RESPONSE TO COMMENTS

AMENDED GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM VECTOR CONTROL APPLICATIONS (AMENDED VECTOR CONTROL PERMIT)

State Water Resources Control Board
April 3, 2012 Meeting

Table of Contents

A. Comment Letters Received

Letter No.	Affiliation	Representative
1	Mosquito and Vector Control Association of California (MVCAC)	Catherine Smith
2	San Francisco Baykeeper	Abigail Blodgett

B. Responses to Comments

1. Comment Letter 1 - MVCAC

Comment 1.01
MVCAC supports and requests the adoption of the proposed amendment to the Vector Control Permit.

Response 1.01
Noted.

Comment 1.02
MVCAC requests the removal of the requirement for visual and physical monitoring of larvicides (except temephos).

Response 1.02
See Responses 1.03-1.07 below.

Comment 1.03
In 2004, the State Water Board adopted an NPDES permit for vector control larvicide applications. The evidence to date shows no impacts to water quality associated with the implementation of the previous permit. The need to collect visual and physical data on the larvicides that have been reviewed by the State Water Board will provide no environmental benefit and the requirement should be removed.

Response 1.03
Water Quality Order No. 2004-0008-DWQ required the following: “The Annual Report shall contain tabular summaries of the pesticide monitoring data obtained during the previous year in a format that satisfies the requirements for inclusion in the DPRs surface water database. The Annual Report shall include a summary including, but not limited to (1) objectives of the monitoring program(s); (2) results; and (3) interpretation of data in relation to frequency, duration, and magnitude of impacts to beneficial uses.”

Our review of the data submitted under Water Quality Order No. 2004-0008-DWQ showed that only a few reports were submitted and none of them contained data to demonstrate that larvicide applications did not have any impacts on waters of the US. Therefore, data still need to be collected to determine the impacts of larvicide applications, if any.

Comment 1.04
The nature and volume of materials used in larviciding make it nearly impossible that they will affect the parameters being measured (appearance, temperature, pH, turbidity, electrical conductivity), which were developed for monitoring industrial effluent (pollution). Any resultant data from the visual and physical monitoring would be unusable and unhelpful because any effects of vector control larvicides would be inseparable from normal fluctuations in ambient water conditions (which are considerable in the very shallow water bodies the members typically treat).

Response 1.04
The comment is speculative since it provides no basis for the assertion being made. The purpose of the monitoring requirement is to get the information to determine if larviciding applications are causing water quality impacts. We have received reports from staff at the Regional Water Boards that larvicide applications in their regions have resulted in nuisance conditions in receiving waters. The typical nuisance condition is discoloration of the receiving water that gives it a milky color as a result of larvicide applications.

Section C.1 of Water Quality Order No. 2004-0008-DWQ stated: "The discharge of wastes shall not create or cause conditions of nuisance or pollution." Similarly, Section IV.B of Water Quality Order No. 2011-0002-DWQ (current permit) states: "The discharge of biological and residual pesticides shall not create a nuisance as defined in section 13050 of the California Water Code." The draft amended permit retains the Section IV.B prohibition. In order to determine compliance with this prohibition, visual and physical monitoring of larvicide applications is needed. In addition, the Monitoring and Reporting Program (MRP) requires physical monitoring of only six sites per environmental setting for the entire application season.

Comment 1.05
Vector control districts (VCDs) will continue to document all larvicide applications to waters of the U.S. as has been the practice through the Cooperative Agreement with the California Department of Public Health (CDPH).

Response 1.05
Per Comment 1.06 below, the VCDs' reports to CDPH contain only documentation of applications with visual monitoring being required only when there are adverse impacts. Thus, CDPH's reporting requirement could provide some information toward: (1) meeting the MRP's 10% visual monitoring requirement of all application sites; or (2) the minimum six-sample requirement if 10% visual monitoring requirement of all application sites is inappropriate.

Comment 1.06
The U.S. Environmental Protection Agency (USEPA) Pesticide General Permit (PGP) does not include this level of visual or physical monitoring and only requires documentation of applications with visual monitoring being the reporting of any adverse impacts. MVCAC member districts currently comply with this provision through the Cooperative Agreement with CDPH. The USEPA's PGP

was not challenged on this issue and the 120-day timeline expired earlier this week. This acceptance of the federal interpretation towards visual monitoring seems to support our request for the removal of visual and physical monitoring of larvicides.

