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VIA ELECTRONIC MAIL

February 22, 2016

Victoria A. Whitney, Deputy Director
Division of Water Quality
c/o NPDES Wastewater Unit
State Water Resources Control Board
1001 I Street, 15th Floor
Sacramento, CA 95814

Subject: MVCAC NPDES Permit Coalition's 2015 Annual Report, Order# 2011-0002-DWQ, NPDES# CAG 990004

Dear Ms. Whitney

On behalf of the Mosquito and Vector Control Association of California (MVCAC) National Pollutant Discharge Elimination System (NPDES) Permit Coalition, please find attached the 2015 Annual Report for the Statewide NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications (Water Quality Order 2011-0002-DWQ, as amended).

Sincerely,

Elizabeth Nielsen, PE
Senior Environmental Engineer
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cc: Gil Vazquez, State Water Resources Control Board
Armando Martinez, State Water Resources Control Board
Gary Goodman, Sacramento Yolo Mosquito & Vector Control District
Rachel Hickerson, AMG
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MVCAC NPDES Permit Coalition 2015 Annual Report, Vector Control Permit

February 22,2016

Prepared by MVCAC NPDES Permit Coalition
2015 Annual Report / 60423053

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List of Acronyms

BMP	best management practice
CDC	Centers for Disease Control and Prevention
Coalition	MVCAC NPDES Permit Coalition
IPM	integrated pest management
MAD	Mosquito Abatement District
MRP	Monitoring and Reporting Program
MVCAC	Mosquito and Vector Control Association of California
MVCD	Mosquito and Vector Control District
NPDES	National Pollutant Discharge Elimination System
PAP	Pesticide Application Plan
SWRCB	State Water Resources Control Board
VCD	Vector Control District
VCSD	Vector Control Services District

Executive Summary

The Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications (Water Quality Order 2011-0002-DWQ, as amended), hereafter called the Vector Control Permit, covers the point source discharge of biological and residual pesticides resulting from applications for vector control. The Vector Control Permit encourages dischargers to form monitoring coalitions with others doing similar applications in similar environmental settings. The Mosquito and Vector Control Association of California (MVCAC) NPDES Permit Coalition (Coalition) consists of 64 member districts and agencies.

During 2015, the Coalition did not conduct chemical monitoring or perform visual, physical, and chemical testing reportable under the Vector Control Permit. The MVCAC member agencies conducted monitoring in compliance with the Vector Control Permit's Monitoring and Reporting Program (MRP). Member agencies monitor during pesticide applications (the application rates and visually assess the area to and around where the pesticide is applied for adverse incidents, when safe and feasible), visually monitor after pesticide applications, and maintain records of receiving water conditions.

Any changes to individual district Pesticide Application Plans (PAPs) and their associated best management practices (BMPs) are determined by individual member districts and can be found in the respective member district's annual reports as required by the Vector Control Permit.

1 Background Information

1.1 Introduction

This is the 2015 Annual Report for the Coalition, as required under the Vector Control Permit (Water Quality Order 2011-0002-DWQ, as amended; General Permit CAG 990004).

Member districts of the Coalition submit individual annual reports. Individual annual reports focus on larvicide and adulticide applications, site locations, and comprehensive pesticide applications logs for all larvicide and adulticide applications to Waters of the United States. Member district annual reports also address recommendations to improve PAPs and BMPs and describe any permit violations. Members of the Coalition are listed in Table 1.

