UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

MAY 2 2 2006

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Review of the Emergency Exemption Request by the State of Florida for the use of Penoxsulam to Control Fluridone Resistant Hydrilla. DP # 326616

FROM: Sunil Ratnayake, Biologist
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Andrew Lee, Economist
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THRU: Arnet Jones, Chief
Biological Analysis Branch 05/19/2006

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Economic Analysis Branch 05/19/2006
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TO: Daniel Rosenblatt, Chief
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Minor Use, Inerts and Emergency Response Branch
Registration Division (7505C)

PRODUCT REVIEW PANEL DATE: April 5, 2006

1. Summary

The Florida Department of Agriculture (FDA) has requested an emergency exemption for the use of penoxsulam (Grasp™ SC) to control fluridone resistant hydrilla in Florida water bodies. The development of fluridone resistance biotypes and ability of this invasive weed to occupy small and large lakes is the major concern.

FDA claims that hydrilla has developed resistance to low concentrations of fluridone due to its continuous use. Also, FDA reports that fluridone still controls hydrilla at higher doses (15-40 ppb). However, high doses of fluridone impact non-target native aquatic macrophytes increase the cost and more likely to develop a greater resistance to fluridone. In the initial section 18 submission, FDA intended to treat 100,000 surface acres of water with 122,358 gallons of penoxulam and after a discussion, FDA agreed to reduce the treatment area to maximum of 13,000 surface acres. This is the first time FDA

has requested the use of penoxsulam in hydrilla management. Once the applications are made, water in the treated lakes can not be used to irrigate nursery or greenhouse plants.

The strategy appropriate for the control of hydrilla in Florida water bodies is site specific. Chemical, biological, mechanical and cultural control methods are available for the hydrilla management. The size of the water body, types of water use, extent of hydrilla density, efficacy, persistency, contact time, and toxicity of the chemical are important factors that should be considered in selection of an individual or combined control method for hydrilla management. Compared to mechanical, cultural, and biological control methods, use of an effective chemical is the most effective control method. Several effective herbicide alternatives are currently available for the fluridone resistant hydrilla management. According to the state weed management experts, these alternatives have some limitations. FDA states that they are fast acting and can deplete the dissolved oxygen killing fishes in large water bodies with heavy hydrilla infestations.

Data gaps including the efficacy data of requested chemical compared with the available registered herbicides were noted in the application. Considering the amount of penoxsulam planned to be applied and its impact on the Florida water bodies, BEAD believes that it is important to gather scientific data to confirm the inadequacy of available registered herbicides.

BEAD believes that the situation is non-routine and use of penoxsulam seems urgent at specific sites such as large water bodies with heavy infestations of hydrilla, resistant to fluridone where other control options are limited.

2. Circumstances of the Emergency:

Hydrilla causes detrimental impacts on water uses. It blocks irrigation canals, disrupts the navigation of recreational and commercial craft, and interferes with recreational activities such as boating and fishing. FDA claims that of the 1.27 million acres of sovereign water in Florida 92,000 surface acres were infested with hydrilla tubers and approximately 17,500 acres contain fluridone resistant hydrilla biotypes. The selective herbicide fluridone at a low concentration (5-10 ppb) is widely used to manage hydrilla. Recent studies have revealed the development of resistant biotypes of hydrilla to fluridone (15). Fluridone still controls hydrilla at higher sustained doses (15-40 ppb). FDA states that high dosage impacts non target native aquatic macrophytes, increases cost, and accelerates the development of fluridone resistant hydrilla biotypes (11).

3. Information on the Requested Chemical and Its Proposed Use:

3.1. Common name and registered use. Penoxsulam is registered for selective post-emergence weed control in rice in the states of Arkansas, Florida, Louisiana, Mississippi, Missouri, and Texas.

3.2. Formulation. Grasp™ SC contains 2 lb of active ingredient per gallon (21.7 % active ingredient and 78.3 % inert ingredients).

