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Jeanine Townsend, Clerk to the Board  
State Water Resources Control Board  
1001 I Street, 24th Floor  
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April 1, 2016

Sent via ELECTRONIC MAIL to [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)

**RE: Comments Regarding Proposed Revisions to the Aquatic Weed Control Permit**

Dear Ms. Townsend;

Thank you for the opportunity to comment on the State Water Resources Control Board's ("State Board's") proposed amendments to the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ as amended by Orders 2014-0078-DWQ and 2015-0029-DWQ) ("Permit").

Our firm's practice includes providing aquatic vegetation management and NPDES Permit compliance services to over 50 irrigation, reclamation, stormwater and drinking water agencies throughout California. We have been involved with the Permit since its inception and have worked collaboratively with permittees and SWRCB staff to achieve workable solutions to permit compliance. As the chair of the Association of California Water Agency's (ACWA) Aquatic Pesticide Work Group, I have had the opportunity to listen to and understand the perspective of SWRCB staff and permittees.

We have read the proposed restrictions for use of products containing hydrogen peroxide, peroxyacetic acid, and sodium carbonate peroxyhydrate (herein referred to as hydrogen peroxide algaecides or "HPAs") that are summarized as follows:

- a. ("Restriction A") Apply products containing the above active ingredients only to contained, non-flowing waters;
- b. ("Restriction B") Do not apply products containing these active ingredients during prime fish feeding times;
- c. ("Restriction C") Do not apply products containing these active ingredients when juvenile fish and amphibians are present;
- d. ("Restriction D") Apply products containing these active ingredients from the shallow margins of the water body out to deeper waters;
- e. ("Restriction E") Only treat one-half of the contained water body at a time.

We have also read a proposed new term for "contained, non-flowing waters" that reads as follows:

2. Defines “contained, non-flowing waters” as a water body that has no inflow or outflow immediately preceding, and for a period of at least 48 hours following application of the above pesticide active ingredients.

## Overview of HPAs

HPAs are applied to control filamentous, planktonic or benthic algae in a wide variety of waterbodies covered by the Permit. Algae are undesirable because they can:

- Create taste and odor compounds that may adversely affect drinking water quality
- Produce toxins that pose health hazards to the people and animals, and
- Impede irrigation water flow and clogs pumps, pipes and emitters

HPA products are applied because they:

- Are an excellent alternative and/or complement to other algaecides
- Are efficacious and fast-acting
- Are short-lived in the environment
- Pose little to no significant risk to aquatic receptors and downstream water quality.

## Comments

The proposed Permit restrictions for HPAs unnecessarily go beyond the product’s label requirements. The basis for these additional use restrictions is not well founded. Accordingly, we suggest that the proposed use restrictions not be made. Rationale for not incorporating the proposed restrictions in the Permit is presented below.

### Toxicity Misclassification

Revisions to Attachment D of the Permit incorrectly characterize HPAs as “highly toxic” (D-31). The U.S. Environmental Protection Agency (USEPA) ecotoxicity category of “highly toxic” for the acute exposure of an aquatic organism is defined by median toxicity values (LC50) between 0.1mg/L and 1 mg/L (see <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/technical-overview-ecological-risk-assessment-0>). The median toxicity of studies presented in Table D-8 range from “slightly toxic” (>10-100 mg/L) to “practically nontoxic” (>100 mg/L) according to the USEPA definitions.

### Emphasis on Toxicity and Not on Risk

When considering a chemical’s risk to the environment, it is important to consider not just a chemical’s toxicity, but risk. Risk is determined by a combination of toxicity and exposure. For example, ecological risk assessments estimate environmental concentrations (EECs) that are then compared to toxicity values to calculate a risk quotient (RQ) (USEPA 2004).

$$RQ = [EEC \text{ or Daily Dose}] / \text{Toxicity}$$

#### Where:

RQ = Risk Quotient

EEC = Estimated Environmental Concentration

Given the relationship between exposure and toxicity, the risk of HPAs to aquatic receptors must take into account how, if at all, the receptors are exposed to HPAs. Proposed

revisions to the Permit focus solely on toxicity and do not reflect the concept that risk is a combination of toxicity and exposure.

#### Misuse of Toxicity Data

Toxicity study methods must be reviewed to determine if organisms are exposed to a single dose (similar to an algaecide application), or constant/maintained concentration of hydrogen peroxide. Additionally, when reviewing toxicity data, it is critical to correlate the study length with how long a chemical is expected to be exposed to an ecological receptor.

