i.e., treatment during or within 3 days of Memorial Day.)

8. This permit is being issued for a single treatment event. Any future treatments beyond this permit will require an additional permit from the Department. Future permit applications will be evaluated based on the information at that time.

9. Noncompliance with permit conditions can result in enforcement actions under State Statute 281 and restriction of aquatic plant management activities for subsequent years under Administrative Code NR 107.

10. All equipment used for the project including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps shall be de-contaminated for invasive species and viruses prior to use and

after use. **Specific disinfection measures are required on all waters infected with Viral Hemorrhagic Septicemia (VHS) and must be taken prior to moving to another waterbody. The most current disinfection protocols along with a VHS-affected waters list can be found on the WI-DNR website.**

The following steps should be taken *every time* you move your equipment to avoid transporting invasive viruses and species. To the extent practicable, equipment and gear used on infested waters should not be used on other non-infested waters.

A. **Inspect and remove** aquatic plants, animals, and mud from your equipment.
B. **Drain** all water from your equipment, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps.
C. **Dispose** of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
D. **Disinfect** your boat, equipment and gear by either:
   - Washing with ~212° F water (steam clean), OR
   - Drying thoroughly for 5 days after cleaning with soap and water and/or high pressure water, OR
   - Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon® Aquatic for 20- to 30-minute contact time.
     Note: Virkon® is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104° F) application.

Please note that it is your responsibility to comply with the above permit conditions. Failure to comply with the above conditions may result in cancellation of the permit and loss of permit privileges. Please feel free to contact me if you have any questions or concerns. I can be reached at (715)356-9494 or e-mailed at warden@wisc.edu.

Sincerely,

Carol Warden
Interim Water Resource Management Specialist

c.c. Clean Lakes Inc., Onterra

May 11, 2015

Notice

All aquatic plant management applications are routed to professional resource managers for comment. The following environmental concerns/comments have been provided from those managers and are specific to an herbicide treatment of Eurasian Water Milfoil on **Little Saint Germain Lake** in Vilas County:

Comments from WDNR Fisheries Biologist, Steve Gilbert: Objection to proposed treatment.

Aquatic Plants provide cover, nursery areas, and spawning sites for fish as well as other aquatic organisms. Removal of these aquatic plants will have adverse effects on the health of the fisheries population of this lake. The chemicals proposed to be used will kill important native plants as well as the exotic species targeted. It will take a significant time for native plant to recolonize treated areas resulting in a significant loss of habitat.

The herbicide 2,4-D has been shown to be toxic to fish and aquatic invertebrates according to the USEPA

2,4-D Registration Document. 2,4-D is also an endocrine disruptor with potential negative impacts on reproducing fish. Therefore, care should be taken to apply this product only to the mapped treatment beds, and only at the application rate prescribed in the permit. There is no certainty that long-term use of 2,4-D to control Eurasian water milfoil will not cause indirect harm to freshwater fisheries so all precautions should be taken when using this product.

Liquid 2,4-D products - Recent laboratory research at UW-Madison has demonstrated that commercial liquid formulations of 2,4-D are associated with reduced reproduction in fathead minnows that are exposed to concentrations of the herbicide typically measured in lakes post-application. Survival of young was also reduced using one liquid 2,4-D formulation. Therefore, herbicide application should be limited to the minimum amount necessary to effectively control invasive plants.

**Statement after final treatment proposal: My objection was based on the original planned treatment of the entire surface area of Lower East bay on Little Saint. There is a healthy and diverse native plant community in this bay. There is also no refuge for fish living in this bay from the chemicals or the potential oxygen depletion issues that would arise from all the decaying plant material resulting from this treatment.

I am glad to see that the project has been scaled back but my overall concerns for the health of the fish community on this lake remain.

Comments from WDNR Wildlife Biologist, Michele Woodford:

Comments from WDNR Conservation Biologist, Carly Lapin: All activities related to controlling aquatic vegetation need to be conducted 330 feet away from any active Bald Eagle nests up until August 1 of the year to minimize disturbance. After August 1, this buffer does not need to be maintained. Bald Eagles are protected under the Federal Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668c; 50 CFR 22.3).

Comments from WDNR Wildlife and Forestry Research and Toxicologist, Dr. Michael Meyer: No objection but have additional recommendations (or comments, concerns, caveats, reservations).

The herbicide 2,4-D has been shown to be toxic to fish and aquatic invertebrates according to the USEPA 2,4-D Registration Document. 2,4-D is also an endocrine disruptor with potential negative impacts on reproducing fish. Therefore, care should be taken to apply this product only to the mapped treatment beds, and only at the

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CLEAN LAKES

State of Wisconsin
Department of Natural Resources
Water Permit Central Intake - WT/3
PO Box 7185, Madison, WI 53707-7185
dnr.wi.gov

Chemical Aquatic Plant Control Application and Permit
Wisconsin Pollutant Discharge Elimination System (WPDES)
Pesticide Pollutant Permit Application

Form 3200-004 (R 11/11)

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.].

DNR Use Only	
ID Number: NO-2015-04-802	Permit Expiration Date: 10/1/2015
Waterbody #: 768900	Fee Received: 1270.00

Section I – Applicant Information – Name of Permit Applicant. Also indicate names and addresses of all individuals, associations, communities or town sanitary districts sponsoring treatment. Attach additional sheets if necessary.

Home Address

Name: Little Saint Germain Lake Protection & Rehabilitation District
Street Address: P.O. Box 129
City: Germain | State: WI | ZIP Code: 54558

Lake Address

Name:
Street Address:
City: | State: | ZIP Code:

Phone Number (include area code)
Primary: (715) 614-2323 Secondary:

Email Address: sellthenorthwoods@gmail.com

Section II – Aquatic Plant Control Location

Waterbody to be Treated (waterbody where treatment area is located): Little Saint Germain Lake

Lake Surface Area: 980 acres

Estimated Surface Area that is 10 Feet or Less in Depth: 600 acres

County: Vilas | Section: 35 | Township: 40 N | Range: 08 ☐ E ☐ W

Latitude: 45.90327850 | Longitude: -89.45511150

Is the waterbody a private pond? ☐ Yes ☒ No

Does the waterbody have public access? ☒ Yes ☐ No

Adjacent Riparian Property Owner Names (attach sheets if necessary)

1. See attached
2.
3.
4.
5.
6.
7.

Name of Lake Property Owners' Association Representative or Lake District Representative (if none, please indicate): Cheryl Kelsey

Name of Applicator or Firm: Clean Lakes, Inc.

Street or Route: 5701 Oak Park Road

City: Oakwood Hills | State: IL | ZIP Code: 60013

County: McHenry | Phone Number (include area code): (715) 891-6798

Email Address: akay@cleanlakesmidwest.com

Applicator Certification Number for Category 5 Aquatic Pesticide Application: 90532, 89222, 94984

Business Location License Number (if applicable): 93-018789-01570

Restricted Use Pesticide License Number (if applicable):

Area(s) Proposed for Control: (Note details in permit cover letter for final permitted sizes of treatment areas.)

	Treatment Length		Treatment Width		Estimated Acreage	Average Depth	Total Estimated Acres
A.	see attached	ft. X		ft. ÷ 43,560 ft² =		ft.	
B.		ft. X		ft. ÷ 43,560 ft² =		ft.	Total from lines A - E: 0
C.		ft. X		ft. ÷ 43,560 ft² =		ft.	Total from Attached Sheets: 107.5
D.		ft. X		ft. ÷ 43,560 ft² =		ft.	
E.		ft. X		ft. ÷ 43,560 ft² =		ft.	Grand Total: 107.5

RECEIVED

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. Private pond treatments are exempted from this requirement.

Is this area within or adjacent to a sensitive area designated by the Department of Natural Resources? ☐ Yes ☒ No

DNR Use:
NHI Review? ☑ Yes ☐ No Describe: APR 30 2015
Sensitive species may be present. Follow the conditions of the permit.
WT/3 - WY/3 - OGL/3

Chemical Aquatic Plant Control Application and Permit
WPDES Pesticide Pollutant Permit Application

Form 3200-004 (R 11/11) Page 2 of 4

Section III – Fees

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.
4. Fee calculations:

Basic Permit Fee (non-refundable) ..... $ 20.00

If proposed treatment is over 0.25 acre, calculate acreage fee: (round up to nearest whole acre, to maximum of 50 acres.)

50 acres X $25 per acre = $ 1250.00

If proposed treatment is ≤ 0.25 acre, acreage fee is $0.

Enter Acreage Fee (from above) 1250.00

Total Fee Enclosed ..... $ 1270.00

☒ **Site Map:** Attach a sketch or a printed map of lake indicating area and dimensions of each individual area where plant control is desired and flow of surface water outside treatment area. Also show location of property owners riparian to and adjacent to the treatment area. Attach a separate list of owners and corresponding treatment dimensions coded to the lake map, if necessary.

Section IV – Reasons for Aquatic Plant Control

Is this permit being requested in accordance with an approved Aquatic Plant Management Plan? ☒ Yes ☐ No

Treatment Type: ☒ Lake ☐ Pond ☐ Wetland ☐ Marina ☐ Other

Goal of Aquatic Plant Control:

- ☐ Reduce nuisance algae accumulation
- ☐ Maintain navigational channel for common use
- ☐ Maintain private access for boating
- ☐ Maintain private access for fishing
- ☐ Improve swimming
- ☐ Control of purple loosestrife
- ☒ Control of invasive exotics
- ☐ Other: _____

Nuisance Caused By:

- ☐ Algae
- ☐ Emergent water plants (majority of leaves and stems growing above water surface, e.g. cattails, bulrushes)
- ☐ Floating water plants (majority of leaves floating on water surface, e.g., waterlilies, duckweed)
- ☒ Submerged water plants (leaves and stems below water surface, flowering parts may be exposed, e.g., milfoil, coontail)
- ☐ Other: _____

List Target Plants

Curlyleaf Pondweed
Eurasian Watermilfoil

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

Section V – Chemical Control

Alternatives to Chemical Control:	Feasible?	If No, Why Not?
1. Mechanical harvesting	☐ Yes ☒ No	plant regrowth, fragmentation
2. Hand pulling	☐ Yes ☒ No	area too large
3. Hand raking	☐ Yes ☒ No	area too large, plant regrowth, fragmentation
4. Hand cutting	☐ Yes ☒ No	area too large, plant regrowth, fragmentation
5. Sediment screens/covers	☐ Yes ☒ No	area too large, would also prevent desirable plant growth
6. Dredging	☐ Yes ☒ No	too expensive
7. Lake drawdown	☐ Yes ☒ No	not site specific
8. Nutrient controls in watershed	☐ Yes ☒ No	not site specific
9. Other: _____	☐ Yes ☐ No	

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

If you checked yes to any of the alternatives listed above, please explain your decision to use chemical controls:

Chemical Aquatic Plant Control Application and Permit
WPDES Pesticide Pollutant Permit Application

Form 3200-004 (R 11/11) Page 3 of 4

Section V – Chemical Control (continued)

Trade Name of Proposed Chemical(s)
Aquathol K (liquid endothall) at 1.25-3.0 ppm
DMA 4 IVM (liquid 2, 4-D) at 4.0 ppm

Method of Application: LittLine, Littoral Zone Treatment Technology

Will surface water outflow and/or overflow be controlled to prevent chemical loss? ☐ Yes ☒ No

Have the proposed chemicals been permitted in a prior year on the proposed site? ☒ All ☐ Some ☐ None

What were the results of the treatment?
See Onterra's 2014 Final Report

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

Section VI – 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 has provided 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.

☑ Check if you are signing as Agent for Applicant.

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 and that the conditions of the permit and pesticide use will be adhered to.

Cheryl Kelsey — Signature of Applicant

4-8-15 — Date Signed

All portions of this permit, map and accompanying cover letter must be in possession of the chemical applicator at time of treatment. During treatment all provisions of Chapter NR 107, specifically ss. NR 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.

Chemical Aquatic Plant Control Application and Permit
WPDES Pesticide Pollutant Permit Application

Form 3200-004 (R 11/11) Page 4 of 4

Section VII – WPDES Permit Request

Is WPDES coverage being requested? Refer to http://dnr.wi.gov/org/water/wm/ww/aquaticpesticides.htm for more information.

☐ Yes ☒ No If no, you do not need to complete this section.