3.3. Manufacturer. Dow AgroScience

3.4. Area to be treated. 5,000 -13,000 acres of surface water.

3.5. Rate of application. 15- 20 ppb with a maximum application rate of 150 ppb per annual growth cycle.

3.6 Method of application. Subsurface injection to the whole water body with a 45 to 90 day contact time.

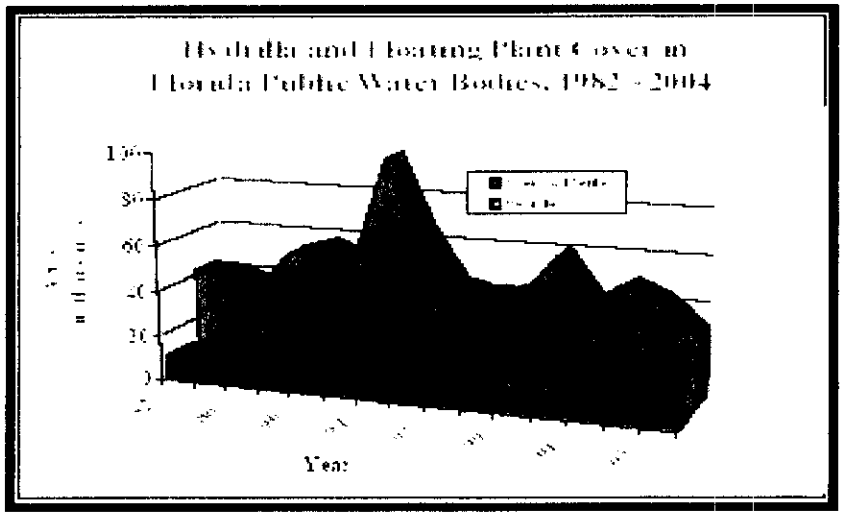
3.7. Duration of use. One year.

4. Biological Analysis:

4.1. Background information. The aquatic weed hydrilla (*Hydrilla verticillata*), is a native to the warmer areas of Asia and it was first discovered in the U.S. in 1960 (9). The highly specialized growth habit, unique physiological characteristics, and rapid reproduction make this a highly competitive invasive weed well adapted to fresh water environments (9). The rapid growth rate of hydrilla, up to 1 inch per day, allows it to compete for sunlight effectively. It can reproduce by fragmentation, tubers, and seeds. Tubers are produced terminally on rhizomes and in leaf axils. Tubers can survive under adverse weather conditions. Compared to many other weeds, hydrilla has low seed production and viability. However, near the water surface it branches profusely and produces a greater stem density than other submersed aquatic weeds (9). The plant body of hydrilla is 90% of water and therefore the plant can produce a great deal of fresh plant material from limited supply of plant nutrients (16). Hydrilla is capable of using low light intensities for photosynthesis and it can grow in water up to 7% of salinity (7, 12). It tolerates a wide range of pH, but tends to grow better at pH 7.

FDA claims that uncontrolled hydrilla in Florida lakes severely affects the economy of State and local governments by significantly reducing recreational water use and land values. Clogging the flood control structures by broken mats of hydrilla is a major concern in the Kissimmee chain of lakes. To alleviate these problems, FDA intends to use penoxsulam, a reduced risk selective herbicide with different mode of action to flurodine. It inhibits the acetolactate synthase (ALS) enzyme in target weeds. FDA states that hydrilla can spread quickly in Florida lakes and managing the weed is technically challenging. The typical application rate of penoxsulam would vary from 5 to 20 ppb with a maximum application of 150 ppb active ingredient per annual growth cycle. The recommended concentration of the chemical should be maintained for 45 to 90 days until the control of target weed is achieved (11). Frequent re-treatment or higher application rates (20 ppb) may occur if mature vegetation is present in the target area. If the concentration of the chemical in water exceeds 10 ppb, treated water should not be used for irrigation of field crops. Also, use of water with a concentration of more than 1 ppb is restricted to use on nursery and greenhouse plants (11).

Figure. [a] Status of hydrilla and floating plant cover in Florida public water bodies.



[a]Source (13)

According to a survey conducted by the Florida Department of Environmental Protection (FDEP) 29,742 acres of Florida public water bodies were infested with hydrilla and about 95,500 acres were infested with tubers (14). Hydrilla tubers are underground propagules and resist chemical control. They can remain dormant for 7 years (13). Under this section 18 request, FDA plans to treat 100,000 surface acres of Florida public water and plans to apply122,358 gallons of formulated penoxsulam (11).