For example, proposed changes to the Permit use an LC50 study with a 96 hour duration because that has the lowest LC50 value. This is inappropriate when hydrogen peroxide has a half-life of generally less than 20 hours in unfiltered lake water.

#### Unnecessary Omission of USEPA Reference

The rapid degradation of hydrogen peroxide will result in short exposure duration, if any, for aquatic receptors. Depending on the study selected for a toxicity value, the toxicity of hydrogen peroxide varies from slightly toxic (low toxicity) to practically nontoxic to fish. Taken together, and consistent with the USEPA position presented in the Permit, these factors indicate that hydrogen peroxide poses an insignificant risk to aquatic receptors as a result of applications made to waterbodies for the control of algae. The existing citations made in the permit to the USEPA fact sheet should not be stricken as this fact sheet correctly states that "when applied in accordance with directions on the label, no harm is expected to freshwater fish or freshwater invertebrates." We are unaware of evidence presented in the revisions to Attachment D or elsewhere to indicate otherwise.

The USEPA and California Department of Pesticide Regulation (DPR) are responsible for pesticide registration and label language and use the risk assessment process to take into account both toxicity and exposure that allow an evaluation of potential risk. Label language is included that modifies exposure through restrictions to use sites, application rates, frequency methods and timing. Thus, USEPA and CDPR manage the potential risk a chemical poses by properly using toxicity data and managing exposure. We feel that the product-specific HPA label language adequately protects natural resources, including water quality.

#### Lack of Understanding of the PCA and the PCA Recommendation

Prior to the application of an HPA, a Pest Control Advisor (PCA) licensed by the CDPR is involved. The PCA is at a minimum a 4-year degreed professional that has qualified for and passed examinations that demonstrate expertise in aquatic plant management. To maintain currency, the PCA must complete no less than 40 hours of continuing education every 2 years. It is mandatory that laws and regulations are reviewed and this includes compliance with label directions.

The PCA performs a variety of site-specific duties that include site reconnaissance to properly identify algae species, gain an understanding of the degree of control needed and determine environmentally sensitive areas. The PCA has the authority and responsibility to then prepare a written recommendation for the use of the most appropriate HPA.

The expertise and credentials of the PCA allow him or her to exercise professional judgement in deciding what HPA is most appropriate in a particular circumstance. If the PCA's professional judgement is restricted by the proposed changes in the Permit, water

managers would not be able to take advantage of these highly skilled experts and the ability to practice Integrated Pest Management (IPM) would be diminished or eliminated. The end result may include the use of larger amounts of less efficacious algaecides than would otherwise be used. Further, water managers may be forced to consider the use of less environmentally sensitive algae management options.

**Specific Comments on the Additional Restrictions to HPAs:**

We reviewed the pesticide labels of four commonly used HPAs. These products include PAK 27, Phycomycin, Green Clean Liquid 2.0 and GreenClean Pro. In reviewing the labels, we identified language similar to that used in the proposed Permit restrictions. If language similar to that used in the draft Permit appears in the label, it is noted in the table below.

Product	Permit Amendment Additional Use Restrictions				
	Restriction A	Restriction B	Restriction C	Restriction D	Restriction E
PAK 27 (SePRO)	Not included in label	Not included in label	Not included in label	Not included in label	"Precaution: ... If treating a large lake or heavy bloom, treat 1/3 to 1/2 of the area and wait 2 to 3 days before treating remainder of the water."
Phycomycin SCP (Applied Biochemists)	Not included in label	Not included in label	Not included in label	Not included in label	"Precaution: ... If treating a large lake or heavy bloom, treat 1/3 to 1/2 of the area and wait 2 to 3 days before treating remainder of the water."
GreenClean Liquid 2.0 (BioSafe Systems)	Not included in label	Not included in label	Not included in label	"Begin treatment along shore and proceed outward in bands to allow fish to move into untreated areas."	Not included in label
GreenClean Pro (BioSafe Systems)	Not included in label	Not included in label	"Avoid use near shallow waterbody margins during amphibian breeding seasons."	"Subsurface (applications only): ... Begin treatment along the shoreline, and proceed outward."	Not included in label

#### Comments on Restriction A

This change is not supported by HPA label language and no rationale is given for this proposed change.

The definition of “Contained, non-flowing waters” will limit applications of HPAs to all but a few isolated waterbodies that have no inflow or outflow for 48 hours preceding and following an application. This restriction effectively removes HPAs from the IPM program of water managers. The restriction does not serve to enhance existing or potential beneficial uses of waters throughout the state if implemented; in fact, it may do just the opposite by forcing the use of larger amounts of less efficacious and potentially less environmentally sensitive algae abatement tools.