Response 1.06
We do not believe that the USEPA PGP requirements will be protective of California's water resources because it only requires visual monitoring and only for facilities that exceed a certain threshold. Although it has both technology based and water quality based effluent limitations, there is no mechanism to ascertain compliance with those limits. In contrast, the Vector Control Permit contains the following: (1) narrative effluent limitations; (2) narrative and numeric receiving water limitations; (3) receiving water monitoring triggers; and (4) visual, physical, and chemical monitoring requirements to ensure compliance with the limitations and protection of California's water resources. In addition, the Vector Control Permit does not have a threshold below which a discharger is not required to get coverage under the permit. Any discharger which applies mosquito and vector control pesticides at, near, or over water is required to be covered by the permit.

Section 123.1(i)(1) of Title 40 of Code of Federal Regulations allows states to have requirements which are more stringent or more extensive than those required under the regulations.

Comment 1.07
The time and expense that VCDs face in documenting physical and visual monitoring will take away resources from larvicide applications and may potentially lead to more adulticide applications. This approach seems counterintuitive if larvicides are considered appropriate best management practices (BMPs) BMPs that lead to the reduction of the application of adulticides. The MVCAC recognizes the need to evaluate the impact of adulticides in water and the permit should reflect all options to be able to maximize appropriate BMP's including and not limiting the ability to larvicide in lieu of adulticide applications.

Response 1.07
Larvicides may not be as toxic as adulticides, but by their very nature, they are also toxic otherwise they would not be used to kill mosquito/vector larvae. Thus, their impacts on water quality also need to be evaluated. Furthermore, as noted in previous responses, the MRP requires physical monitoring of only six sites per environmental setting for the entire application season, which is minimal compared to the thousands of applications conducted every year.

Comment 1.08
MVCAC requests the State Water Board document the process for including new products in the permit. A clear mechanism for evaluation by the State Water Board should be identified to give manufacturers and end users a reasonable timeline for when new products will be added to the permit.

Response 1.08
Staff has discussed the procedures during several conversations with Mr. Gary Goodman of MVCAC. Staff has also copied Mr. Goodman in some correspondence with manufacturers where staff described the procedures which are reiterated below:

a. Manufacturer registers product in California through the California Department of Pesticide Regulation (DPR).

b. After registration in California, manufacturer requests staff to add product to the permit.

c. Staff requests product information from DPR and reviews information for potential impacts to water quality (1-2 weeks).

d. Staff amends the permit to add product and necessary requirements (receiving water limits/triggers, best management practices, monitoring, etc.) to the permit to protect water quality (1 month).

e. Staff processes the amended permit for State Water Board adoption (approximately three months to prepare agenda item documents, publish for a 30-day public comment period, respond to comments, and make modifications as needed).

f. State Water Board adopts amended permit, which becomes effective immediately if no significant comments are received on the draft permit and USEPA has no comments. Else, the permit becomes effective after 100 days.

Comment 1.09
The products are registered by USEPA and DPR and should not be limited in the State Water Board's NPDES permit.

Response 1.09
In accordance with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), USEPA evaluates data submitted by registrants to ensure that a pesticide product, if it is used in accordance with label instructions, will cause no harm (or "adverse impact") on non-target organism. Pesticide registrants are required to submit data on the effects of pesticides on target pests (efficacy) as well as effects on non-target pests. Data on non-target effects include plant effects (phytotoxicity), fish and wildlife hazards (ecotoxicity), impacts on endangered species, effects on the environment, environmental fate, breakdown products, leachability, and persistence. However, FIFRA is not necessarily as protective of water quality as the Clean Water Act. This conclusion is consistent with the findings of the Sixth Circuit Court of Appeals in *National Cotton Council v. USEPA,* (2009) 553 F.3d 927, in which the Court determined that dischargers of pesticide pollutants are subject to NDPES permitting as set forth in the Clean Water Act and must seek coverage under an NPDES permit for pesticide applications at, near, or over water.

Comment 1.10
VCDs have a limited number of products available for use and need all available products to be included in the permit. Removing the lists of products from the permit may allow for easier changes when new products become available and have been reviewed by the State Water Board. This would remove the need to amend the permit and the time constraints brought about by the amendment process. If amendments are necessary to add new products, then the permit could be reopened quarterly to add new products assuming that the reopening of the permit would only address the inclusion of new products and not a mechanism to alter other requirements of the permit.

Response 1.10
Changing the list of products in the permit constitutes a significant change which requires a State Water Board action. Due to the time needed to process the permit for Board adoption, reopening the permit quarterly would not be feasible. Based on staff's experience, no new pesticide products for mosquito and vector control have been registered in two consecutive quarters. Thus, at the most, staff could reopen the permit twice a year to add new products. Also, see Response 1.11.