4.2. Alternatives assessment:

Copper compounds (chelated copper, copper sulfate) diquat, endothall and fluridone, are the herbicides widely used in hydrilla management. Copper held in organic complex is known as chelated copper and it is less corrosive to application equipment than the copper sulfate. Also, it is less toxic to fish (10). Diquat is a contact herbicide that can be sprayed on or injected into water to control submerged weeds. Diquat binds tightly to clay particles and not effective in muddy water (10). Endothall is a fast acting contact type herbicide. It has a broad spectrum of activity on submersed aquatic weeds and it is used to control hydrilla selectively by injection of liquid herbicides from trailing hoses under floating leafed vegetation (9). Granular endothall also can be used in the same manner. According to the state weed management experts, these alternatives are fast acting and can deplete the dissolved oxygen killing fresh water fishes in large water bodies with heavy hydrilla infestations.

Fluridone controls most submerged weeds and is available in liquid and pelleted formulations. Similar to fluridone, penoxsulam is a translocated herbicide and it kills the plant slowly over a 30-90 day period. Compared with the other alternatives it prevents the depletion of the dissolved oxygen and effective as whole water body applications. Information on the herbicides that are registered for the control of hydrilla is given in the Table 1.

Table 1[a] Comparison of registered herbicides used for the control of hydrilla.

Herbicide	Trade Name	Type of Activity	Formulation	Quality of Control	Cost per Surface Acre[b], $	Remarks
Complexed Copper	Cutrine-plus Komeen K-Tea	plant cell toxicant	Liquid	Good	96 - 256	Usage is reduced due to accumulation of copper in Florida water bodies
Diquat	Reward	Non-selective contact	Liquid	Good	107 - 214	Fast acting and may lead to depletion of dissolved oxygen in water
Endothall Dimethylalkamine salts	Hydrothol 191	Non-selective contact	Liquid or Granular	Good	19.50 – 208 6.60 – 594	Fast acting and may lead to depletion of dissolved oxygen in water killing fishes
Endothall Dipotassium salt	Aquathol K Aquatol Super K	selective at low rates	Liquid Granular	Good	27.50 – 165[c]	Fast acting and may lead to depletion of dissolved oxygen in water killing fishes
Fluridone	Sonar A.S. Avast!	Selective systemic	liquid emulsion	Good	156.25 1250	Hydrilla has developed resistance to fluridone
	Sonar PR Sonar SRP Avast! SRP	Selective based on rates systemic	slow release pellets	Good	67.20 840[d]	Hydrilla has developed resistance to fluridone

[a]Source (1).
[b]Costs for 2001 from EPA proprietary data.
[c]Cost of Aquathol K.
[d]Cost of Sonar SRP.

4.3. Data Gaps: Reviewers noticed data gaps in the submission and contacted the applicant to obtain more scientific information. Especially, data on the efficacy of available herbicide alternatives compared with the requested chemical.. Considering the amount of penoxsulam planned to be applied and its impact on water quality of Florida water bodies it is important to assess the efficacy of requested chemical and compared with the registered alternatives.

5. Other Control Methods:

5.1. Mechanical control. Small hydrilla infestations can be managed by mechanical control methods. However, the disadvantage of this method is potential spread of vegetative propagules (1). Harvesting of hydrilla is effective for short-term clearance from the upper section of the water columns. Driver dredging is effective in removing hydrilla plant and root crown from the lake system. This technology can selectively remove the hydrilla plants interspersed with native plants. To achieve a significant success in mechanical harvesting, it should be performed several times per growing season. Mechanical control provides long term management of hydrilla when combined with cultural, chemical, and biological control methods (1).

5.2 Cultural control. Hydrilla is difficult to control and prevention of infestation and early detection of the problem is important to minimize the spreading of this invasive weed. Human recreational activities can spread the hydrilla in water bodies and boats should be cleaned and plant fragments should be removed from the boats before using it in another water body (1). Drawdown is an effective method used in aquatic weed management and it is limited to the water bodies that have structures to control water levels. Drawdown can be used as an effective management tool to reduce both the tuber formation in the fall and the vegetative growth in the spring (8). Large scale tests conducted on drawdown have demonstrated a temporary control of hydrilla as the tubers remain viable in organic hydrosoils.