Restriction A is not supported by HPA label language. For example, GreenClean Liquid 2.0 is labeled for applications to sites including “ponds, lakes, lagoons, reservoirs, waterways, conveyance ditches, canals, laterals, (and) drainage systems”. Phycomycin is labeled for sites including “irrigation, drainage and conveyance ditches, canals, (and) laterals”. The types of sites on these 2 HPA labels are by their nature and purpose flowing waters.

#### Comments on Restriction B

This change is not supported by HPA label language. Insects are likely to be present flying over water surfaces at any time of day. This restriction may impede application of HPAs consistent with their label language that states the application should be made early in the day (GreenClean Liquid 2.0) or with 8 to 10 hours of daylight remaining (PAK 27 and Phycomycin) to enhance efficacy. Resident fish are not likely at risk from applications of HPAs due to the short, if any, exposure time and low toxicity.

#### Comments on Restriction C

This change is an overly broad restriction and would effectively end the use of HPAs. Juvenile fish or amphibians are potentially present at many if not most times of the year, and in practically any waterway in California. As stated by the USEPA in Permit language: “when the pesticide is applied in accordance with directions on the label, no harm is expected to freshwater fish or freshwater invertebrates.” We are unaware of the rationale or data that would suggest that this statement from USEPA is incorrect.

Consistent with the exposure duration and risk discussion above, there is likely little risk to amphibians from the application of HPAs.

Removing HPA as a tool will require the use of less efficacious and potentially less environmentally sensitive algae abatement tools. Further, due to the reduced efficacy of using a non-HPA algaecide, more of this type of algaecide may be required as compared to an HPA.

#### Comments on Restriction D

This restriction is consistent with language found on 2 of the 4 HPA products. As such, label directions will be followed for applications of those 2 products. The other two labels contain no such language. If the proposed restriction is placed on all HPAs, it may prevent PCAs from recommending targeted applications at specific locations that are not on the shoreline. The end result is that more product than necessary will be used which is inconsistent with IPM. This is in conflict with the Permit’s requirement that dischargers “use

the minimum amount of algaecides and aquatic herbicides that (are) necessary to have an effective control program" (Section VIII.C.11.a.). Further, this restriction may result in the use of larger quantities of less efficacious and potentially less environmentally sensitive algae abatement tools.

#### Comments on Restriction E

This restriction may decrease the efficacy of applications of HPAs. Because HPAs are short-lived and have no residual, limiting the application of HPAs to only 50% of the water body will not provide control of algae populations in the untreated water. Algae in this untreated water may then spread and re-mix throughout the entire water body. Often the most effective method to obtain control of lake-wide algae blooms is to treat the entire lake during one application. Algae population growth rates can be exponential and so not treating parts of a water body during a full-lake bloom event may result in poor algae control. Poor control and ineffective applications will lead to a higher frequency of subsequent treatment and more HPA or other algaecide applied to the water body. This is in conflict with the Permit's requirement that dischargers "use the minimum amount of algaecides and aquatic herbicides that (are) necessary to have an effective control program" (Section VIII.C.11.a.).

Note that 2 of the 4 HPA products limit the treatment to less than one half of the lake in circumstances that include "large lakes or heavy blooms". If the PCA observes that these or other conditions exist that may result in a depression of dissolved oxygen, then the PCA's recommendation would be to treat less than half of the lake. If however, smaller lakes with moderate to small blooms are encountered that would legitimately be treated in their entirety, this approach would be prohibited by the proposed restrictions. Limiting a PCA's discretion by including prescriptive permit language for the use of all HPAs would be counterproductive, may result in larger blooms, be counter to IPM, and may result in the use of less effective and potentially less environmentally sensitive algae abatement tools.

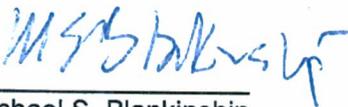
#### Conclusions

The proposed Permit restrictions on HPAs are unnecessary, will not result in benefits to water quality and may in some cases cause the opposite effect and adversely impact water quality. We strongly suggest that the SWRCB not incorporate the proposed HPA restrictions.

Please call me or Stephen Burkholder of our staff at (530) 757-0941 if you have any questions.

Sincerely,

**BLANKINSHIP & ASSOCIATES, INC.**



Michael S. Blankinship  
President