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APR 04 2016

DIVISION OF WATER QUALITY

ATTACHMENT E – NOTICE OF INTENT

WATER QUALITY ORDER 2016-XXXX-DWQ
GENERAL PERMIT CAG990004

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

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item A. New Applicator B. Change of Information: WDID# _____

C. Change of ownership or responsibility: WDID# _____

D. Enrolled under Order 2011-0002-DWQ: WDID# _____

II. DISCHARGER INFORMATION

A. Name <i>Merced County Mosquito Abatement District</i>			
B. Mailing Address <i>P.O. Box 909</i>			
C. City <i>Merced</i>	D. County <i>Merced</i>	E. State <i>CA</i>	F. Zip Code <i>95341</i>
G. Contact Person <i>Allan Inman</i>	H. Email address <i>memadmanager@unwired66.com</i>	I. Title <i>Manager - Entomologist</i>	J. Phone <i>209-722-1527</i>

III. BILLING ADDRESS (Enter Information only if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip Code
G. Email address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Biological and residual pesticides discharge to (check all that apply)*:

1. Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
Name of the conveyance system: _____

2. Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
Owner's name: _____
Name of the conveyance system: _____

3. Directly to river, lake, creek, stream, bay, ocean, etc.
Name of water body: Grassland wetlands, San Joaquin & Merced Rivers and their tributaries (Attachment A)
* A map showing the affected areas for items 1 to 3 above may be included.

B. Regional Water Quality Control Board(s) where application areas are located
(REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region 5
(List all regions where pesticide application is proposed.)

A map showing the locations of A1-A3 in each Regional Water Board shall be included.

V. PESTICIDE APPLICATION INFORMATION

A. Target Organisms: Vector Larvae Adult Vector

B. Pesticides Used: List name, active ingredients and, if known, degradation by-products
See attachment B

C. Period of Application: Start Date January 1 End Date December 31

D. Types of Adjuvants Added by the Discharger:

VI. PESTICIDES APPLICATION PLAN

A. Has a Pesticides Application Plan been prepared?*

Yes No

If not, when will it be prepared? _____

* A copy of the Pesticides Application Plan shall be included with the NOI.

B. Is the applicator familiar with its contents?

Yes No

VII. NOTIFICATION

Have potentially affected governmental agencies been notified?

Yes No

* If yes, a copy of the notifications shall be attached to the NOI.

Attachment C

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?

Yes NO NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the Order, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: Allan Inman