Select which permit you are requesting:
- ☐ WI-0064556-1 Aquatic Plants, Algae & Bacteria
- ☐ WI-0064564-1 Aquatic Animals
- ☐ WI-0064581-1 Mosquitoes & other Flying Insects

Indicate WPDES permittee responsible for the pollutant discharge: ☒ Applicator ☐ Sponsor

Do you expect the pest control activity will result in a detectable pollutant discharge to waters of the state beyond the treatment area boundary or a pollutant residual in waters of the state after the treatment project is completed? ☐ Yes ☐ No

If yes, identify the pollutant(s): _____

Are you planning to incorporate integrated pest management principles, as specified in the WPDES permit, into your pest control activity to minimize any pollutant residual or pollutant discharge beyond the treatment area? ☐ Yes ☐ No

Type of WPDES coverage being requested: ☐ One Treatment Site ☐ Statewide Coverage

For informational purposes, select areas of WI for most of your aquatic treatments: ☐ NW ☐ NE ☐ SW ☐ SE

Is WPDES coverage being requested for more than 1 year?

☐ Yes ☐ No If yes, the permittee will remain in "active" WPDES status until a Notice of Termination is submitted.

I hereby certify that I am the authorized representative (as specified in Ch. NR 206.07(1)(g), Wis. Adm. Code) of the pest treatment activity which is the subject of this permit application. I certify that the information contained in this form and attachments is, to the best of my knowledge, true, accurate and complete.

Signature of Authorized Representative	Printed Name	Date Signed
Cheryl Kelsey	Cheryl Kelsey	4-8-15

Section VIII – Permit to Carry Out Chemical Treatment (Leave Blank – DNR Use Only)

The foregoing application is approved. Permission is hereby granted to the applicant to chemically treat the waters described in the application during the season of 20 15.

Application fee received? ☑ Yes ☐ No

Advance notification of treatment required? ☑ Yes ☐ No

State of Wisconsin
Department of Natural Resources
For the Secretary

By Carol Warden
Regional Director or Designee

May 18, 2015 (Date Signed) May 18, 2015 (Date Mailed)

Please Note:

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to ss. 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

This notice is provided pursuant to s. 227.48(2), Wis. Stats.

To request a contested case hearing pursuant to s. 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

6: Wisconsin Pollutant Discharge Elimination System (WPDES) Approval Letter and Permit Application

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor
Cathy Stepp, Secretary

101 South Webster Street
P.O. Box 7921
Madison, WI 53707-7921
Telephone (608) 266-2621
FAX (608) 267-3579
TTY Access via relay - 711

March 13, 2012

Thomas McNabb, President
Clean Lakes, Inc.
P.O. Box 3548
Coeur d' Alene, ID 83816

SUBJECT: Coverage under Aquatic Plant, Algae & Bacteria General WPDES Permit WI-0064556-1
SITE LOCATION/FIN: Statewide Wisconsin Treatments /FIN: 46219;

Dear Mr. McNabb:

The Department of Natural Resources has evaluated the notice of intent information you provided regarding nuisance plant and algae control activities for lakes and ponds located in Wisconsin. The Department is hereby authorizing statewide coverage under general Wisconsin Pollutant Discharge Elimination System (WPDES) permit No.WI-0064556-1 for Clean Lakes, Inc. activities that result in a pollutant discharge to waters of the state as defined in s. 283.01(20) of the Wis. Statutes. Your general permit coverage is authorized for the term of the WPDES permit (which has an expiration date of September 30, 2016).

The goal of the Clean Water Act and Section 283 of the Wisconsin Statutes is to maintain and restore the chemical, physical, and biological integrity of waters of the state. The Aquatic Plant, Algae & Bacteria WPDES general permit authorizes point source discharges of biological and chemical pollutants that would have a residual in a water of the state or that cause a pollutant discharge into a water of the state located beyond the treatment area. This general permit contains best management practices designed to minimize these types of a pollutant discharges and to prevent exceedence of a Wisconsin water quality standard.

For 2012, WPDES permit WI-0064556-1 part 5.1 requires that a **visual check record** be retained for each treatment project with a pollutant discharge. The visual check can be performed at a representative location where a pollutant discharge could move beyond the treatment area. This visual check can be used to record the effectiveness of the chemical management practices and to note any observed aquatic life conditions prior to and after the chemical application.

Beginning in 2013, the record keeping requirements of the permit parts 5.3 and 5.5 become effective. The information specified in part 5.5 will need to be reported for treatment projects (from the previous calendar year) that have pollutant residuals or discharges to waters of the state located beyond the treatment area. The Department is developing a reporting system designed to allow electronic reporting of ch. NR 107 permit information that also meets the annual reporting needs of the WPDES permit.

The Aquatic Plant, Algae & Bacteria general WPDES permit, a descriptive fact sheet/memo, and a "Question and Answer" document can be accessed at: http://dnr.wi.gov/org/water/wm/ww/aquaticpesticides.htm. Also, the Department (at: http://dnrmaps.wi.gov/imf/imf.jsp?site=SurfaceWaterViewer.deswaters) has a surface water viewer tool that can be used to indentify high quality exceptional or outstanding surface water resources.

If you need to have a paper copy of the WPDES permit or other permit supporting documents emailed or sent in the US mail to your facility, please contact a WPDES staff person at the nearest DNR regional office. It is important that you understand and comply with this WPDES permit because it is enforceable under both state and federal law. Also, you should be aware that the Clean Water Act authorizes a citizen action for pollutant discharges without WPDES permit coverage or for continuing violations of a WPDES discharge permit.

Additional information regarding the Department's legal authority in this matter and your rights of appeal are shown below. Please feel free to call me at (608) 267-7643 if you have any questions regarding the requirements of the general permit.

Cordially,

Jeffrey Brauer

Jeffrey Brauer, Env. Engineer
Water Quality Bureau
jeff.brauer@wisconsin.gov

e-copy: SWAMP Facility documents Kevin Gauthier - Rhinelander

LEGAL AUTHORITIES AND APPEAL RIGHTS

Section 283.35, Stats., authorizes the Department to issue a general permit for discharges from categories or classes of point sources. If a permittee believes coverage of a facility under a general WPDES permit is not appropriate, the permittee may apply for issuance of an individual WPDES permit pursuant to section 283.35(2) and may petition the Department for withdrawal of coverage under the general permit. The individual permit application should indicate which site specific factors would justify alternate WPDES limits for the operation. Issuance of such a site specific WPDES permit will provide for a 30 day public comment period, and potentially a public informational hearing and/or an adjudicatory hearing. The Department may withdraw a facility from coverage under a general permit if it is determined that a discharge is a significant contributor of pollutants to waters of Wisconsin, or in certain other cases set out in s. 283.35, Stats.

In lieu of general permit withdrawal, the Department may refer any violation of this permit to the Department of Justice for enforcement under s. 283.89, Stats. In order to avoid any enforcement action, **please read the WPDES permit carefully and comply with the permit requirements.**

If you believe that you have a right to challenge the Department decision to cover this facility with a general permit, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. Such a petition should identify pollutant(s) that are believed to be not appropriately regulated by the general permit for the specific site. All requests for contested case hearings must be made in accordance with section NR 2.05(5), Wis. Adm. Code, and served on the Secretary in accordance with section NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the time period for filing a petition for judicial review.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. A petition for judicial review must name the Department of Natural Resources as the respondent.

46219

State of Wisconsin
Department of Natural Resources
Bureau of Wastewater Management
dnr.wi.gov

MAR 0 9 2012

Pest Control Pollutant Discharge WPDES Permit Request

Form 3400-202 (2/12) Page 1 of 2

Notice: Pursuant to chs. NR 200 and 205, Wis. Adm. Code, this Notice of Intent (NOI) is needed to request coverage under one of the General WPDES Permits listed below. Incomplete NOI's will be returned. Personal information collected on this form will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.).

General WPDES Permits (check the box for the permit you are requesting):

- ☐ WI-0064572-1 Forest Canopy Pests
- ☒ WI-0064556-1 Aquatic Plants, Algae & Bacteria
- ☐ WI-0064581-1 Mosquitoes & other Flying Insects
- ☐ WI-0064564-1 Aquatic Animals

Section I: WPDES Permittee Responsible for a Pollutant Discharge from the Pest Treatment Activity

WPDES Permittee (Company/Owner name)			Authorized Representative Name	Phone # (with area code)
Clean Lakes, Inc./Thomas J. McNabb			Thomas J. McNabb	925-766-8862
Mailing Address - P.O. Box, Street, or Route			Authorized Representative Title	
P.O. Box 3548			President	
City	State	ZIP Code	Fax # (with area code)	Authorized Representative Email Address
Coeur d'Alene	ID	83816	208-665-1479	tmcnabb@cleanlake.com

Section II: Pest Control Site Name and Location (for treatments at multiple sites, enter affected counties or "statewide")

Pest Control Project Name			Project Contact Person Name	Title
multiple			Amy Kay (Clean Lakes, Inc.)	
Pest Control Project Address -- Street			Email Address	Phone # (with area code)
multiple			akay@cleanlake.com	407-488-6137
City	State	ZIP Code	Treatment Site County or Counties	Section, Town, Range
multiple			statewide	

Site Map: If treatments will occur at three sites or less, attach site map(s), such as a USGS topographic map, showing the location of the pest control activities and the receiving water for a pollutant residual or pollutant discharge outside of the treatment area. For treatments on >3 sites, attach a map showing areas of the state where most treatments will occur.

Section III: Discharge Characterization

Type of Discharge (Biological, Excess Chemical, or Residual Chemical Pollutant):	Pest Treatment Products to be Used	Treatment Area Description	Comments
Residual Chemical Pollutant	2, 4-D	Targeted Treatment Area for Aquatic Nuisance Species in Wisconsin	
Residual Chemical Pollutant	endothall	Targeted Treatment Area for Aquatic Nuisance Species in Wisconsin	
Residual Chemical Pollutant	triclopyr	Targeted Treatment Area for Aquatic Nuisance Species in Wisconsin	
Residual Chemical Pollutant	flumioxazin	Targeted Treatment Area for Aquatic Nuisance Species in Wisconsin	
Residual Chemical Pollutant	dye	Targeted Treatment Area for Aquatic Nuisance Species in Wisconsin	

Section IV: Eligibility for a WPDES Pollutant Discharge General Permit

1. Do you expect the pest control activity will result in a detectable pollutant discharge to waters of the state beyond the treatment area boundary or a pollutant residual in waters of the state after the treatment project is completed? ☐ Yes ☒ No

   If yes, identify the pollutant(s): _____

   If yes, identify the first surface water or wetland the discharge would enter: _____

2. Will a pollutant be discharged to an Outstanding or Exceptional Resource Water? ☐ Yes ☒ No

   If yes, identify the high quality water (listed in s. NR 102.10 or 11, Wis. Adm. Code): _____

Pest Control Pollutant Discharge
WPDES Permit Request
Form 3400-202 (2/12) Page 2 of 2

3. Could a threatened or endangered species in the vicinity be negatively impacted by a pest control pollutant residual or pollutant discharges beyond the treatment area? ☒ Yes ☐ No

   If yes, identify the species: Management practices will be in place to avoid negatively impacting threatened or endangered species.

4. Are you planning to incorporate integrated pest management principles, as specified in the WPDES permit, into your pest control activity to minimize any pollutant residual or pollutant discharge beyond the treatment area? ☒ Yes ☐ No

5. Indicate the type of WPDES coverage being requested: ☐ 1-3 Treatment Sites ☒ Statewide Coverage

   For informational purposes, check areas of Wisconsin for most of your aquatic treatments:

   ☒ NE ☒ NW ☒ SE ☒ SW

6. Do you expect to treat more than 20 acres or 20 linear miles in a year? ☒ Yes ☐ No

   If yes, certain documentation and reporting is required by the permit.

7. Is WPDES coverage being requested for more than 1 year? ☒ Yes ☐ No

   If yes, the permittee will remain in "active" WPDES coverage status until a Notice of Termination is submitted.

Section V: Comments

Section VI: Certification

I hereby certify that I am the owner or authorized representative (as specified in Ch. NR 205.07(1)(g), Wis. Adm. Code) of the entity requesting coverage under the WPDES permit indicated on this NOI. Based on my inquiry of those persons directly responsible for gathering the information, the information contained in this form and attachments is, to the best of my knowledge and belief, true, accurate and complete.