In the revised draft amended permit, staff is proposing to add nine larvicides and five adulticides.

Comment 1.11
MVCAC requests direction from the State Water Board to work with your staff on the development of a more timely pesticide-addition methodology for future consideration by the Board.

Response 1.11
In addition to Response 1.10, staff will explore ways to expedite processing addition of mosquito and vector control pesticides to the permit including requesting the State Water Board give the Executive Director the authority to add to the permit products whose constituents have been previously reviewed by staff.

Comment 1.12
MVCAC continues to support efforts to amend the federal Clean Water Act in order to remove the NPDES permit requirement. Reasons for this include: MVCAC believes that the NPDES permit will burden and hamper effective mosquito control by requiring the MVCAC coalition (funded by vector control districts) as well as individual districts to spend substantial money, time, and staff on permit monitoring, administration, and paperwork, instead of on vector control.

Response 1.12
The State Water Board permit was adopted in order to allow dischargers to continue vector control activities in compliance with requirements of the Clean Water Act as interpreted by the Sixth Circuit Court of Appeals in National Cotton Council of America v. US EPA, (2009) 553 F.3d 927. State Water Board staff believe that the permit with proposed amendments reflects a balanced approach

to protecting water quality while acknowledging the needs of the districts to carry out activities to protect public health.

MVCAC was part of the working group that drafted the permit which is now the current permit. Thus, it was fully aware of the monitoring requirements and engaged in the process under which they were shaped. During the public comment period, MVCAC provided more than 100 comments on the draft permit. However, none of the comments pertained to the cost of compliance.

There is cost involved to comply with the permit. However, the cost to comply is reasonable since it is based on the minimum amount of samples needed to ensure water quality protection. In addition, the permit allows VCDs to form a coalition so that member districts could share the cost of compliance.

Comment 1.13
The NPDES permit will burden and hamper effective mosquito control by requiring the coalition and districts to compile and generate data and prepare numerous and substantial logs and monitoring reports that will provide little useful data without any significant benefit to waters of the US.

Response 1.13
See Response 1.12.

Comment 1.14
The NPDES permit will burden and hamper effective mosquito control by requiring districts to spend dwindling revenues and funds on permit-related costs and state permit fees.

Response 1.14
See Response 1.12. The Vector Control Permit fee is the lowest of all NPDES permit fees. The fee schedule is available at: http://www.waterboards.ca.gov/resources/fees/docs/fy1112fee_schdl_npdes_prmt.pdf.

Comment 1.15
The NPDES permit will expose vector control districts to fines, penalties and lawsuits for alleged permit noncompliance.

Response 1.15
See Response 1.12. The State Water Board's Vector Control Permit provides coverage to those dischargers wishing to ensure compliance with Clean Water Act requirements. Compliance with the terms of the permit is a requirement for permit coverage.

Comment 1.16
The NPDES permit will detract from the mission of vector control and risking public health.

Response 1.16
See Responses 1.12, 1.14, and 1.15.

2. Comment Letter 2 – San Francisco Baykeeper

Comment 2.01

The Draft Vector Control Permit unlawfully removes "or any pesticide in the same chemical family" from Standard Provision 2 without adequate justification.

Response 2.01

Removal of the clause "or any pesticide in the same chemical family" from Standard Provision 2 does not weaken the permit and will not threaten the existing protections for pesticide-impaired California waters as explained below:

a. Except for malathion, no other vector control pesticide is causing impairment of California's surface water bodies. The three water bodies impaired for malathion are Arcade Creek, Colusa Basin Drain, and Orestimba Creek, which are all in the Central Valley Region. See also Response 2.f below.

b. The State Water Board's toxicity study data show the following results thus far:

   1. In 54 water samples, no toxicity resulted from the use of products containing the active ingredients naled, pyrethrins, and sumithrin (a pyrethroid) from samples collected at about 24 hours after application. One out of 16 post-application samples collected around 24 hours after application of products containing the active ingredients pyrethrin and sumithrin and the synergist piperonyl butoxide (PBO) showed toxicity. Toxicity was detected resulting from the product containing the pyrethrin-PBO combination, but the active ingredient pyrethrin itself was not detected from this sample. All of the results for the 16 post-application samples collected for PBO around 24 hours after application were below PBO's receiving water monitoring trigger. Although no PBO was detected above its receiving water monitoring trigger, it is possible that because PBO is a synergist, it could have synergized pyrethroids that are already in the sediment, made them available in the receiving water, and caused the toxicity; and