5.3. Biological Control. In the earliest research, snails were tested as biological control agents for the control of hydrilla. Snails consume large amounts of hydrilla when present in high densities in enclosed experimental conditions. However, under natural environment they are not effective (2). Larvae of an aquatic moth (*Parapoynx diminutalis*) feed on hydrilla but extensive damage does not occur until late in the growing season and it is not an effective biosuppresant for hydrilla (5). A weevil (*Bagous affinis*) that was discovered in India and Pakistan was tested as a potential biosuppresant for hydrilla management (3). It is not an aquatic insect but lay eggs in rotting woods and other organic matter. After hatching, larvae burrow through the sediment until they encounter hydrilla tubers. The larvae destroy the tubers and the use of this insect is effective in combination with a lake drawdown or intermittently wet and dry shorelines. Use of grass carp, a herbivorous fish, to control hydrilla has been reported (17). Rearing of this fish is illegal in most states due to the potential risk of damaging the total vegetation as a result of establishment of a breeding population. Sterile triploid grass carps are available and some states issue permits to rear them in lakes, ponds, and canal systems where total removal of vegetation is acceptable (4). Manatees or sea cows (*Trichechus manantus*) also have been considered for biological control of hydrilla.

However, the manatee is an endangered animal and is not considered a potential biological control agent (6).

6. Economic Analysis:

Table 1 lists available chemical alternatives to penoxsulam and per surface acre costs involved in the use of these alternatives. As indicated elsewhere in the memo, these alternatives may have some limitations in their efficacy in controlling fluridone resistant hydrilla. In addition, the supplemental information provided by FDA indicates that costs of some of these alternatives in treatment of large scale water bodies may be prohibitively high.

7. Conclusions:

The Florida Department of Agriculture (FDA) has requested an emergency exemption for the use of penoxsulam (Grasp™ SC) to control fluridone resistant hydrilla in Florida water bodies. The development of fluridone resistance biotypes and ability of this invasive weed to occupy small and large lakes is the major concern.

Chemical, mechanical, biological, and cultural control methods are available for the management of hydrilla in Florida water bodies. The hydrilla control strategy appropriate for individual water bodies is site specific. The size of the water body, type of water use, extent of hydrilla density, efficacy, persistence, toxicity, and contact time of the chemical, are important factors to be considered in use of a herbicide for the hydrilla management. Compared to mechanical, cultural and biological control methods, chemical control is the most effective control method in hydrilla management. Copper chelates, copper sulfate, endothall, and diquat are several effective herbicide alternatives available for the management of fluridone resistant hydrilla in Florida lakes. FDA claims that most of these registered herbicides are not effective for large scale treatments. Also, FDA states that use of the fast acting contact type herbicides could lead to killing fishes in the Florida water bodies.

Data gaps including the efficacy data of requested chemical compared with the available registered herbicides were noted in the application. BEAD believes that it is important to gather scientific data to confirm the inadequacy of available registered herbicides. Under certain site specific conditions, registered herbicides may have some limitations. Under such situations, availability of penoxsulam would be helpful as an additional tool in controlling hydrilla in Florida water bodies.

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2) Blackburn, R. D. and T. M. Taylor. 1968. Snails for aquatic weed control. *In* Proc. Weed Sci. Soc. Am. p. 51.

3). Bennett, C. A. and G. R. Buckingham. 1991. Laboratory biologies of *Bagous affinis* and *B. laevigatus* (Coleoptera: Curculionidae) attacking tubers of *Hydrilla verticillata* Hydocharitaceae). Ann. Entomol. Soc. Amer. 84(4):421-428.

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14). Status of the Aquatic Plant Maintenance Program in Florida Public Waters. Annual Report Fiscal Year 2003-2004. Bureau of Invasive Plant Management. Florida Dept. of Environmental Protection.

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Carolyn Russell

Lydia

DATA PACKAGE BEAN SHEET

Decision #: 364502

DP #: (326616)

Date: 08-Feb-2006

Samuel Katrenyak

Biol Economist Andrew Lee

Tony PRP 02/22/06

* * * Registration Information * * *

Registration: 06FL03 -

Company: 800009 - FL Dept. f Agriculture & Consumer Services

Risk Manager: RM 05 - Daniel Rosenblatt - (703) 308-9366 Room# CM-2 258

Risk Manager Reviewer: Andrew Ertman AERTMAN

Sent Date: 31-Jan-2006 Calculated Due Date: 18-Mar-2006 Edited Due Date:

Type of Registration: Emergency Exemption - Section

Action Desc: (505) NEW INGREDIENT;NON-FOOD/FEED USE;SPECIFIC EXEMPTION;

Ingredients: 119031, Penoxsulam(0%)

* * * Data Package Information * * *

Expedite: ● Yes ○ No Date Sent: 08-Feb-2006 Due Back:

DP Ingredient: 119031, Penoxsulam

DP Title: Penoxsulam on Aquatic Sites

CSF Included: ○ Yes ● No Label Included: ● Yes ○ No Parent DP #:

Assigned To	Date In	Date Out	
Organization: BEAD / IO			Last Possible Science Due Date: 26-Feb-2006
Team Name:			Science Due Date:
Reviewer Name:			Sub Data Package Due Date:
Contractor Name:			

* * * Studies Sent for Review * * *

No Studies

* * * Additional Data Package for this Decision * * *

Printed on Page 2

* * * Data Package Instructions * * *

Specific Exemption
STATE - Florida
CHEMICAL - Penoxsulam
SITE - Aquatic Sites
PEST - Fluridone-resistant hydrilla
EE# - 06-FL-03

Attached is a specific exemption submitted by Florida for use of penoxsulam on aquatic sites to control fluridone-resistant hydrilla. Please evaluate the attached submission and determine whether the situation is urgent and non-routine and will result in significant economic losses without use of the requested pesticide. This is the first year that this request has been made. Please call me at 306-0327 if you have any questions. Thank you.

DATA RECORDING SHEET FOR
BEAD OFFICIAL RECORDS DATA BASE
(Revised as of 4/5/05)

Author(s) Name(s) SUNIL RATNAYAKE AND ANDREW LEE

Branches BEAD

Chemical(s) PENOXSULAM

DP Barcode DP# 326611

PC Code(s) 119031

Other Identifying Codes and Numbers

Site(s) Florida Value Bundle

Pest(s): Hydrilla

Pesticide Type: Bean Sheet required: Y/N

- ☐ Insecticide
- ☐ Fungicide
- ☒ Herbicide
- ☐ Other

Check Category:

- ☒ Official Record
- ☐ Reference Materials
- ☒ An Electronic copy exists+have diskette
- ☐ Hard copy only

Type of Document:

- ☐ Alternatives Analysis
- ☐ Benefits Assessment
- ☐ Biological Analysis
- ☐ Economic Analysis
- ☐ ICR
- ☐ Public Interest Findings (PIF)
- ☐ Percent Crop Treated or QUA
- ☐ Reduced Risk Evaluations
- ☒ Section 18's or Emergency Exemption
- ☐ Use and Usage

Processors Only:

- ☐ Date Document Signed
- ☐ Logged In/Out OPPIN: Y/N
- ☐ Date to Lydia/Files:
- ☐ Date to Bert/Files:

Processor Initials: KK
Completion Date: 5-22-06

Sunil Ratnayake/DC/USEPA/US
04/21/2006 04:59 PM

To

cc Dan Rosenblatt/DC/USEPA/US@EPA, Stacey Groce/DC/USEPA/US@EPA

bcc Arnet Jones/DC/USEPA/US@EPA; Angel Chiri/DC/USEPA/US@EPA; Timothy Kiely/DC/USEPA/US@EPA; Andrew Lee/DC/USEPA/US@EPA

Subject Final draft of the section 18 Request from Florida, Use of Penoxsulam to Control Floridone-resistant Hydrilla

BEAD requested additional data from FL from trials conducted comparing the efficacy of penoxsulam compared with available registered herbicides. They provided some information but failed to submit experimental data to show the inadequacy of available registered herbicides. The amount of penoxsulam planned to be applied and its impact on the Florida water bodies, quality of water used for irrigation and other activities are major concerns.

Attached is BEAD's final draft of the review. If RD has any comments or concerns please let BEAD know.

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Penoxsulam section 18 request from FL-PRP.doc

Andrea
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05/18/2006 12:04 PM

To: Sunil Ratnayake/DC/USEPA/US@EPA, Andrew Lee/DC/USEPA/US@EPA, Arnet Jones/DC/USEPA/US@EPA
cc:
bcc:
Subject: Fw: PENOXSULAM CONFERENCE CALL: RESPONSE FROM FLORIDA

Not sure if all of you got this, please let us know what you think once you have had a chance to go over.