Signature of Owner or Authorized Representative	Date Signed
	March 6, 2012
Typed or Printed Name and Title	Phone # (with area code)
Thomas J. McNabb, President	925-766-8862
Email Address (if not shown in part I)	

If submitting by mail, send completed forms and maps to:

Department of Natural Resources
Water Permit Central Intake - WT/3
P.O. Box 7185
Madison, WI 53707-7185

CLEAN LAKES

7: Wisconsin DNR Aquatic Plant Management Herbicide Treatment Record

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Aquatic Plant Management Herbicide Treatment Record
Form 3200-111 (R 11/11) Page 1 of 2

Notice: Completion of this form is a condition of the permit and provides records required by WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22). The Department may not issue you future permits unless you complete and submit this form. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Submit this form: **(1) immediately if any unusual circumstances occurred during treatment**
(2) as soon after treatment as possible, no later than 30 days
(3) by October 1 if no treatment occurred

Completion of this form along with the permit satisfies the requirements of WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22).

General Permit Information

Permit Number	Waterbody Name (including ponds, e.g., Smith Pond)
NO-2015-64-802	Little Saint Germain Lake
County	**Permit Holder Name (Customer Name)**
Vilas	Little Saint Germain Lake Protection and Rehabilitation District

Permit Holder Address	City	State	ZIP Code
P.O. Box 129	Saint Germain	WI	54558

Treatment Information

Treatment Date (mm/dd/yyyy)	Starting Time (24 hr)	Ending Time (24 hr)	Water Temp (°C)	Ambient Air Temp (°C)
5/21/15				

Wind Speed (mph)	Wind Direction	Expected Duration of Chemical Residuals

Adverse Conditions Noted (i.e., dead fish, spawning fish, algae bloom, etc.)

If adverse conditions noted, indicate corrective actions taken

Onsite Supervision Present? (•) Yes ( ) No — If Yes, Supervisor Name: Carol Warden, WDNR

Mixing and Loading Site Location (if other than business site or from prepackaged retail container or applied with equipment with a total capacity of not more than 5 gallons liquid or 50 pounds dry)

Herbicide Treatment and Water Use Restrictions Signs Posted In Accordance With NR 107? ( ) Yes ( ) No

Applicator shall provide each customer with a free copy of each pesticide label used (if requested)

Applicator Information

Individual or Business Name	Telephone Number
Clean Lakes, Inc.	715-891-6798

Street Address		
5701 Oak Park Road		
City	**State**	**ZIP Code**
Oakwood Hills	IL	60013

Individuals Making Pesticide Application:	Last Name	First	Certification #
	Wensink	Amy Kay	90532
	McNabb	Thomas	94984

Name of Person Completing Form	Signature	Date Signed	DNR Use Only
Amy Kay Wensink			Date Received

CLEAN LAKES

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11)

Sheet ______ of ______ Date: 5/21/15

Treatment Site and Chemical Information (attach additional sheets if necessary)

						Herbicide Name: Aquathol K		Herbicide Name:		Herbicide Name:	
						EPA Reg No.: 70506-176		EPA Reg No.:		EPA Reg No.:	
Site No, Property Name, Address / Fire No	Treated Acreage	Permitted Acreage	Sensitive Area?	Latitude	Longitude	Amount Applied	Concentration (mg/l = ppm)	Amount Applied	Concentration (mg/l = ppm)	Amount Applied	Concentration (mg/l = ppm)
A-14	75.0	75.0	☐ Y	45.92781214	-89.43144914						
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
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			☐ Y								
			☐ Y								
			☐ Y								
					Totals						

Aquatics at Treatment Site: TS = Target Species SP = Species Present

TS	SP		Site(s)	TS	SP		Site(s)	TS	SP		Site(s)	TS	SP	Other Aquatics	Site(s)
☐	☐	Cattail		☐	☐	Filamentous Algae		☐	☐	Planktonic Algae		☐	☐	White-Stem Pondweed	
☐	☐	Chara		☐	☐	Flat-Stem Pondweed		☐	☐	Purple Loosestrife		☐	☐	Wild Celery	
☐	☐	Coontail		☐	☐	Floating-Leaf Pondweed		☐	☐	Richardson Pondweed		☐	☐		
☒	☐	Curly-Leaf Pondweed	All	☐	☐	Illinois Pondweed		☐	☐	Robbins Pondweed		☐	☐		
☐	☐	Duckweed		☐	☐	Large-Leaf Pondweed		☐	☐	Sago Pondweed		☐	☐		
☐	☐	Elodea		☐	☐	Northern Milfoil		☐	☐	Watershield		☐	☐		
☒	☐	Eurasian/hybrid Milfoil	A-14, C-14	☐	☐	Phragmites		☐	☐	White Water Lily		☐	☐		

8: Copy of Liability and Workers Compensation Insurance Certificates

9: Product Label and MSDS

DMA4 IVM and Aquathol K

Specimen Label

Dow AgroSciences

DMA® 4 IVM

Herbicide

For selective control of many broadleaf weeds in forests, ornamental turfgrass, non-cropland and aquatic areas. Also for control of trees by injection.

Active Ingredient:

2,4-Dichlorophenoxyacetic acid, dimethylamine salt	46.3%
Other Ingredients	53.7%
Total	100.0%

2,4-dichlorophenoxyacetic acid - 38.4% - 3.8 lb/gal

EPA Reg. No. 62719-3

Keep Out of Reach of Children

DANGER PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Precautionary Statements

Hazards to Humans and Domestic Animals

DANGER

Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed, Inhaled Or Absorbed Through The Skin

Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are made of any waterproof material. If you want more options, follow the instructions for category A on an EPA chemical resistance category selections chart.

All pilots must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks

All mixers, loaders, flaggers, other applicators and handlers must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves
- Protective eyewear
- Chemical resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate

See engineering controls for additional requirements.

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 or enclosed cabs 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.

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protections Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)].

User Safety Recommendations

Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

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

Environmental Hazards

This product is toxic to fish and aquatic invertebrates. For terrestrial uses: Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

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. Application around a cistern or well may result in contamination of drinking water or groundwater.

Aquatic Weed Control: Fish breathe dissolved oxygen in the water and decaying weeds also use oxygen. When treating continuous, dense weed masses, it may be appropriate to treat only part of the infestation at a time. For example, apply the product in lanes separated by untreated strips that can be treated after vegetation in treated lanes has disintegrated. During the growing season, weeds decompose in a 2 to 3 week period following treatment. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Waters having limited and less dense weed infestations may not require partial treatments.

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.

CLEAN LAKES

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
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks
- Protective eyewear

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: Do not enter or allow people (or pets) to enter the treated area until sprays have dried.

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Keep container tightly closed when not in use. If exposed to subfreezing temperatures, the product should be warmed to at least 40°F and mixed thoroughly before using.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Nonrefillable containers 5 gallons or less:
Container Handling: Nonrefillable container. Do not reuse or refill this container.

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. Then 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.

Refillable containers larger than 5 gallons:
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 and, if possible, spray all sides while adding water. If practical, 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. Then 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.

Nonrefillable containers 5 gallons or larger:
Container Handling: Nonrefillable container. Do not reuse or refill this container.

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. Then 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.

Product Information

DMA® 4 IVM herbicide is intended for selective control of many broadleaf weeds in forests, ornamental turfgrass, non-cropland and aquatic areas. Also for control of trees by injection.

Apply DMA 4 IVM as a water or oil-water spray during warm weather when target weeds or woody plants are actively growing. Application under drought conditions will often give poor results. Use low spray pressure to minimize drift. Generally, the lower dosages specified on this label will be satisfactory for young, succulent growth of susceptible weed species. For less susceptible species and under conditions where control is more difficult, use higher specified rates. Deep-rooted perennial weeds such as Canada thistle and field bindweed and many woody plants usually require repeated applications for satisfactory control. Consult your State Agricultural Experiment stations or Extension Service Weed Specialists for recommendations from this label that best fit local conditions.

Use Precautions and Restrictions

Be sure that use of DMA 4 IVM conforms to all application regulations.

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

Excessive amounts of 2,4-D in the soil may temporarily inhibit seed germination and plant growth.

Use of this product in certain portions of California, Oregon, and Washington is subject to the January 22, 2004 Order for injunctive relief in Washington Toxics Coalition et al. v. EPA, C01-0132C, (W.D. W.A.). For further information, please refer to EPA website: http://www.epa.gov/espp/litstatus/wtc/index.htm.

Spray Drift Management

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size
When applying sprays that contain 2,4-D as the sole active ingredient, or when applying sprays that contain 2,4-D mixed with active ingredients that require a coarse or coarser spray, apply only as a coarse or coarser spray (ASABE Standard 572) or a volume mean diameter of 385 microns or greater for spinning atomizer nozzles.

When applying sprays that contain 2,4-D mixed with other active ingredients that require a medium or more fine spray, apply only as a medium or coarser spray (ASABE Standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Wind Speed
Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition and there are not sensitive areas (including residential areas, bodies of water, known habitat for nontarget species, nontarget crops) within 250 feet downwind. If applying a medium spray, leave one swath unsprayed at the downwind edge of the treated field.

Temperature Inversions
If applying at wind speeds less than 3 mph, the applicator must determine if: a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

Susceptible Plants
Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption. Susceptible crops include

cotton, okra, flowers, fruit trees, grapes (in growing stage), fruit trees (foliage), soybeans (vegetative stage), ornamentals, sunflowers, tomatoes, beans, and other vegetables, or tobacco. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants.

Other State and Local Requirements
Applicators must follow all state and local pesticide drift requirements regarding application of 2,4-D herbicides. Where states have more stringent regulations, they must be observed.

Equipment
All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

Aerial Application
The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. This requirement does not apply to forestry or rights-of-way applications.

When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this by adjusting the path of the aircraft upwind.

Groundboom Application
Do not apply with a nozzle height greater than 4 feet above the crop canopy.

Mixing

Mix DMA 4 IVM only with water unless otherwise directed on this label. Add about half of the water to the mixing tank, then add the DMA 4 IVM with agitation, and finally the rest of the water with continuing agitation.

Note: Adding oil, wetting agent, or other surfactant to the spray mixture may increase effectiveness on weeds, but also may reduce selectivity to crops resulting in crop damage.

Tank Mixing: When tank mixing, read and follow the label of each tank mix product used for precautionary statements, directions for use, weeds controlled, and geographic and other restrictions. Use in accordance with the most restrictive of label limitations and precautions. Do not exceed any active ingredient's maximum use rates when tank mixing. Do not tank mix this product with any product containing a label prohibition against tank mixing with 2,4-D.

Tank Mix Compatibility Testing: A jar test is recommended prior to tank mixing to ensure compatibility of this product and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Mixing with Liquid Nitrogen Fertilizer
This product may be combined with liquid nitrogen fertilizer suitable for foliar application to accomplish broadleaf weed control and fertilization of corn, small grains or pastures in a single operation. Use DMA 4 IVM in accordance with directions for these crops provided in this label. Use liquid fertilizer at rates recommended by the supplier or Extension Service Specialist. Test for mixing compatibility as describe above before mixing in spray tank. A compatibility aid such as Unite or Compex may be needed in some situations. Compatibility is best with liquid fertilizer solutions containing only nitrogen. Mixing with N-P-K solutions may not be satisfactory, even with the addition of a compatibility aid. Pre-mixing 1 part DMA 4 IVM with up to 4 parts water may help in situations when mixing difficulty occurs.

Fill the tank about half full with the liquid fertilizer, then add the required amount of DMA 4 IVM with agitation.. Maintain agitation and complete filling the tank with liquid fertilizer. Apply immediately and continue agitation in spray tank during application. **Do not store the spray mixture.** Application during very cold weather (near freezing) is not advisable.

Sprayer Clean-Out
To avoid injury to desirable plants, equipment used to apply this product should be thoroughly cleaned before re-use or applying other chemicals.

1. Rinse and flush application equipment thoroughly after use at least three times with water. Dispose of all rinse water by application to treatment area or apply to non-cropland area away from water supplies.
2. During the second rinse, add 1 quart of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 min). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Remove nozzles and screens and clean separately.
6. If equipment is to be used to apply another pesticide or agricultural chemical to a 2,4-D susceptible crop, additional steps may be required to remove all traces of 2,4-D, including cleaning of disassembled parts and replacement of hoses or other fittings that may contain absorbed 2,4-D.