Table 1-1. Members of the MVCAC NPDES Permit Coalition

Member Districts	
Alameda County MAD	Merced County MAD
Alameda County VCSD	Napa County MAD
Burney Basin MAD	Nevada County Community Development Agency
Butte County MVCD	Northern Salinas Valley MAD
City of Alturas	Northwest MVCD
City of Blythe	Orange County MVCD
City of Long Beach	Oroville MAD
City of Moorpark	Owens Valley MAD
City of Pasadena	Pine Grove MAD
City of San Francisco	Placer MVCD
Coachella Valley MVCD	Riverside County Vector Control Program
Colusa MAD	Sacramento - Yolo MVCD
Compton Creek MAD	Saddle Creek Community Services District
Consolidated MAD	San Benito County Agricultural Commission
Contra Costa MVCD	San Bernardino County
Delta VCD	San Diego County Department of Environmental Health – Vector Control Program
Durham MAD	San Gabriel Valley MVCD
East Side MAD	San Joaquin County MVCD
El Dorado County Environmental Management	San Mateo County MVCD
Fresno MVCD	Santa Barbara County, Mosquito and Vector Management District
Fresno Westside MAD	Santa Clara County VCD
Glenn County MVCD	Santa Cruz County MVCD
Greater Los Angeles County VCD	Shasta MVCD
Imperial County Vector Control	Solano County MAD
June Lake Public Utility District	South Fork MAD
Kern MVCD	Sutter-Yuba MVCD
Kings MAD	Tehama County MVCD

Lake County VCD	Tulare County MAD
Los Angeles County West VCD	Turlock MAD
Madera County MVCD	Ventura County Environmental Health Division
Mammoth Lakes MAD	West Side MVCD
Marin/Sonoma MVCD	West Valley MVCD

Notes:
MAD = Mosquito Abatement District
MVCD = Mosquito and Vector Control District
VCD = Vector Control District
VCSD = Vector Control Services District

1.2 Vector Control Permit

The Vector Control Permit (Water Quality Order 2011-0002-DWQ, as amended) covers the point source discharge of biological and residual pesticides resulting from direct and spray applications for vector control. Under this general permit, entities involved in the application of vector control pesticides that result in a discharge of biological and residual pesticides to waters of the United States are to comply with the permit's MRP. The Vector Control permit encourages dischargers to form monitoring coalitions with others doing similar applications in similar environmental settings. The Coalition consists of 64 member districts and agencies.

The Vector Control Permit became effective on March 1, 2011. This general permit was later amended by the following water quality orders:

- Order 2012-0003-DWQ on April 3, 2012,
- Order 2014-00038-EXEC on March 12, 2014, and
- Order 2014-0106-DWQ on July 2, 2014.

The original order (Order 2011-0002-DWQ) required member agencies to prepare PAPs that included a list of all pesticide products to be used, among other items. This order also required the permittee or Coalition to conduct visual, physical, and chemical monitoring. The monitoring included the chemical analysis of representative samples collected prior to pesticide applications (background samples), shortly after the time of application, and post-application. Order 2012-0003-DWQ amended the permit to include product formulations in Attachments E and F of the permit. Most of the additional product formulations contained the same active ingredients that were already authorized for use pursuant to Order 2011-0002-DWQ. Order 2014-00038-EXEC amended the MRP and replaced the visual, physical, and chemical monitoring requirements with reporting of visual observations, monitoring and reporting of pesticide application rates, and reporting of non-compliant applications. Order 2014-0106-DWQ amended the permit to include all larvicides and adulticides that are currently registered by DPR, and new larvicides and adulticides that will be registered by DPR using the same active ingredients; additional receiving water limitations and receiving water monitoring triggers for newly added active ingredients; and a provision for reopening the permit to include new active ingredients that DPR registers for vector control. Water Quality Order 2011-0002-DWQ will expire on February 29, 2016 and is expected to be reissued at that time.

In July 2014, the Coalition submitted a joint PAP amendment to the State Water Resources Control Board (SWRCB) (MVCAC Coalition 2014). The PAP amendment was submitted to revise member agencies' respective PAPs to include all larvicides and adulticides covered by the Vector Control Permit, as modified by Order 2014-0106-DWQ. In August 2014, the SWRCB issued a notice of applicability for the revised PAP, indicated that the MVCAC member districts satisfied the conditions of the Vector Control Permit, and concluded that the revised PAP was complete.