Thanks!

Andrea

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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Subject: PENOXSULAM CONFERENCE CALL: RESPONSE FROM FLORIDA

Tony, Dan and Andrea:

Our thanks to you and your staff for a chance to dialogue on the questions posed by BEAD on Florida's pending specific exemption request for Penoxsulam to control fluridone resistant hydrilla.

Attached is the response from Florida after our teleconference last Thursday, May 11th. Please share these comments with Dr. Sunil Ratnayake and Dr. Andrew Lee in your Biological and Economic Analysis Division.

We are available if additional discussions are necessary.

Kind regards:

Charlie L. Clark, Administrator
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Section 18 supplementalletter.doc

As requested by the Agency during our conference call on 11 May 2006, we are providing clarification to issues related to the Section 18 Emergency Exemption for penoxsulam use in Florida waters for controlling fluridone-resistant hydrilla. These issues focus on alternative herbicides for hydrilla control; environmental and economic consequences of using these alternative chemistries; and acreage of water proposed for penoxsulam treatments in 2006.

Florida public lakes and rivers serve a variety of uses and functions including flood control, navigation, recreation, irrigation, and habitat for fish and wildlife including threatened and endangered species. While Florida's lakes and reservoirs serve as flood control conduits, particularly during the hurricane season, they also support a recreational fishery estimated at about $1.5 billion annually to Florida's economy. One of the most important considerations when developing a hydrilla control plan is the size of the hydrilla infestation. While there are other tools available to control hydrilla, most are not effective for large-scale treatments. This is why fluridone was used almost exclusively for the past 15-20 years; because there was no other cost-effective and environmentally compatible tool to rotate with fluridone for large-scale hydrilla control. A large-scale hydrilla treatment is defined as a treatment of approximately 500 acres or more in one management event. Some of Florida's reservoirs support fluridone resistant hydrilla infestations of 5,000-15,000 acres.

The FDEP opinion is that all of the criteria have been met to seek an EMERGENCY EXEMPTION of penoxsulam herbicide to control fluridone resistant hydrilla in Florida:

a) There are no effective registered pesticides available to substitute for large-scale hydrilla control in Florida where hydrilla has become resistant to fluridone. Copper, diquat, and endothall (contact-type, quick-acting herbicides) were registered in Florida prior to the past 20 years that fluridone was used for large-scale hydrilla management, but were not then, nor are they now, acceptable alternatives for conducting large-scale hydrilla treatments.

   Since the maximum label rates of diquat were reduced during USEPA re-registration, this herbicide alone is ineffective at controlling hydrilla. Diquat combined with copper is effective for hydrilla control, but copper accumulates in the sediments if applied several times each year for large-scale hydrilla control. The largest hydrilla-infested reservoirs in central Florida are also home to endangered Everglades kites, wood storks, and State listed limpkins, all of which rely upon apple snails as their primary diet. There is great concern that repeated large-scale hydrilla treatments using copper, either by itself or in conjunction with diquat, would reduce apple snail populations and negatively impact these listed species.

   Endothall has two formulations that can be effective on hydrilla. However, the dimethylalkyl amine salt of endothall is toxic to fish at operational rates and is rarely used for hydrilla control in Florida except at very low rates in combination with the dipotassium salt of endothall. The dipotassium salt of endothall is effective at controlling hydrilla, but is a poor choice for controlling more than a few hundred contiguous acres at a time due to dissolved oxygen (DO) concerns. DO levels are

generally very low in Florida waters during hot summer months often ranging as low as 2-4 parts per million (ppm) - well below the State standard of 5ppm recommended for healthy fisheries. Treating with contact herbicides (such as endothall) in the cooler winter months, when dissolved oxygen levels are generally higher, may temporarily mitigate against low DO problems; however, hydrilla re-growth after winter/spring contact herbicide treatments usually reaches the water surface requiring re-treatments during the hot summer months. Therefore, the most significant consideration in using contact-type herbicides for large-scale control is the risk related to reduced DO levels and the likelihood of massive fish kills. Since contact herbicides work so quickly, there would be thousands of acres of hydrilla dieing, decomposing, and consuming oxygen at one time, shortly after a large-scale application.