Application

Apply with calibrated air or ground equipment using sufficient spray volume to provide adequate coverage of target weeds or as otherwise directed in specific use directions. For broadcast application, use a spray volume of 3 gallons or more per acre by air and 10 gallons or more per acre for ground equipment. Where states have regulations which specify minimum spray volumes, they should be observed. In general, spray volume should be increased as crop canopy, height and weed density increase in order to obtain adequate spray coverage. **Do not apply less than 3 gallons total spray volume per acre.**

Rate Ranges and Application Timing
The lower dosages given will be satisfactory for young, succulent growth of sensitive weed species. For less sensitive species and under conditions where control is more difficult, the higher dosages will be needed. Apply DMA 4 IVM during warm weather when weeds are young and actively growing.

Spot Treatments
To prevent misapplication, spot treatments should be applied with a calibrated boom or with hand sprayers using a fixed spray volume per 1000 sq ft as indicated below.

Hand-Held Sprayers: Hand-held sprayers may be used for spot applications of DMA 4 IVM. Care should be taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based upon the application rate for an area of 1000 sq ft. Mix the amount of DMA 4 IVM (fl oz or ml) corresponding to the desired broadcast rate in 1 to 3 gallons of spray. To calculate the amount of DMA 4 IVM required for larger areas, multiply the table value (fl oz or ml) by the thousands of sq ft to be treated. An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

Rate Conversion Table for Spot Treatment:

Label Broadcast Rate (pint/acre)							
1/2	2/3	3/4	1	2	3	4	8
Equivalent Amount of DMA 4 IVM per 1000 sq ft							
1/5 fl oz[1] (5.5 ml)	1/4 fl oz (7.3 ml)	1/3 fl oz (8.3 ml)	3/8 fl oz (11 ml)	3/4 fl oz (22 ml)	1 fl oz (33 ml)	1 1/2 fl oz (44 ml)	3 fl oz (88 ml)

[1]Conversion factors: 1 fl oz = 29.6 (30) ml

Band Application: DMA 4 IVM may be applied as a band treatment. Use the formulas below to determine the appropriate rate and volume per treated acre.

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Band rate per treated acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Band volume per treated acre}$$

CLEAN LAKES

Weeds Controlled

Annual or Biennial Weeds

beggarticks[1]
bittercress, smallflowered
bitterweed
broomweed, common[1]
burdock, common
buttercup, smallflowered[1]
carpetweed
cinquefoil, common
cinquefoil, rough
cocklebur, common
coffeeweed
copperleaf, Virginia
croton, Texas
croton, woolly
flixweed
galinsoga
geranium, Carolina
hemp, wild
horseweed (marestail)
jewelweed
jimsonweed
knotweed[1]
kochia
lambsquarters, common
lettuce, prickly[1]
lettuce, wild
lupines
mallow, little[1]
mallow, Venice[1]
marshelder
morningglory, annual
morningglory, ivy
morningglory, woolly
mousetail
mustards (except blue mustard)
parsnip, wild
pennycress, field
pepperweed[1]
pigweeds (*Amaranthus* spp.)[1]
poorjoe
primrose, common
purslane, common
pusley, Florida
radish, wild
ragweed, common
ragweed, giant
rape, wild
rocket, yellow
salsify, common[1]
salsify, western[1]
shepherdspurse
sicklepod
smartweed (annual species)[1]
sneezeweed, bitter
sowthistle, annual
sowthistle, spiny
spanishneedles
sunflower
sweetclover
tansymustard
thistle, bull
thistle, musk[1]
thistle, Russian (tumbleweed)[1]
velvetleaf
vetches

Perennial Weeds

alfalfa[1]
artichoke, Jerusalem[1]
aster, many-flower[1]
Austrian fieldcress[1]
bindweed (hedge, field and European)[1]
blue lettuce
blueweed, Texas
broomweed
bullnettle[1]
carrot, wild[1]
catnip
chicory
clover, red[1]
coffeeweed
cress, hoary[1]
dandelion[1]
docks[1]
dogbanes[1]
eveningprimrose, cutleaf
garlic, wild[1]
goldenrod
hawkweed, orange[1]
healall
ironweed, western
ivy, ground[1]
Jerusalem artichoke
loco, bigbend
nettles (including stinging)[1]
onion, wild[1]
pennywort
plantains
ragwort, tansy[1]
sowthistle, perennial
thistle, Canada[1]
vervains[1]
waterplantain
wormwood

[1]These weeds are only partially controlled and may required repeat applications and/or use of higher specified rates of this product even under ideal conditions of application.

Specific Use Directions

Forestry and Non-Cropland Areas

Agricultural Use Requirements for Forest Use (Except Tree Injection Use): For use in forests, follow PPE and re-entry instructions in the Agricultural Use Requirements section under the Directions for Use heading of this label.

Agricultural Use Requirements for Forest (Tree Injection Only) and Non-Cropland Areas: When this product is applied to non-cropland areas, and when applied by tree injection in forest sites, follow re-entry requirements given in the Non-Agricultural Use Requirements section under the Directions for Use heading of this label.

Forestry Uses
Forest site preparation, forest roadsides, brush control, established conifer release (including Christmas trees and reforestation areas)

Treatment Site/ Method of Application	DMA 4 IVM	Specific Use Directions
annual weeds biennial and perennial broadleaf weeds and susceptible woody plants	2 - 4 pt/acre 4 - 8 pt/acre	Apply when weeds are small and growing actively before the bud stage. Apply when biennial and perennial species are in the seedling to rosette stage and before flower stalks appear. For difficult to control perennial broadleaf weeds and woody species, use up to 1 gallon of DMA 4 IVM and 1 to 4 quarts of Garlon® 3A herbicide per acre. For conifer release, make application in early spring before budbreak of conifers when weeds are small and actively growing.
spot treatment to control broadleaf weeds	1.28 fl oz/gal of spray solution (see instructions for Spot Treatment)	Note: To control broadleaf weeds in small areas with a hand sprayer, use an application rate equivalent to the specified broadcast rate and spray to thoroughly wet all foliage. Mix 1.28 fl oz per gallon of spray solution and apply through pump up sprayer or backpack sprayer. Addition of a non ionic surfactant is recommended to improve coverage. See rate conversion table and instructions for Spot Treatment and use of hand-held sprayers under Application.
conifer release: species such as white pine, ponderosa pine, jack pine, red pine, black spruce, white spruce, red spruce, and balsam fir	1 1/2 - 3 qt/acre	To control competing hardwood species such as alder, aspen, birch, hazel, and willow, apply from mid to late summer when growth of conifer trees has hardened off and woody plants are still actively growing. Apply with ground or air equipment, using sufficient spray volume to ensure complete coverage. Because this treatment may cause occasional conifer injury, do not apply if such injury cannot be tolerated.
directed spray: Conifer plantations including pine	4 qt/100 gal	Apply when brush or weeds are actively growing by directing the spray so as to avoid contact with conifer foliage and injurious amounts of spray. Apply in oil, oil-water, or water carrier in a spray volume of 10 to 100 gallons per acre.
basal spray (may also be used in rangeland, pastures, and noncropland)	8 qt/100 gal or	Thoroughly wet the base and root collar of all stems until the spray begins to accumulate around the root collar at the ground line. Wetting stems with the mixture may also aid in control.
surface of cut stumps (may also be used in rangeland, pastures, and noncropland)	2.5 fl oz/gal of water	Apply as soon as possible after cutting trees. Thoroughly soak the entire stump with the 2,4-D mixture including cut surface, bark and exposed roots.
frill and girdle (may also be used in rangeland, pastures, and noncropland)		Cut frills (overlapping V-shaped notches cut downward through the bark in a continuous ring around the base of the tree) using an axe or other suitable tool. Treat freshly cut frills with as much of the 2,4-D mixture as they will hold.

Forestry Uses
Forest site preparation, forest roadsides, brush control, established conifer release (including Christmas trees and reforestation areas) (Cont.)

Treatment Site/ Method of Application	DMA 4 IVM	Specific Use Directions
tree injection application (may also be used in rangeland, pastures, and noncropland)	(1 - 2 ml per injection site)	To control unwanted hardwood trees such as elm, hickory, oak, and sweetgum in forests and other non-crop areas, apply by injecting at a rate of 1 ml of undiluted DMA 4 IVM per inch of trunk diameter at breast height (DBH) as measured approximately 4 1/2 ft above the ground. However, injection should occur as close to the root collar as possible and the injection bit must penetrate the inner bark. Applications may be made throughout the year, but for best results apply between May 15 and October 15. Maples should not be treated during the spring sap flow. For hard to control species such as ash, maple, and dogwood use 2 ml of undiluted DMA 4 IVM per injection site or double the number of 1 ml injections. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.**

Precautions and Restrictions:
- Do not allow sprays to contact conifer shoot growth (current year's new growth) or injury may occur.
- Do not apply to nursery seed beds.
- For conifer release, do not use on plantations where pine or larch are among the desired species.
- For broadcast applications, do not apply more than 8.42 pints of DMA 4 IVM (4 lb of acid equivalent) per acre per 12-month period.
- Limited to 1 broadcast application per year
- For basal spray, cut surface stumps, and frill applications, do not apply more than 16.84 pints of DMA 4 IVM (8 lb of acid equivalent) per 100 gallons of spray solution.

Non-Cropland Areas
Such as fencerows, hedgerows, roadsides, drainage ditches, rights-of way, utility power lines, railroads, airports, and other non-crop areas

Treatment Site/ Method of Application	DMA 4 IVM (pint/acre)	Specific Use Directions
annual broadleaf weeds biennial and perennial broadleaf weeds susceptible woody plants on rights-of-way	2 - 4 4 4 - 8	Apply when annual weeds are small and growing actively before the bud stage. Biennial and perennial weeds should be rosette to bud stage, but not flowering at the time of application. For difficult to control perennial broadleaf weeds and woody species, tank mix up to 1 gallon of DMA 4 IVM plus 1 to 4 quarts of Garlon 3A per acre. For ground application: (High volume) apply a total of 100 to 400 gallons per acre; (low volume) apply a total of 10 to 100 gallons per acre. For helicopter: Apply a total of 5 to 30 gallons per acre spray volume.
spot treatment to control broadleaf weeds	1.28 fl oz/gal of spray solution (see instructions for Spot Treatment)	Note: To control broadleaf weeds in small areas with a hand sprayer, use an application rate equivalent to the broadcast rate specified for this treatment site and spray to thoroughly wet all foliage. Mix 1.28 fl oz per gallon of spray solution and apply through pump up sprayer or backpack sprayer. Addition of a non ionic surfactant is recommended to improve coverage. See rate conversion table and instructions for Spot Treatment and use of hand-held sprayers under Application.
tree injection application		See instructions for tree injection application in Forestry Uses section.
southern wild rose broadcast application spot treatment	up to 4 1.28 fl oz/gal of spray solution	Broadcast: Apply in a spray volume of 5 gallons or more per acre by aircraft or 10 gallons or more per acre by ground equipment. Apply when foliage is well developed. Thorough coverage is required. Mix 1.28 fl oz per gallon of spray solution and apply through pump up sprayer or backpack sprayer. Addition of a non ionic surfactant is recommended to improve coverage. Two or more treatments may be required.

Precautions and Restrictions:
- Do not apply to newly seeded areas until grass is well established.
- Bentgrass, St. Augustine, clover, legumes and dichondra may be severely injured or killed by this treatment.
- **Annual and perennial weeds:** Do not apply more than 4.21 pints of DMA 4 IVM (2 lb of acid equivalent) per acre per application. Do not make more than two applications per season. Do not reapply to a treated area within 30 days of a previous application.
- **Woody plants:** Do not apply more than 8.42 pints of DMA 4 IVM (4 lb of acid equivalent) per acre per use season. Do not make more than one application per season.
- Applications to non-cropland areas are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial uses, or for commercial seed production, or for research purposes.

Turfgrass Uses

Ornamental Turfgrass (Excluding Grasses Grown for Seed or Sod Farms)
(Includes cemeteries and parks, airfields, roadsides, vacant lots, drainage ditch banks)

Use Requirements for Ornamental Turfgrass Areas: When this product is applied to ornamental turfgrass areas, follow PPE and reentry instructions in the Non-Agricultural Use Requirements section of this label.