   2. In sediments, no toxicity was detected from 16 post-application samples;

c. The current permit language potentially precludes the application of any registered pesticide for adult mosquito control in some areas where the waterways are impaired by chlorpyrifos, diazinon, and pyrethroids. By precluding adult mosquito control, such restrictions may lead to unwarranted and unacceptable risks to public health in these areas, without significant benefit to water quality. The mosquito control pesticides are applied at very low rates and not applied directly to water. Currently, there is no evidence that suggests such vector control pesticide discharges would "significantly increase," "cause serious impacts to," or "seriously threaten water quality" if the amended permit is adopted. As stated in Item a.1 above, the results of the State Water Board's study thus far confirm this. In addition, published data indicate that the amount of pesticide used statewide for vector control in

California is minimal relative to agricultural, homeowner, and many other uses.[1] Pesticide use for vector control has not been identified as a significant contributing factor to toxicity in waterways in California that results in listing as an impaired water body. There are data to suggest that any toxicity associated with pesticide use for mosquito or vector control is of short duration, and synergistic effects are unlikely;[2,3,4]

d. The permit does not authorize violation of the Endangered Species Act (Section III.M);

e. The permit contains narrative effluent and receiving water limitations, a numeric Receiving Water Limitation for malathion (an OP), and numeric Receiving Water Monitoring Triggers for the other active ingredients. The numeric Receiving Water Limitation and Triggers are very conservative. The limitation is based on U.S. EPA's Ambient Water Quality Criteria and the triggers are based on the lowest no observable effect concentration level in U.S. EPA's Ecotoxicity Database, plus a factor of safety of 10;

f. The Water Quality Criteria Report for Malathion references a study by Laetz et al. (2009) where Coho salmon were exposed to combinations of diazinon with malathion and chlorpyrifos with malathion. The study found that the combinations had synergistic, rather than additive effects. Based on staff's analysis of the report, the criteria for diazinon and chlorpyrifos established in the total maximum daily loads for Sacramento County surface waters, and the receiving water limitation for malathion would have to be exceeded many times before synergistic effects would occur;

g. Data from the study by Weston, et al. (Aquatic Effects of Aerial Spraying for Mosquito Control over an Urban Area, Environ. Sci. Technol. 2006, 40, 5817-5822) during the Sacramento -Yolo Mosquito and Vector Control District's county-wide spraying in 2005 showed no detection of pyrethrins before or 10-34 hours after application. These results are comparable to the data collected by the district itself; and

h. Dr. Jorgenson[5] developed a watershed pyrethroid insecticide exposure model for the lower American River watershed as part of his thesis. Based on his model predictions, approximately 80% of the toxic unit exposure in the watershed was associated with bifenthrin, cyfluthrin, and cypermethrin. None

[1] Howard, T.S., M. Novak, V. Kramer, and L. Bronson. 2010. Public Health Pesticide Use in California: A Comparative Summary. Jrnl. Amer. Mosq. Ctrl. Assoc. 26(3): 349-353.
[2] Weston, D.P., R. Holmes, J. You, M. Lydy. 2005. Aquatic Toxicity Due to Residential Use of Pyrethroid Insecticides. Environ. Sci. Technol. 39(24): 9778-9784.
[3] Weston, D.P., E. Amweg, A. Mekebri, R. Ogle, M. Lydy. 2006. Aquatic Effects of Aerial Spraying for Mosquito Control Over an Urban Area. Environ. Sci. Technol. 40: 5817-5822.
[4] Schleier III, J. J., R. Peterson. 2010. Deposition and Air Concentrations of Permthrin and Naled Used for Adult Mosquito Management. Arch. Environ. Contam. Toxicol. 58: 105-111.
[5] Jorgenson, B. C. (2011). Off-Target Transport of Pyrethroid Insecticides in the Urban Environment: An Investigation into Factors Contributing to Washoff and Opportunities for Mitigation. Ph. D. Thesis. University of California, Davis: USA

of these pyrethroids is permitted as an active ingredient in the current or draft amended Vector Control Permit. The modeling also predicts that >80% reduction in pyrethroid toxicity would result from the California Department of Pesticide Regulation's pending surface water regulations[6]. If the modeling predictions occur, it would be less likely for mosquito and vector control applications to add to the remaining toxicity in the receiving water because the results of the State Water Board's toxicity study, thus far, show no toxicity from the use of the mosquito and vector control pesticides. Reductions in pyrethroid toxicity in the receiving water would provide more assimilative capacity for the mosquito and vector control pesticides. In other words, it would take more mosquito and vector control pesticides than what is currently being applied before they would add to the existing toxicity.