1.3 West Nile Virus Activity

Vector control districts protect public health by controlling mosquitoes that spread disease. West Nile virus is a mosquito-borne disease that is common in Africa, west Asia, the Middle East, and more recently, North America. Human infection with West Nile virus may result in serious illness. It first appeared in California in 2002, and in 2004, West Nile virus activity was observed in all 58 counties.

ArboNET is the Centers for Disease Control and Prevention's (CDC's) internet-based passive surveillance system for arboviral diseases (including West Nile virus) in the United States. Data are uploaded to ArboNET by State and local health departments. In 2015, a total of 730 human cases and 45 fatalities in California were reported to ArboNET (CDC 2016). This is a higher fatality rate than reported in 2014, which had 31 fatalities from the 801 reported human cases of West Nile virus (CDC 2015).

California-specific information can also be found on California's West Nile Virus website (see Table 2). The California Department of Public Health, UC Davis Center for Vectorborne Diseases, the California Department of Food and Agriculture, and MVCAC contribute data and maintain California's West Nile Virus website. Table 2 shows that human cases and surveillance detections increased in 2014 and 2015, as compared to the prior 8 years.

Table 1-2. Summary of 2003-2014 West Nile Virus Activity

Element	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Human cases (fatal)	3[a] (0)	779 (29)	880 (19)	278 (7)	380 (21)	445 (15)	112 (4)	111 (6)	158 (9)	479 (20)	379 (15)	801 (31)	737 (45)
Horses	1[b]	540	456	58	28	32	18	19	15	22	13	-[c]	-[c]
Dead birds	96	3,232	3,046	1,446	1,396	2,569	515	416	688	1,644	1,251	2,442	1,349
Mosquito samples	32	1,136	1,242	832	1,007	2,003	1,063	1,305	2,087	2849	2,528	3,340	3,329
Sentinel chickens	70	809	1,053	640	510	585	443	281	391	540	485	443	449
Squirrels	-	49	48	32	26	32	10	24	24	23	-[c]	-[c]	-[c]

Source: http://westnile.ca.gov
Note:
[a] There were 20 imported human cases.
[b] There were 3 imported horse cases.
[c] No longer monitored.

2 Summary of Monitoring Data

2.1 Prior Monitoring Activity

Historically, the Vector Control Permit required visual, physical and chemical monitoring.[1] The physical and chemical monitoring results contained in the 2012 Annual Report (MVCAC Coalition 2013) indicated that the pesticide active ingredient was rarely present in the waterway and/or the presence of the material in the waterway was of extremely short duration after pesticide application. The report concluded that there did not seem to be any significant long-term impact to the beneficial uses of the waters.

On May 22, 2013, MVCAC requested a reduction of the monitoring requirements and the SWRCB's consideration of requirements that complement the vector control districts' public safety mission and that do not interfere with the timing of their critical pesticide applications. The 2014-0106-DWQ order amended the Vector Control Permit's MRP and replaced the visual, physical, and chemical monitoring with reporting of visual observations, monitoring and reporting of application rates, and reporting of non-compliant applications.

2.2 Monitoring Activity in 2015

During 2015, the Coalition did not conduct chemical monitoring or perform visual, physical, and chemical testing reportable under the Vector Control Permit. MVCAC member agencies completed pesticide application logs and conducted monitoring in compliance with the Vector Control Permit's MRP. Member agencies monitor during pesticide applications (the application rates and visually assess the area to and around where the pesticide is applied for adverse incidents, when safe and feasible), monitor after pesticide applications, and maintain records of receiving water conditions.

[1] Reports of prior monitoring activity can be found on the SWRCB's website at the following web addresses:
http://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/docs/vectorcontrol/mvcac_2012.pdf
http://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/docs/vectorcontrol/mvcac_2013.pdf