Treatment Site/ Application Timing	DMA 4 IVM (pint/acre)	Specific Use Directions
ornamental turfgrass (postemergence) seedling grass (five-leaf stage or later)	3/4 - 1	Apply when weeds are small and actively growing. For best results, apply when soil moisture is adequate for active weed growth. Deep-rooted perennial weeds such as bindweed and Canada thistle may require repeat applications. Do not apply to newly seeded grasses until well established (five-leaf stage or later) and then use a maximum of 1 pint per acre. Cool season grasses are tolerant of higher rates.
well-established grasses	2 - 3	
biennial and perennial broadleaf weeds	3	

Precautions and Restrictions:
- Do not use on creeping grasses such as bent except as a spot treatment.
- Do not use on injury-sensitive southern grasses such as St. Augustinegrass.
- Do not use on dichondra or other herbaceous ground covers. Legumes may be damaged or killed.
- Do not reapply within 21 days of a previous application.
- **Reseeding:** Delay reseeding at least 30 days following application. Preferably, with spring application, reseed in the fall and with fall application, reseed in the spring.
- Do not apply more than 2 broadcast applications per year per treatment site (does not include spot treatments).
- Do not apply more than 6.32 pints per acre of DMA 4 IVM (3 lb of acid equivalent) per year.

Aquatic Uses

Use Requirements for Aquatic Areas: When this product is applied to aquatic areas, follow PPE and re-entry instructions in the Non-Agricultural Use Requirements section of this label.

Control of Weeds and Brush on Banks of Irrigation Canals and Ditches

Target Plants	DMA 4 IVM (pint/acre)	Specific Use Directions
annual weeds	2 to 4	Apply using low pressure spray (10 to 40 psi) in a spray volume of 20 to 100 gallons per acre using power operated spray equipment. Apply when wind speed is low, 5 mph or less. Apply working upstream to avoid accidental concentration of spray into water. Cross-stream spraying to opposite banks is not permitted and avoid boom spraying over water surface. When spraying shoreline weeds, allow no more than a 2-foot overspray onto water surface with an average of less than 1 foot of overspray to prevent significant water contamination. Apply when weeds are small and growing actively before the bud stage. Apply when biennial and perennial species are in the seedling to rosette stage and before flower stalks appear. For hard to control weeds, a repeat application after 30 days at the same rate may be needed. For woody species and patches of perennial weeds, mix 1 gallon of DMA 4 IVM per 64 to 150 gallons of total spray. Wet foliage by applying about 3 to 4 gallons of spray per 1000 sq ft (10.5 X 10.5 steps).
biennial and perennial broadleaf weeds and susceptible wood plants	4	

Restrictions and Limitations:
- Do not apply more than 2 treatments per season or reapply within 30 days.
- Use 2 gallons or more of spray solution per acre.
- Do not apply more than 4.21 pints (2 lb of acid equivalent) per acre per application or more than 8.42 pints (4 lb of acid equivalent) per acre per use season.

Do not use on small canals with a flow rate less than 10 cubic feet per second (CFS) where water will be used for drinking purposes. CFS may be estimated by using the formula below. The approximate velocity needed for the calculation can be determined by observing the length of time that it takes a floating object to travel a defined distance. Divide the distance (ft) by the time (sec) to estimate velocity (ft per sec). Repeat 3 times and use the average to calculate CFS.

Average Width (ft) x Average Depth (ft) x Average Velocity (ft per sec) = CFS

For ditchbank weeds: Do not spray cross-stream to opposite bank. Do not allow boom spray to be directed onto water.

For shoreline weeds: Boom spraying onto water surface must be held to a minimum and allow no more than a 2-foot overspray onto water with an average of less than 1 foot overspray to prevent introduction of greater than negligible amounts of chemical into the water.

Aquatic Weed Control in Ponds, Lakes, Reservoirs, Marshes, Bayous, Drainage Ditches, Canals, Rivers and Streams That are Quiescent or Slow Moving, Including Programs of the Tennessee Valley Authority

Notice to Applicators: Before application, coordination and approval of local and state authorities may be required, either by letter or agreement or issuance of special permits for aquatic applications.

Emergent and Floating Aquatic Weeds: Including Water hyacinth (*Eichornia crassipe*)
Application Rate: 2 to 4 quarts per acre.

Specific Use Directions
Application Timing: Spray weed mass only. Apply when water hyacinth plants are actively growing. Repeat application as necessary to kill regrowth and plants missed in previous operation. Use the 4 quart per acre rate when plants are mature or when weed mass is dense.

Surface Application: Use power operated sprayers with boom or spray gun mounted on boat, tractor or truck. Thorough wetting of foliage is essential for maximum control. Use 100 to 400 gallons of spray mixture per acre. Special precautions such as use of low pressure, large nozzles and spray thickening agents should be taken to avoid spray drift to susceptible crops. Follow label directions for use of any drift control agent.

Aerial Application: Use drift control spray equipment or thickening agent mixed in the spray mixture. Apply 1 gallon of DMA 4 IVM per acre using standard boom systems using a minimum spray volume of 5 gallons per acre. For Microfoil drift control spray systems, apply DMA 4 IVM in a total spray volume of 12 to 15 gallons per acre.

Restrictions and Limitations for Surface Applications to Emergent Aquatic Weeds
- Do not exceed 8.42 pints per acre (4 lb of acid equivalent) per surface acre per
- Spot treatments are permitted.
- Limited to two applications per season.
- Minimum of 21 days between applications.

Fish breathe dissolved oxygen in the water and decaying weeds also use oxygen. When treating continuous, dense weed masses, it may be appropriate to treat only part of the infestation at a time. For example, apply the product in lanes separated by untreated strips that can be treated after vegetation in treated lanes has disintegrated. During the growing season, weeds decompose in a 2 to 3 week period following

treatment. Waters having limited and less dense weed infestations may not require partial treatments. Other local factors such as water exchange and sediment load can also influence the dissolved oxygen level. Coordination and approval of local and state authorities may be required, either by letter of agreement or issuance of special permits for aquatic applications.

Water Use:

1. **Water for irrigation or sprays:**
   - A. If treated water is intended to be used only for crops or non-crop areas that are labeled for direct treatment with 2,4-D such as pastures, turfgrass or cereal grains, the treated water may be used to irrigate and/or mix sprays for these sites at anytime after the 2,4-D aquatic application.
   - B. Due to potential phytotoxicity considerations, the following restrictions are applicable: If treated water is intended to be used to irrigate or mix sprays for plants grown in commercial nurseries and greenhouses; and other plants or crops that are not labeled for direct treatment with 2,4-D, the water must not be used unless one of the following restrictions has been observed:
     - i. A setback distance from functional water intake(s) of ≥600 ft. was used for the application, or,
     - ii. A waiting period of 7 days from the time of application has elapsed, or,
     - iii. An approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less at the water intake. Wait at least 3 days after application before initial sampling at water intake.
2. **Drinking water (potable water):**
   - A. Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits. The potable water use restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of 2,4-D in the water is less than the MCL (Maximum Contaminant Level) of 70 ppb. Applicators should consider the unique characteristics of the treated waters to assure that 2,4-D concentrations in potable water do not exceed 70 ppb at the time of consumption.
   - B. For floating and emergent weed applications, the drinking water setback distance from functioning potable water intakes is ≥600 ft.
   - C. If no setback distance of ≥600 ft. is used for the application, applicators or the authorizing organization must provide a drinking water notification prior to a 2,4-D application to the party responsible for a public water supply or to individual private water users. Notification to the party responsible for a public water supply or to individual private water users must be done in a manner to assure that the party is aware of a water use restrictions when this product is applied to potable water.

The following is an example of an example of notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

Example:
Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points. Posting must include the day and time of application. Posting may be removed if analysis of a sample collected at the intake 3 days or more following application shows that the concentration in the water is less than 70 ppb (100 ppb for irrigation or sprays), or after 7 days following application, whichever occurs first.

Text of notification: Wait 7 days before diverting functioning surface water intakes from the treated aquatic site to use as drinking water, irrigation, or sprays, unless water at functioning drinking water intakes is tested at least 3 days after application and is demonstrated by assay to contain not more than 70 ppb 2,4-D (100 ppb for irrigation or sprays).
Application Date: ____ Time: _____.

- D. Following each application of this product, treated water must not be used for drinking water unless one of th following restrictions has been observed:
  - i. A setback distance from functional water intake(s) of ≥600 ft. was used for the application, or,
  - ii. A waiting period of at least 7 days from the time of application has elapsed, or,
  - iii. An approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) or less at the water intake. Sampling for drinking water analysis should occur no sooner than 3 days after 2,4-D application. Analysis of samples must be completed by a laboratory that is certified under the Safe Drinking Water Act to perform drinking water analysis using a currently approved version of analytical Method Number 515, 555, other methods for 2,4-D as may be listed in Title 40 CFR Part 141.24, or Method Number 4015 (immunoassay of 2,4-D) from U.S. EPA Test Methods for Evaluating Solid Waste SW-846.
- E. Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.
- F. Drinking water setback distances do not apply to terrestrial applications of 2,4-D adjacent to water bodies with potable water intakes.

Submerged Aquatic Weeds: Including Eurasian Water Milfoil (*Myriophyllum spicatum*)

Treatment Site	Maximum Application Rate[1]	Specific Use Directions
aquatic weed control in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, canals, rivers and streams that are quiescent or slow moving, including programs of the Tennessee Valley Authority	2.84 gallons (10.8 lb of acid equivalent) per acre foot	**Application Timing:** For best results, apply in spring or early summer when aquatic weeds appear. Check for weed growth in areas heavily infested the previous year. A second application may be needed when weeds show signs of recovery, but no later than mid-August in most areas. **Subsurface Application:** Apply DMA 4 IVM undiluted directly to the water through a boat mounted distribution system. Shoreline areas should be treated by subsurface injection application by boat to avoid aerial drift. **Surface Application:** Use power operated boat mounted boom sprayer. If rate is less than 5 gallons per acre, dilute to a minimum spray volume of 5 gallons per surface acre. **Aerial Application:** Use drift control spray equipment or thickening agents mixed with sprays to reduce drift. Apply through standard boom systems in a minimum spray volume of 5 gallons per surface acre. For Microfoil drift control spray systems, apply DMA 4 IVM in a total spray volume of 12 to 15 gallons per acre. Apply to attain a concentration of 2 to 4 ppm (see table below).

[1]DMA 4 IVM contains 3.8 lb of acid equivalent per gallon of product.

Table 1: Amount to Apply for a Target Subsurface Concentration

Surface Area	Average Depth (ft)	For typical conditions – 2 ppm (2,4-D a.e./acre)	For typical conditions – 2 ppm (DMA 4 IVM gal/acre)	For difficult conditions – 4 ppm* (2,4-D a.e./acre)	For difficult conditions – 4 ppm* (DMA 4 IVM gal/acre)
1 acre	1	5.4	1.42	10.8	2.84
	2	10.8	2.84	21.6	5.68
	3	16.2	4.26	32.4	8.53
	4	21.6	5.68	43.2	11.37
	5	27.0	7.10	54.0	14.21

*Examples include spot treatments of pioneer colonies of eurasian water milfoil and certain difficult to control aquatic species.

Restrictions and Limitations for Aquatic Sites With Submersed Weeds
Do not exceed 10.8 lb acid equivalent per acre foot.

Fish breathe oxygen in the water and a water-oxygen ratio must be maintained. Decaying weeds use up oxygen, but during the period when applications should be made, the weed mass is fairly sparse and the weed decomposition rate is slow enough that the water-oxygen ratio is not disturbed by treating the entire area at one time. If treatments must be applied later in the season when the weed mass is dense and repeat treatments are needed, apply product in lanes, leaving buffer strips which can then be treated when vegetation in treated lanes has disintegrated. During the growing season, weeds decompose in a 2- to 3-week period following treatment.

Do not apply within 21 days of previous application. Limited to 2 applications per season.

When treating moving bodies of water, applications must be made while traveling upstream to prevent concentration of 2,4-D downstream from the application.

Coordination and approval of local and state authorities may be required, either by letter of agreement or issuance of special permits for such use.