Comment 2.02

The proposed revision constitutes impermissible backsliding of permit effluent limitations, and should not be allowed. Moreover, the addition of greater volumes of pesticides to state waterways, including waters that are impaired for pesticide toxicity, will seriously threaten water quality – yet the proposed permit revisions contain no anti-degradation analysis. Since this change will contribute to the further impairment of these waters, it is not permissible under the Clean Water Act. Many San Francisco Bay tributaries are listed as impaired by pyrethroids, one of the pesticides families impacted by the proposed change, under section 303(d) of the Clean Water Act. Due to the extensive impairment already caused by this pesticide family, Baykeeper is concerned that the Proposed Permit would contribute to the decline of water quality, threatened and endangered species, and public health in the San Francisco Bay watershed.

Response 2.02

State Water Board staff does not agree that the proposed amendment constitutes anti-backsliding. The Clean Water Act requirements of Section 402(o) and 303(d)(4) are intended to maintain improvements in water quality resulting from prior permits. To the extent that modification of the provision limiting discharges of biological and residual pesticides or their degradation byproducts to waters impaired by the same active ingredients as permitted pesticides might constitute alteration of a limitation to which anti-backsliding restrictions could apply, water quality-based limits may be relaxed in certain circumstances, consistent with Section 303(d)(4). Under the revised permit language, pesticides may not be discharged to waters impaired for the same active ingredient. Any discharges taking place as a result of the new language would be to waters in attainment of standards for that active ingredient. For waters in attainment of applicable standards, limits may be revised consistent with antidegradation requirements.

[6] California Department of Pesticide Regulation. "DPR 11-004 Prevention of Surface Water Contamination by Pesticides." Accessed March 13, 2012. http://www.cdpr.ca.gov/docs/legbills/rulepkgs/11-004/text_modified.pdf

The antidegradation analysis set forth in the existing permit examines the range of discharges authorized in the permit, determining that the applicable receiving water limitations and receiving water monitoring triggers, together with visual, physical, and chemical testing and required BMPs are protective of the broad range of beneficial uses throughout the state and in the best interest of the people of the state. Deletion of the language as proposed in the draft amendment does not alter these conclusions, nor was its inclusion a basis for these findings. State Water Board staff believe that a new antidegradation analysis on this basis is unnecessary.

See also, Response 2.01.

Comment 2.03
The State Water Board must fully study the impacts of the proposed changes to the Vector Control permit before it adopts the draft permit.

Response 2.03
The assertion that "the Draft Permit would adversely impact the toxicity of California waters" is not borne out by the facts as explained in Response 2.01 above. Staff recognizes the importance of completing the toxicity study. The framework of the permit is specifically set up to generate data for the State Water Board to determine the effects of public health pesticides on water quality (e.g. water chemistry monitoring and toxicity study). The results will allow the State Water Board to determine which, if any, public health pesticides contribute to water quality degradation and directly addresses the two key Monitoring and Reporting Program questions in the permit. As stated in Response 2.01, no toxicity resulted from the use of products containing the active ingredients naled, pyrethrins, and sumithrin. Thus, based on the results from the study to date, the use of mosquito and vector control pesticides does not contribute to the toxicity in the receiving water. The proposed language changes allow the State Water Board to better assess the environmental burden of public health pesticide usage by being able to examine the interactions among specific public health pesticides and other chemicals that are already in the receiving water. Restricting the ability of local vector control agencies to effectively control mosquitoes and protect public health is not an intended consequence of the permit. Through this amendment, the State Water Board is creating a suitable remedy that protects both water quality and public health.

Comment 2.04
The vector control permit should focus on eliminating larvae, not applying adulticides. Adulticiding is not effective, has major impacts on waterways, and promotes resistance and aggressive mosquitoes.

Response 2.04
The role of the State Water Board, through implementation of the permit, is to regulate discharges of pollutants to waters of the U.S. and not to identify or promote specific mosquito control techniques. Mosquito control adulticides are not applied directly to water and there is no evidence that they have "major impacts on waterways" when applied in compliance with label directions.

Mosquitoes can become resistant to either (or both) larvicides and adulticides, and vector control programs use a variety of chemical and non-chemical control techniques to minimize the development of resistance. There is no credible evidence that mosquitoes become “more aggressive” when exposed to adulticides.

Because both larval mosquito control and adult mosquito control are essential to vector control programs, the permit should not preclude the appropriate use of both larvicides and adulticides. The chemistry monitoring requirements and toxicity study will assess deposition, residues, and potential toxicity associated with adulticides.