3 Best Management Practices

3.1 Vector Control Management Practices

MVCAC member agencies employ integrated pest management (IPM). First and foremost, MVCAC promotes education to prevent the formation of mosquito habitat. To that end, MVCAC encourages all public agencies to incorporate the California Department of Public Health BMPs in their planning and permitting documents and requirements. More than any other collective action that MVCAC could take, educating landowners about the simple, low-cost ways to prevent mosquito breeding habitats will have the greatest effects on disease prevention. This step alone has the greatest potential to reduce the need for adulticides. While MVCAC presses for introduction of these education and information tools throughout the State, its second level of protection is the use of physical and biological control tools to reduce the potential formation of mosquito breeding sites. Such steps include the use of water management practices, the removal of vegetation, and the introduction of predacious organisms such as mosquito fish to control the mosquito populations in their aquatic stage. Many districts conduct surveillance to ensure that they are targeting only those mosquitoes with the greatest impact to public health and this surveillance component helps drive control efforts. The third and fourth steps in the IPM process are chemical control of mosquitoes using larvicides and adulticides.

3.2 BMPs Currently in Use

Member districts of MVCAC implement the BMPs provided in their respective PAPs to meet the requirements of the Vector Control Permit. MVCAC member agencies follow an IPM approach that strives to efficaciously use pesticides and minimize their impact on the environment while protecting public health. Each member agency determines what vector management methods are appropriate in their district, and follows response plans that use surveillance tools to determine the extent of the problem and guide treatment decisions, with an emphasis on source reduction and control of mosquitoes in their immature stages. The least toxic materials available for control of the larval stages, focusing on bacterial larvicides, growth regulators and surface films are used rather than organophosphates or pyrethroids. Control of adult mosquitoes may become necessary under some circumstances, such as in the event of a disease outbreak (documented presence of infectious virus in birds, human population or active host-seeking adult mosquitoes), or lack of access to larval sources leading to the emergence of large numbers of biting adult mosquitoes. Organophosphate insecticides (naled and malathion) are used in rotation with pyrethrins or pyrethroids to avoid the development of resistance. The active ingredients currently used for control of adult mosquitoes have been deliberately selected for lack of persistence and minimal effects on non-target organisms when applied at label rates for ultra-low volume mosquito control. All BMPs included in the product labels are followed and include such measures as restrictions in certain land uses and weather (i.e., wind speed) parameters. Additional information about specific BMPs can be found in member agency's PAPs.

3.3 BMP Modifications

Modifications to BMPs are handled by individual member districts on a district-by-district basis. Any modifications to BMPs can be found in respective member districts annual reports prepared for the Vector Control Permit. Pesticide application logs and site locations of the applications are also reported by the member districts in the district's annual report.

3.4 Violations

Individual member districts would report violations of the Vector Control Permit in the district's annual report. No violations were reported by the member districts to the Coalition in 2015.

4 References

California Department of Public Health, UC Davis Center for Vectorborne Disease, California Department of Food and Agriculture, and Mosquito and Vector Control Association of California. 2016. *2003-2015 WNV Activity Summary*. California West Nile Virus Website. http://westnile.ca.gov. Last updated January 12.

Centers for Disease Control and Prevention (CDC). 2015. *Final Annual Maps & Data for 1999-2014*. http://www.cdc.gov/westnile/statsmaps/finalmapsdata/index.html. Last updated June 9.

Centers for Disease Control and Prevention (CDC). 2016. West Nile Virus Disease Cases and Presumptive Viremic Blood Donors by State – United States, 2015 (as of January 12, 2016). http://www.cdc.gov/westnile/statsmaps/preliminarymapsdata/histatedate.html. Last updated January 12.

Mosquito and Vector Control Association of California NPDES Permit Coalition (MVCAC Coalition). 2013. *MVCAC NPDES Permit Coalition 2011/2012 Annual Report, NPDES Vector Control Permit (Order No. 2012-0003-DWQ).* February 22.

Mosquito and Vector Control Association of California NPDES Permit Coalition (MVCAC Coalition). 2014. Pesticide Application Plan (PAP) Amendment. July 16.

State Water Resources Control Board (SWRCB). 2011. Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications. Water Quality Order No. 2011-0002-DWQ (as Amended by Order Nos. 2012-0003-DWQ and 2014-0038-EXEC). General Permit No. CAG 990004. March 1.

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