Water Use:

1. **Water for irrigation or sprays:**
   - A. If treated water is intended to be used only for crops or non-crop areas that are labeled for direct treatment with 2,4-D such as pastures, turfgrass or cereal grains, the treated water may be used to irrigate and/or mix sprays for these sites at anytime after the 2,4-D aquatic application.
   - B. Due to potential phytotoxicity and/or residue considerations, the following restrictions are applicable:

     If treated water is intended to be used to irrigate or mix sprays for unlabeled crops, non-crop areas or other plants not labeled for direct treatment with 2,4-D, the water must not be used unless one of the following restrictions has been observed:
     - i) A setback distance described in the Drinking Water Setback Table was used for the application, or,
     - ii) A waiting period of 21 days from the time of application has elapsed, or,
     - iii) An approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less at the water intake. See Table 3 for the waiting period after application but before taking the initial sampling at water intake.

2. **Drinking water (potable water):**
   - A. Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits. The potable water use restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of 2,4-D in the water is less than the MCL (Maximum Contaminant Level) of 70 ppb. Applicators should consider the unique characteristics of the treated waters to assure that 2,4-D concentrations in potable water do not exceed 70 ppb at the time of consumption.
   - B. For submersed weed applications, the drinking water setback distances from functioning potable water intakes are provided in Table 2 Drinking Water Setback Distance (below).
   - C. If no setback distance from the Drinking Water Setback Table (Table 2) is to be used for the application, applicators or the authorizing organization must provide a drinking water notification and an advisory to shut off all potable water intakes prior to a 2,4-D application. Notification to the party responsible for a public water supply or to individual private water users must be done in a manner to assure that the party is aware of the water use restrictions when this product is applied to potable water.

     The following is an example of an example of notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

     Example:
     Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points. Posting should include the day and time of application. Posting may be removed if analysis of a sample collected at the intake no sooner than stated in Table 3 (below) shows that the concentration in the water is less than 70 ppb (100 ppb for irrigation or sprays), or after 21 days following application, whichever occurs first.

     Text of notification: Wait 21 days before diverting functioning surface water intakes from the treated aquatic site to use as drinking water, irrigation, or sprays, unless water at functioning drinking water intakes is tested no sooner than (insert days from Table 3) and is demonstrated by assay to contain not more than 70 ppb 2,4-D (100 ppb for irrigation or sprays).
     Application Date: _____ Time: _____ .
   - D. Following each application of this product, treated water must not be used for drinking water unless one of the following restrictions has been observed:
     - i) A setback distance described in the Drinking Water Setback Distance Table was used for the application, or,
     - ii) A waiting period of at least 21 days from the time of application has elapsed, or,
     - iii) An approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) or less at the water intake. Sampling for drinking water analysis should occur no sooner than stated in Table 3. Analysis of samples must be completed by a laboratory that is certified under The Safe Drinking Water Act to perform drinking water analysis using a currently approved version of analytical Method Number 515, 555, other methods for 2,4-D as may be listed in Title 40 CFR, Part 141.24, or Method Number 4015 (immunoassay of 2,4-D) from U.S. EPA Test Methods for Evaluating Solid Waste SW-846.
   - E. Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.
   - F. Drinking water setback distances do not apply to terrestrial applications of 2,4-D adjacent to water bodies with potable water intakes.

Table 2: Drinking Water Setback Distance for Submersed Weed Applications

Application Rate and Minimum Setback Distance (feet) From Functioning Potable Water Intake			
1 ppm*	2 ppm*	3 ppm*	4 ppm*
600	1200	1800	2400

*ppm acid equivalent target water concentration

Table 3: Sampling for Drinking Water Analysis After 2,4-D Application for Submersed Weed Applications

Minimum Days After Application Before Initial Water Sampling at the Functioning Potable Water Intake			
1 ppm*	2 ppm*	3 ppm*	4 ppm*
5	10	10	14

*ppm acid equivalent target water concentration

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 Limitation 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.

Inherent Risks of Use

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.

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 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.

To the extent permitted by law, 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 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 Limitation of Remedies in any manner.

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

Label Code: D02-141-004
Replaces Label: D02-141-003
LOES Number: 010-00108

EPA accepted 06/14/10

Revisions:
1. Goggles or faceshield changed to protective eyewear.

Dow AgroSciences

Material Safety Data Sheet
Dow AgroSciences LLC

Product Name: DMA* 4 IVM Herbicide

Issue Date: 11/18/2010
Print Date: 22 Dec 2010

Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
DMA* 4 IVM Herbicide

COMPANY IDENTIFICATION
Dow AgroSciences LLC
A Subsidiary of The Dow Chemical Company
9330 Zionsville Road
Indianapolis, IN 46268-1189
USA

Customer Information Number: 800-992-5994
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 800-992-5994
Local Emergency Contact: 352-323-3500

2. Hazards Identification

Emergency Overview
Color: Brown
Physical State: Liquid.
Odor: Musty
Hazards of product:

DANGER! Combustible liquid and vapor. Causes severe eye burns. May cause skin irritation. Evacuate area. Keep upwind of spill. Toxic fumes may be released in fire situations.

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects
Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin Contact: Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. May cause more severe response on covered skin (under clothing, gloves).
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: No adverse effects are anticipated from single exposure to mist.
Ingestion: 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.
Effects of Repeated Exposure: For the active ingredient(s): In animals, effects have been reported on the following organs: Bone marrow. Adrenal gland. Eye. Kidney. Liver. Spleen. Testes. Thyroid.
Birth Defects/Developmental Effects: For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Reproductive Effects: For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

3. Composition Information

Component	CAS #	Amount
2,4-D Dimethylamine Salt	2008-39-1	46.3 %
Ethylenediamine tetraacetic acid	60-00-4	3.0 %
Dimethylamine	124-40-3	1.0 %
2,4-Dichlorophenol	120-83-2	0.1 %
Balance		49.6 %

4. First-aid measures

Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.
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. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.
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.
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.
Notes to Physician: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. 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.

5. Fire Fighting Measures

Extinguishing Media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has

passed. 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.
Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes. Dense smoke is produced when product burns.
Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Ammonia.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.
Personal Precautions: Evacuate area. Refer to Section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. 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.

7. Handling and Storage

Handling
General Handling: Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Use with adequate ventilation. Wash thoroughly after handling. Keep container closed. 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. Keep away from heat, sparks and flame.

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.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Dimethylamine	ACGIH	TWA	5 ppm
	ACGIH	STEL	15 ppm
	OSHA Table Z-1	PEL	18 mg/m3 10 ppm
2,4-Dichlorophenol	AIHA WEEL	TWA	6.7 mg/m3 1 ppm SKIN*

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.
A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.
It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.
*Absorbed rapidly through the skin in molten or heated liquid form in amounts that have caused rapid death in humans.

Personal Protection
Eye/Face Protection: Use chemical goggles. Eye wash fountain should be located in immediate work area.
Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

Hand protection: Use gloves chemically resistant to this material. 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.

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.
Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls
Ventilation: 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.

9. Physical and Chemical Properties

Physical State	Liquid.
Color	Brown
Odor	Musty
Odor Threshold	No test data available
Flash Point - Closed Cup	> 100 °C (> 212 °F) *Closed Cup*
Flammable Limits In Air	**Lower**: No test data available **Upper**: No test data available
Autoignition Temperature	No test data available
Vapor Pressure	No test data available
Boiling Point (760 mmHg)	No test data available.
Vapor Density (air = 1)	No test data available
Specific Gravity (H2O = 1)	
Liquid Density	1.17 g/cm3 @ 20 °C

Freezing Point	No test data available
Melting Point	Not applicable
Solubility in water (by weight)	water based product
pH	8.29 (@ 1 %) *pH Electrode*
Decomposition Temperature	No test data available
Kinematic Viscosity	No test data available

10. Stability and Reactivity

Stability/Instability
Thermally stable at typical use temperatures.
Conditions to Avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Acids. Oxidizers.

Hazardous Polymerization
Will not occur.

Thermal Decomposition
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. Toxic gases are released during decomposition. Decomposition products can include trace amounts of: Ammonia.

11. Toxicological Information

Acute Toxicity
Ingestion
LD50, Rat, female 3,129 mg/kg
Dermal
LD50, Rat, male and female > 5,000 mg/kg
Inhalation
LC50, 4 h, Aerosol, Rat, male and female > 5.34 mg/l
Eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.
Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. May cause more severe response on covered skin (under clothing, gloves).
Sensitization
Skin
Did not demonstrate the potential for contact allergy in mice.
Repeated Dose Toxicity
For the active ingredient(s): In animals, effects have been reported on the following organs: Bone marrow. Adrenal gland. Eye. Kidney. Liver. Spleen. Testes. Thyroid.
Chronic Toxicity and Carcinogenicity
Available data are inadequate to evaluate carcinogenicity. For similar active ingredient(s). Various animal cancer tests have shown no reliably positive association between 2,4-D exposure and cancer. Epidemiology studies on herbicide use have been both positive and negative with the majority being negative.
Carcinogenicity Classifications:

Component	List	Classification
2,4-Dichlorophenol	IARC	Possibly carcinogenic to humans.; 2B

Developmental Toxicity
For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Did not cause birth defects in laboratory animals.

Reproductive Toxicity
For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

Genetic Toxicology
For the active ingredient(s): In vitro genetic toxicity studies were predominantly negative. For the active ingredient(s): Animal genetic toxicity studies were inconclusive

12. Ecological Information

ENVIRONMENTAL FATE

Data for Component: **2,4-D Dimethylamine Salt**

Movement & Partitioning
Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150).
Henry's Law Constant (H): 1.45E-16 atm*m3/mole; 25 °C Estimated using a bond contribution method.
Partition coefficient, n-octanol/water (log Pow): 0.65 Measured
Partition coefficient, soil organic carbon/water (Koc): 72 - 136 Measured
Bioconcentration Factor (BCF): 0.1 - 0.47; fish; Measured

Persistence and Degradability
Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
Stability in Water (1/2-life):
0.5 - 11 d
Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
100 %	100 %	100 %	

Chemical Oxygen Demand: 0.72 mg/mg

Data for Component: **Ethylenediamine tetraacetic acid**

Movement & Partitioning
Henry's Law Constant (H): 7.7E-16 atm*m3/mole Estimated.
Partition coefficient, n-octanol/water (log Pow): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).: -5.005 Estimated.
Partition coefficient, soil organic carbon/water (Koc): Potential for mobility in soil is high (Koc between 50 and 150).: 98
Bioconcentration Factor (BCF): 1.1; fish; Measured

Persistence and Degradability
Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).
OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
37 %	14 d	OECD 302B Test	Not applicable

Theoretical Oxygen Demand: 1.37 mg/mg

Data for Component: **Dimethylamine**

Movement & Partitioning
Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
Henry's Law Constant (H): 1.77E-05 atm*m3/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): -0.38 Measured
Partition coefficient, soil organic carbon/water (Koc): 13 - 435 Estimated.
Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
38 %	62 %	0 %	0 %	0 %

Persistence and Degradability
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.553E-11 cm3/s	0.163 d	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
30 - 100 %	14 d	OECD 301C Test	pass
77 %	13 d	OECD 301E Test	pass
51 %	14 d	OECD 301C Test	fail

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
64 %		100 %	

Theoretical Oxygen Demand: 2.06 mg/mg

Data for Component: **2,4-Dichlorophenol**

Movement & Partitioning
Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is low (Koc between 500 and 2000).
Henry's Law Constant (H): 2.19E-06 atm*m3/mole; 25 °C Measured
Partition coefficient, n-octanol/water (log Pow): 3.06 Measured
Partition coefficient, soil organic carbon/water (Koc): 550 Measured
Bioconcentration Factor (BCF): 34; fish; Measured

Persistence and Degradability
Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
2.98E-12 cm3/s	3.59 d	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
76.000 %	77.000 %	77.000 %	

Theoretical Oxygen Demand: 1.18 mg/mg

ECOTOXICITY

Data for Component: **2,4-D Dimethylamine Salt**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg).

Fish Acute & Prolonged Toxicity
LC50, rainbow trout (Oncorhynchus mykiss), static, 96 h: 100 - 420 mg/l
Aquatic Plant Toxicity
ErC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), Growth rate inhibition, 5 d: 51.2 - 66.5 mg/l
EbC50, diatom Navicula sp., biomass growth inhibition, 5 d: 4.6 - 5.28 mg/l
EbC50, duckweed Lemna sp., biomass growth inhibition, 14 d: 0.58 mg/l
Toxicity to Above Ground Organisms
oral LD50, bobwhite (Colinus virginianus): 500 mg/kg bw/day
dietary LC50, bobwhite (Colinus virginianus): 5620 mg/kg diet.