In addition, hydrilla recovers from any of the contact-type herbicides within a few months after treatment, requiring multiple treatments to control each acre each year. With hydrilla populations exceeding several thousand acres in several of Florida's largest and most important waters, this would mean almost continuous 200-300 acre treatments in a water body. Costs for treating hydrilla with dipotassium salt of endothall range from $600 - $1,000 per acre per treatment, depending on water depth, with 2-3 treatments required each year. Therefore, even if DO levels were not a concern, costs to control, for example, the 15,000 acres of hydrilla in one lake using endothall could range between $30-40 million per year - a figure that exceeds the FDEP's annual invasive plant management budget.

b) No feasible non-chemical alternative control practices are available for large-scale hydrilla control. Sterile grass carp have already been stocked in suitable candidate lakes. Mechanical harvesters cannot keep pace with rapid hydrilla growth in systems more than a few tens of acres in size. They are extremely expensive, and harvest non-target plants and animals in their paths. Managers are applying an aggressive approach using contact-type herbicides to keep as many hydrilla populations as possible at the lowest feasible levels, but do not have an effective large-scale hydrilla control alternative when fluridone-resistant hydrilla populations expand beyond isolated infestations.

c) While hydrilla is not a new pest, there are considerable economic, environmental, and human safety risks associated with failure to keep hydrilla under control in Florida public lakes and rivers. These waters serve a variety of uses and functions including habitat for fish and wildlife that depend on open water and diverse aquatic plant communities; recreational opportunities worth billions of dollars annually that would decline drastically if access and navigation is impeded by dense hydrilla growth; and flood control that would diminish putting residents at risk if reservoirs and rivers cover over with mats of hydrilla that reduce flow, plug flood control gates and river channels, and jam against bridges, compromising these structures.

As discussed previously, hydrilla tubers infest about 90,000 acres and are present in nearly 200 Florida public waters. About 90% of this infestation is in just eight central Florida reservoirs that collectively comprise about 115,000 acres of water. Approximately 25,000 acres of hydrilla

standing crop were controlled in Florida each year from 2002-2004. This figure includes all methods of hydrilla control. The Section 18 request for penoxsulam is to judiciously use this slow-acting, large-scale hydrilla control agent as a substitute for fluridone in waters where there is a documented resistance of hydrilla to fluridone. Therefore, the FDEP estimates that no more than 5,500 gallons of penoxsulam would be applied to a range of 5,000 – 13,000 acres under the Section 18, depending on the amount of re-growth from current hydrilla levels.

The FDEP worked closely with SePRO Corp. (registrant) as well as researchers from the University of Florida and the US Army Corps of Engineers under the Experimental Use Permit (EUP) for penosxulam in Florida waters during 2004-2006. These groups monitored the lowest penoxsulam rates to both control hydrilla and to minimize impacts on non-target plans. SePRO collected extensive water and plant samples and photographic data to document impacts from penoxsulam treatments under the EUP. Hydrilla control using penoxsulam under the EUP has lasted as long as 14 months with more than 95% control. The FDEP is satisfied that penoxsulam is effective at controlling hydrilla maintaining a concentration in the water of 10-15ppb, and that there is a good margin of safety in whole-lake treatment situations for fisheries and most non-target plants. While the label allows a total application equivalent to 150ppb, hydrilla was controlled at experimental sites with cumulative applications totaling 25-45ppb during the multiple application treatment regimes. The treatment rates and exposure periods for penoxsulam are similar to those for fluridone herbicide which also has similar irrigation precautions. FDEP and its contractors have established notification procedures and have routinely worked with entities who may irrigate from public waters to address any irrigation restrictions on the label.

In conclusion, penoxsulam fits the FDEP needs profile for a slow-acting, large-scale, systemic agent for controlling fluridone-resistant hydrilla. Penoxsulam has been thoroughly tested and is a reduced risk pesticide that is awaiting a Section 3 approval for nationwide registration by the USEPA. There are no viable alternatives for large-scale hydrilla control in Florida public waters in which hydrilla has developed an increased resistance to fluridone herbicide. Therefore, the FDEP respectfully requests for a reconsideration of the Section 18 request for penoxsulam. Staff is willing to participate in additional discussions with the Agency, or to answer other questions related to this extremely important and urgent issue.

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Chemical: Penoxsulam

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