Data for Component: **Ethylenediamine tetraacetic acid**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity
LC50, fathead minnow (Pimephales promelas), static, 96 h: 59.8 - 300 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, static, 48 h, immobilization: 113 mg/l

Data for Component: **Dimethylamine**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity
LC50, rainbow trout (Oncorhynchus mykiss), 96 h: 17 - 118 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, 24 h, immobilization: 48 - 105 mg/l
Aquatic Plant Toxicity
EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), biomass growth inhibition, 96 h: 9 mg/l
Toxicity to Micro-organisms
NOEC; bacteria: 1,000 mg/l

Data for Component: **2,4-Dichlorophenol**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity
LC50, fathead minnow (Pimephales promelas), flow-through: 6.7 - 11.6 mg/l
LC50, goldfish (Carassius auratus), flow-through, 4 h: 1.24 - 1.76 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, 24 h, immobilization: 2.50 - 6.0 mg/l
EC50, water flea Daphnia magna, 48 h: 1.4 - 5.1 mg/l
Aquatic Plant Toxicity
LC50, alga Scenedesmus sp., biomass growth inhibition, 48 h: 11.5 mg/l
Toxicity to Micro-organisms
EC50; activated sludge: 52.5 mg/l
EC50; bacteria: 55 - 75 mg/l
Toxicity to Soil Dwelling Organisms
LC50, Earthworm Eisenia foetida, adult, 2 d: 0.0025 mg/cm2

13. Disposal Considerations

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 Non-Bulk
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: CONTAINS 2,4-D SALT
Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** PG III

DOT Bulk

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: CONTAINS 2,4-D SALT
Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** PG III

IMDG
NOT REGULATED

ICAO/IATA
NOT REGULATED
Additional Information

Reportable quantity: 216 lb – 2,4 D SALT

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. 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.

15. Regulatory Information

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	Yes
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
Dimethylamine	124-40-3	1.0%
Chlorophenols		0.1%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Ethylenediamine tetraacetic acid	60-00-4	3.0%
Dimethylamine	124-40-3	1.0%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:
The following product components are cited in the Pennsylvania Special Hazardous Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Chlorophenols		0.1%

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS #	Amount
Ethylenediamine tetraacetic acid	60-00-4	3.0%
Dimethylamine	124-40-3	1.0%
2,4-Dichlorophenol	120-83-2	0.1%

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA)
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	3	2	1

Revision
Identification Number: 53061 / 1016 / Issue Date 11/18/2010 / Version: 1.10
DAS Code: XRM-4436
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

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.

AQUATHOL® K

AQUATIC HERBICIDE

For aquatic plant control in quiescent, slow moving, and flowing water aquatic sites.

ACTIVE INGREDIENT:	
Dipotassium salt of endothall*	40.3%
OTHER INGREDIENTS:	59.7%
TOTAL	100.0%

Contains 4.23 lbs. dipotassium endothall* per gallon

*7-oxabicyclo [2.2.1]heptane-2,3-dicarboxylic acid equivalent 28.6%

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

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.
- 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 by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

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 INHALED:
- Move person to fresh air.
- If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 866-673-6671 (Rocky Mountain Poison Control Center) for emergency medical treatment information.

See inside for additional precautionary statements.

NOTE TO PHYSICIAN: Measures against circulatory shock, respiratory depression, and convulsion may be needed.

EPA Registration No. 70506-176

Batch/Lot No.: _____

Net Contents: _____

UPI
United Phosphorus, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406
1-800-438-6071

CLEAN LAKES

PRODUCT INFORMATION

Aquathol K is a liquid concentrate soluble in water which is effective against a broad range of aquatic plants. Dosage rates indicated for the application of Aquathol K are measured in parts per million (ppm) of dipotassium endothall.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. AVOID BREATHING VAPORS OR SPRAY MIST. PROLONGED OR FREQUENTLY REPEATED SKIN CONTACT MAY CAUSE ALLERGIC REACTIONS IN SOME INDIVIDUALS.

Personal Protective Equipment (PPE)

Mixers, Loaders, Applicators and other handlers must wear:

- Long-sleeved shirt and long pants,
- Shoes and socks,
- Chemical-resistant gloves made of any waterproof material,
- Protective eyewear,
- NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P, or HE filter.

  Exception: During application, the respirator need not be worn, provided that the pesticide is applied in a manner (such as direct metering or subsurface application from the rear of a vessel that is moving into the wind) such that the applicator will have no contact with the pesticide.

See Engineering Controls for additional requirements.

User Safety Requirements:

Follow the manufacturers' 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.

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

Engineering Controls:

When mixers and loaders use a closed system designed by the manufacturer to enclose the pesticide to prevent it from contacting handlers or other people AND the system is functioning properly and is used and maintained in accordance with the manufacturers written operating instructions, the handlers need not wear a respirator, provided the required respirator is immediately available for use in an emergency such as a spill or equipment breakdown.

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

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- 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.

ENVIRONMENTAL HAZARDS

Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

This pesticide is toxic to mammals.

Treatment of aquatic plants can result in oxygen loss from decomposition of dead plants. This loss can cause fish suffocation. Water bodies containing very high plant density should be treated in sections to prevent suffocation of fish.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift.

- For quiescent or slow moving water treatments: Waters treated with Aquathol K may be used for swimming, fishing, and irrigating turf, ornamental plants and crops immediately after treatment with the following exceptions: Do not use the Aquathol K treated water to irrigate the following for 7 days after the treatment: annual nursery or greenhouse crops including hydroponics and newly seeded or transplanted annual crops, newly seeded or transplanted ornamentals, and newly sodded or seeded turf. Do not use treated water for animal consumption within the following periods:

  0.5 ppm dipotassium salt – 7 days after application

  4.25 ppm dipotassium salt – 14 days after application

  5.0 ppm dipotassium salt – 25 days after application
- For flowing water treatments: Waters treated with Aquathol K may be used for swimming, fishing, livestock watering, and irrigating turf, ornamental plants and crops immediately after treatment with the following exceptions: Do not use the Aquathol K treated water to irrigate the following: annual nursery or greenhouse crops including hydroponics and newly seeded or transplanted annual crops, newly seeded or transplanted ornamentals, and newly sodded or seeded turf.
- Phytotoxicity is not expected on plants or crops irrigated with Aquathol K treated water, however, all species and cultivars (varieties) have not been tested.
- Undiluted Aquathol K may be injurious to crops, grass, ornamentals, and other foliage.
- Do not use Aquathol K treated water for chemigation as interactions between Aquathol K and other pesticides and fertilizers are not known.
- Do not use Aquathol K in brackish or saltwater.
- Wash out spray equipment with water after each operation.
- Avoid contact of spray concentrate (product) directly or by drift with non-target plants or crops as injury may result.

HOW TO APPLY:

Aquathol K is a contact herbicide; consequently, apply when target plants are present.

Aquathol K should be sprayed on the water or injected below the water surface. It may be applied as a concentrate or diluted with water depending on the equipment.

In instances where the plant(s) to be controlled is an exposed surface problem (i.e., some of the broad-leaved pond weeds) coverage is important. For best results, apply the concentrate with the least amount of water compatible with the application equipment.

Drinking Water (Potable Water)

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

The drinking water (potable water) restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of endothall acid in the water is less than the MCL (Maximum Contamination Level) of 0.1 ppm. Applicators should consider the unique characteristics of the treated waters to assure that endothall acid concentrations in potable drinking water do not exceed 0.1 ppm at the time of consumption.

For Lakes, Ponds, and other Quiescent Water Bodies:

- For Aquathol K applications, the drinking water setback distance from functioning potable water intakes in the treated water body must be greater than or equal to 600 feet.
- Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.

For Irrigation Canals and other Flowing Water Bodies:

- Applicator is responsible to assure that treated water does not enter potable water intakes. For Aquathol K applications, potable water intakes must be closed when treated water is present at the intake. In the event the water intake cannot be closed, treatments must only be made downstream from the intake in order to assure Aquathol K treated water does not enter the potable water system.

QUIESCENT OR SLOW MOVING WATER TREATMENTS: SURFACE OR INJECTED APPLICATIONS

For aquatic plant control in quiescent or slow moving water, Aquathol K recommended use rates can be found in the following chart. Since the active ingredient is water soluble and tends to diffuse from the treated area, select the dosage rate applicable to the area to be treated. Marginal treatments of large bodies of water require higher rates as indicated.

Use higher labeled rates of Aquathol K when making treatments to small areas with an increased potential for rapid dilution or when treating narrow areas such as boat lanes or shoreline treatments where dilution may reduce the exposure of plants to Aquathol K.

Use lower labeled rates of Aquathol K for large contiguous treatment blocks or in protected areas such as coves where reduced water movement will not result in rapid dilution of Aquathol K from the target treatment area or when treating entire lakes or ponds.

PLANTS CONTROLLED AND AQUATHOL K DOSAGE RATE CHART

	APPLICATION RATE			
	Entire Pond/Lake or Large Area Treatment		Spot or Lake Margin Treatment	
Aquatic Plant	ppm Dipotassium Endothall	gallons Aquathol K per Acre Ft.	ppm Dipotassium Endothall	gallons Aquathol K per Acre Ft.
Bur Reed, Sparganium spp.	3.0-4.0	1.9-2.6	4.0-5.0	2.6-3.2
Coontail, Ceratophyllum spp.	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Horned Pondweed, Zannichellia palustris	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Sago Pondweed, Stuckenia pectinata	1.0-2.0	0.6-1.3	2.0-5.0	1.3-3.2
Hydrilla, Hydrilla verticillata	1.0-4.0	0.6-2.6	2.0-5.0	1.3-3.2
Hygrophila*, Hygrophila polysperma	4.0-5.0	2.6-3.2	5.0	3.2
Milfoil, Myriophyllum spp.	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Naiad, Najas spp.	2.0-4.0	1.3-2.6	3.0-5.0	1.9-3.2
Pondweed, Potamogeton spp.	0.75-3.0	0.45-1.9	1.5-5.0	1.0-3.2
Including:				
American, P. nodosus	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Largeleaf (Bass Weed), P. amplifolius	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Curlyleaf, P. crispus	0.75-1.5	0.45-1.0	1.5-5.0	1.0-3.2
Flatstem, P. zosteriformis	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Floating-leaf, P. natans	1.0-2.0	0.6-1.3	2.0-5.0	1.3-3.2
Illinois, P. illinoensis	1.5-2.5	1.0-1.6	2.5-5.0	1.6-3.2
Narrowleaf, P. pusillus	1.0-2.0	0.6-1.3	2.0-5.0	1.3-3.2
Threadleaf, P. filiformis	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Variable Leaf, P. diversifolius	1.0-2.0	0.6-1.3	2.0-5.0	1.3-3.2
Parrotfeather, Myriophyllum aquaticum	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2
Water Stargrass, Heteranthera spp.	2.0-3.0	1.3-1.9	3.0-5.0	1.9-3.2

* Suppression only

The following charts indicate the quantity of Aquathol K to be applied.

Gallons of Aquathol K to Treat One Acre-Foot of Water

	Rate (ppm)						
	0.75	1.0	1.5	2.0	3.0	4.0	5.0
	gallons/A-ft.						
1 acre ft.	0.45	0.6	1.0	1.3	1.9	2.6	3.2

Fluid Ounces of Aquathol K to Treat 1,000 Square-Feet per Foot of Depth

	Rate (ppm)						
	0.75	1.0	1.5	2.0	3.0	4.0	5.0
	fl. oz./1,000 ft.^{2}						
1,000 ft.^{2}	1.4	1.9	2.8	3.8	5.7	7.6	9.4

FLOWING WATER TREATMENTS (WITH THE EXCEPTION OF IRRIGATION CANALS): DRIP OR METERING SYSTEM APPLICATIONS

For aquatic plant control in flowing water, Aquathol K recommended use rates can be found in the following chart. Apply Aquathol K in a manner to achieve the desired rate and adequate mixing so product is distributed throughout the entire water column. Adequate concentration (rate) and exposure time (length of treatment) will impact Aquathol K efficacy on the target plant species. Although Aquathol K is a contact herbicide adequate exposure time is critical. The rates and the length of treatment are guidelines to control the target species. The following rate chart has been developed based on Concentration Exposure Time (CET) data for Aquathol K. The CET concept allows rates and the length of exposure to be adjusted for different treatment scenarios.

AQUATHOL K APPLICATION RATES FOR FLOWING WATER TREATMENTS

	Length of Treatment (hours)							
	6	8	12	18	24	36	48	72
Plant Species	Rate (ppm)							
Pondweeds (Potamogeton spp.) Sago Pondweed (Stuckenia pectinata)	4.0-5.0	3.0-4.0	2.0-3.0	1.5-2.5	1.0-2.0	0.75-1.5	0.5-1.0	0.5
Milfoil (Myriophyllum spp.) Parrotfeather (Myriophyllum aquaticum) Coontail (Ceratophyllum spp.) Horned pondweed (Zannichellia spp.) Hydrilla (Hydrilla verticillata) Naiad (Najas spp.) Water Stargrass (Heteranthera spp.)	5.0	4.0-5.0	3.0-4.0	2.0-3.0	1.5-2.5	1.0-2.0	0.75-1.5	0.5-1.0

NOTE: Hygrophila (Hygrophila polysperma) may be suppressed at the higher application rates listed in this table.

Restrictions: Do not apply more than 30 ppm per growing season, not to exceed 5 ppm per application. Do not apply more than a total of 5 ppm within a 7-day interval.

Note: There is no Pre-harvest Interval (PHI) for crops irrigated with treated water.

To calculate the amount of Aquathol K required for a particular treatment use the following formula:

[Cubic Feet per Second (CFS) X Length of Treatment (hrs.) X Rate (ppm)] x 0.052947 = Gallons of Aquathol K Needed for Treatment

To calculate the amount of Aquathol K to be applied per hour use the following formula:

Gallons of Aquathol K per Hour = Total Gallons of Aquathol K / Length of Treatment (hrs.)

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in the original container. Do not store in a manner where cross-contamination with other pesticides, fertilizers, food or feed could occur. Storage at temperatures below 32°F may result in the product freezing or crystallizing. Should this occur the product must be warmed to 50°F or higher and thoroughly agitated. In the event of a spill during handling or storage, absorb with sand or other inert material and dispose of absorbent in accordance with the Pesticide Disposal instructions listed below.

Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling:

(for Nonrefillable containers)

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

For containers 5 gallons or less:

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.

Or

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.

For containers more than 5 gallons:

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 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.

Or

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Pour or pump rinsate into application equipment or rinsate collection system. Drain for 10 seconds after the flow begins to drip.

Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(for Refillable containers)

Refillable container. Refill this container with pesticide only. Do not use 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 mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

EMERGENCY TELEPHONE NUMBERS

CHEMTREC: (800) 424-9300

MEDICAL: (866) 673-6671 Rocky Mountain Poison Control Center

CLEAN LAKES

IMPORTANT INFORMATION
READ BEFORE USING PRODUCT

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UNITED PHOSPHORUS, INC. AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.

To the extent consistent with applicable law, United Phosphorus, Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED PHOSPHORUS, INC. AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UNITED PHOSPHORUS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

United Phosphorus, Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of United Phosphorus, Inc.

Aquathol is a registered trademark of United Phosphorus, Inc.

Rev. 9/15/11
70506-176(092211-4047)

Made in U.S.A.

Material Safety Data Sheet

United Phosphorus, Inc.

NFPA	PPE
	  

Issued Date 07-Feb-2007 **Revision Date** 19-Nov-2012 **Revision Number:** 7

1. PRODUCT AND COMPANY IDENTIFICATION

UPI
630 Freedom Business Center
Suite 402
King of Prussia,PA 19406

Emergency Telephone Number
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 673-6671 (24hrs)

Company Information	Contact Information	Phone Number	Available Hrs
UPI	Customer Service	1-800-438-6071	8:00 am to 5:00 pm EST

Product Name AQUATHOL® K Aquatic Herbicide
EPA Reg # 70506-176
Recommended Use Aquatic herbicide
Product Code 12-204

2. HAZARDS IDENTIFICATION

Emergency Overview

Causes irreversible eye damage
May be fatal if swallowed
Harmful if inhaled
Harmful if absorbed through skin
Prolonged skin contact may cause local redness. May cause an allergic reaction in sensitive individuals.

DANGER!

Appearance Yellow, Brown. **Physical State** Liquid. **Odor** Slight chlorine.

Potential Health Effects

- Principle Routes of Exposure
- Inhalation
- Skin contact

Eyes	Causes irreversible eye damage.
Skin	May cause mild skin irritation. Repeated or prolonged exposure may cause severe skin irritation. Prolonged contact can result in redness and blistering of skin.
Inhalation	Slightly toxic if inhaled.
Ingestion	Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients Name

Chemical Name	CAS-No	Weight %	OSHA PEL
Dipotassium endothall salt	2164-07-0	40.3	N/A

4. FIRST AID MEASURES

Eye Contact
Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.
Remove contact lenses, if present, after 5 minutes, then continue rinsing eye
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 poison control center or doctor for treatment advice.

Inhalation
Move to fresh air
May cause allergic respiratory reaction
Call a poison control center or doctor for further treatment advice.

Ingestion
Call a physician or poison control center immediately
May produce an allergic reaction
Do not induce vomiting unless told to do so by a poison control center or doctor
Never give anything by mouth to an unconscious person

Notes to Physician
No information available
Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Explosive Properties

Flash Point	Not available
Autoignition Temperature	Not available
Flammability Limits in Air	Not available
Extnguishing Media	Use: Water spray, Carbon dioxide (CO_2), Dry chemical,
Fire/Explosion Hazard	No information available
Hazardous Combustion Products	Extreme temperatures convert Endothall product to endothall anhydride which is a strong vessicant causing blistering of eyes, mucous membranes and skin.

NFPA Health 3 Flammability 0 Instability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with skin, eyes and clothing.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinenet environmental permits.
Methods for Clean-up	Remove all ignition sources. Soak up with inert absorbent material. Ground and bond containers when transferring material. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling	Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep out of reach of children. Empty containers may contain hazardous residues.
Storage	Store in an area where cross-contamination with pesticides, fertilizers, food or feed could not occur.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Controls
Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems. PESTICIDE APPLICATORS & WORKERS. THESE WORKERS MUST REFER TO PRODUCT LABELING AND DIRECTIONS FOR USE IN ACCORDANCE WITH EPA WORKER PROTECTION STANDARD 40 CFR PART 170.

Personal Protective Equipment

Eye/face Protection
Tightly fitting safety goggles. or. Face-shield.

Skin Protection
Chemical resistant gloves. Long sleeved clothing. Long pants. Chemical resistant footwear plus socks. Chemical resistant apron.

Respiratory Protection
Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus. Respiratory protection programs must comply with 29 CFR 1910.134.

General Hygiene Considerations
Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow Brown	**Odor**	Slight chlorine
Physical State	Liquid	**pH**	7.4
Boiling Point/Range	>100 °C	**Melting Point/Range**	Not available
Specific Gravity	1.285	**Solubility**	Miscible
Evaporation Rate	Not available	**Vapor pressure**	Not available
Vapor Density	Not available	**VOC Content**	Not available
Viscosity	Not available	**Molecular Weight**	no data available
Bulk Density	no data available	**Percent Solids**	Not available
Percent Volatiles	59.7		

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions

Conditions to Avoid
No information available

Incompatible Materials
No materials to be especially mentioned

Hazardous Decomposition Products
Extreme temperatures may convert endothall product to endothall anhydride, a strong vessicant, causing blistering of eyes, mucous membranes and skin.

Possibility of Hazardous Polymerization None under normal processing

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Although no allergic skin reactions were observed in guinea pigs following exposure to this material in water, allergic skin reactions were observed following expsoure to this material in ethanol. Repeated application to the skin of rats produced severe skin irritation, liver, and kidney effects considered to be secondary to irritation, and increased mortality. Long-term dietary administration produced no adverse effects in rats. Dermal - Slightly toxic to Rabbits (LD50 2,000 mg/kg) Skin irritation - Non-irritating to rabbits Inhalation - Slightly toxic to rats (4 hr LC50 0.83 mg/l) aerosol Eye irritation - Cause irreversible eye damage in rabbits. Endothall- Intentional swallowing of 40 ml led to death within 12-hours. Skin allergy was observed in guinea pigs following repeated exposures. Repeated dietary administration (via gelatin capsules) produced vomiting, diarrhea, sluggish movements, and liver, kidney and blood effects in dogs. Long-term dietary administration to rats and mice produced effects in the glandular stomach. High mortality rates and intestinal tumors considered to be secondary to the effects in the stomach were observed in mice. Long-term application to the skin of mice produced no tumors. No birth defects were observed in the offspring of rats exposed orally during pregnancy, even at dosages that produced adverse effects on the mothers. Skeletal anomalies were observed in the offspring of rabbits and mice exposed orally during pregnancy, but only at dosages that produced adverse effects in the mothers. No genetic changes were observed in tests using bacteria, animal cells or animals.

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Endothall dipotassium salt ecotoxicity

Acute Contact Toxicity Honey Bee (Apis mellifera)
For endothall acid, mono-amine salt, and dipotassium salt:
Practically non-toxic

Acute Toxicity Avian
Mallard duck(Anas platyrhynchos), LD50 = 328 mg/kg

Acute Toxicity Freshwater Fish
Bluegill sunfish(Lepomis macrochirus),flow-thru, EC50 = 1071 ppm
Rainbow trout(Oncorhynchus mykiss),flow-thru,EC50 =363 ppm
Chanel catfish(Ictalurus punctatus), static, EC50 = >100 ppm

Acute Toxicity Freshwater Invertebrates
Waterflea(Daphnia magna), flow-thru 48hr, EC50 = 223 ppm
Scud(Gammarius lacustris),static 48hr, EC50 = 313 ppm

Acute Toxicity Estuarine/Marine Fish
Sheepshead minnow(Cyrinodon variegates), flow-thru 96hr,
EC50 = 340 ppm
Coho salmon(Oncorhynchus kisutch)static, 96hr, EC50 = >100ppm

Acute Toxicity Estuarine/Marine Invertebrates
Mysid shrimp(Mysidopsis bahia), flow-thru 96hr, EC50 = 257 ppm
Eastern oyster(Crassostrea virginica)shell deposition,
flow-thru 96hr, EC50 = 335 ppm.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If the wastes cannot be disposed of by use or according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Contaminated Packaging

Non refillable container. Do not reuse this container. Triple rinse or pressure rinse promptly after emptying. Triple 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.

Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

DOT

When shipped as a limited quantity by domestic highway,, as per 49 CFR 173.153 the combination package, not exceeding a gross weight of 66 pounds (30 kg), may contain inner packagings not over 1.3 gallons (5 L) each. Limited quantity designated packagings are excepted from labeling and packaging specification requirements.
If the limited quantity package is shipped by air the package must also conform to applicable requirements of 173.27.

Proper Shipping Name	Pesticides, liquid, toxic. n.o.s. (Endothal)
Hazard Class	6.1
UN-No	2902
Packing Group	PG III
Reportable Quantity (RQ):	1,000 lbs

ICAO

UN-No	2902
Proper Shipping Name	Pesticide, liquid, toxic, n.o.s. (Endothall)
Hazard Class	6.1
Packing Group	PG III

IATA

UN-No	2902
Proper Shipping Name	Pesticide, liquid, toxic, n.o.s. (Endothall)
Hazard Class	6.1
Packing Group	PG III
ERG Code	6L

IMDG/IMO

Proper Shipping Name	Pesticide, liquid, toxic, n.o.s. (Endothall)
Hazard Class	6.1
UN-No	2902
Packing Group	PG III
EmS No.	F-A, S-A

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL	NDSL	EINECS/ ELINCS	ENCS	CHINA	KECL	AICS
Dipotassium endothall salt	Present		X	X				

USA

Federal Regulations

SARA 313
Y

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values
Dipotassium endothall salt	2164-07-0	40.3	1.0

SARA 311/312 Hazardous Categorization

Chronic Health Hazard	No

Acute Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any HAPs.

CERCLA

RCRA

Pesticide Information

State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dipotassium endothall salt		X			

International Regulations
Mexico - Grade Not available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
Not determined

16. OTHER INFORMATION

Revision Date 19-Nov-2012

Revision Summary
Update section 14

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End of MSDS

END OF APAP