B. Signature: *Allan Inman*

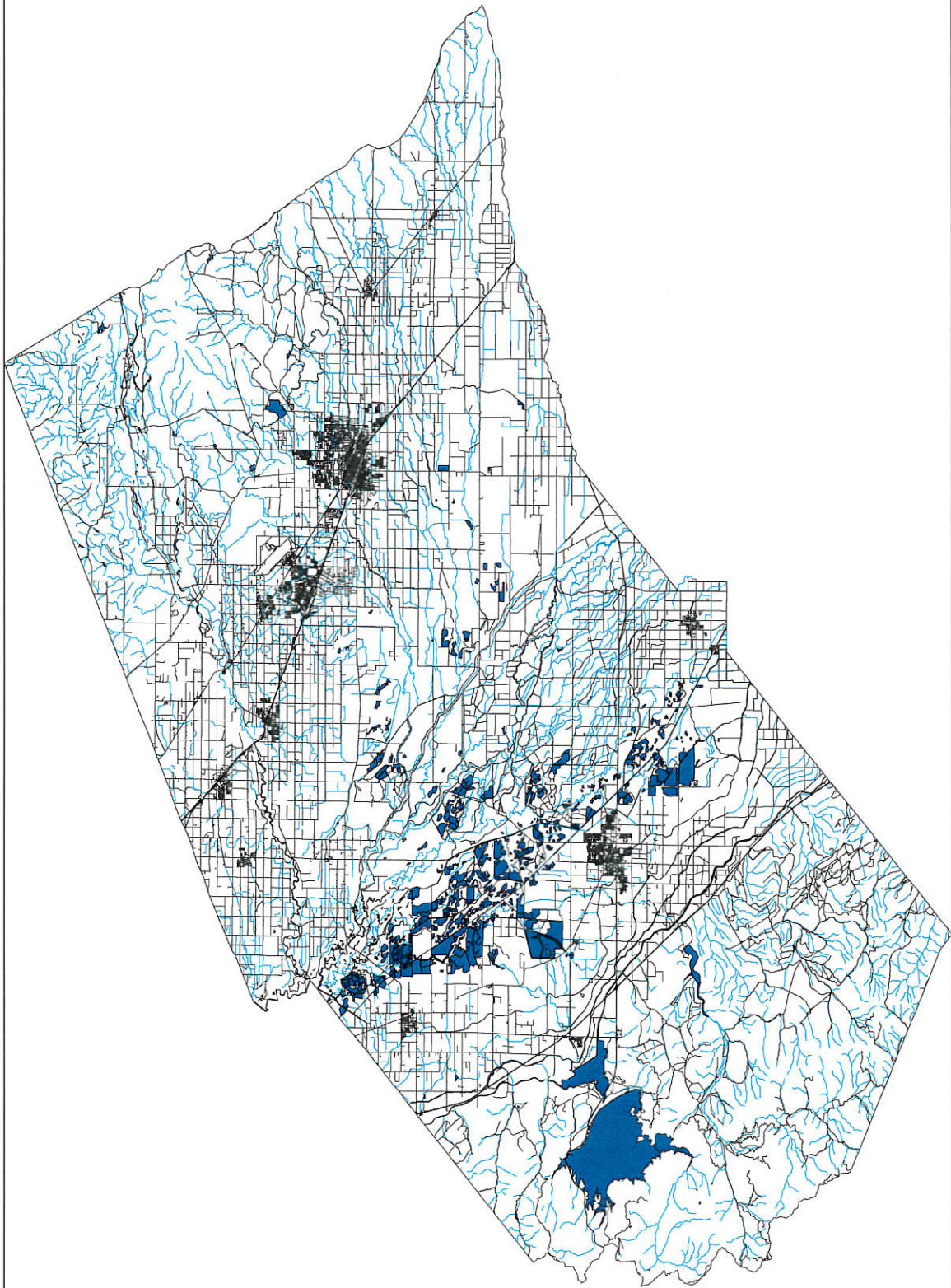
Date: 3/30/16

C. Title: Manager - Entomologist

X. FOR STATE WATER BOARD USE ONLY

WDID:	Date NOI Received:	Date NOI Processed:
Case Handler's Initial:	Fee Amount Received: \$	Check #:

Attachment A



Attachment B
Merced County Mosquito Abatement District NOI
V. Pesticide Application Information

Active Ingredient:

Bacillus thuringiensis var. israelensis
Bacillus sphaericus (Lysinibacillus sphaericus)
Bifenthrin
Deltamethrin
Etofenprox
Lamda-Cyhalothrin
Malathion
Methoprene
Mineral Oil
Monomolecular Films
Naled
Petroleum Distillates
Permethrin
Piperonyl Butoxide
Prallethrin
Resmethrin
Spinosad
Sumithrin

Any "minimum risk category" pesticides that are FIFRA exempt and registered for use in California and used in a manner specified in 40 C.F.R. section 152.25

NPDES Government Contact List Attachment C

San Luis National Wildlife Refuge
USFWS
P.O. Box 2176
Los Banos, CA 93635

CDFG Central Region
1234 East Shaw Ave
Fresno CA 93710

CDFG
18110 W. Henry Miller Ave.
Los Banos, CA 93635

CDPH-VBDS
8633 Bond Road
Elk Grove, CA 95624

Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

County of Merced
2222 "M" Street
Merced, CA 95340

City of Atwater
750 Bellevue Road
Atwater, CA 95301

City of Dos Palos
1546 Golden Gate Avenue
Dos Palos, CA 93620

City of Los Banos
520 "J" Street
Los Banos, CA 93635

City of Gustine
P.O. Box 16
Gustine, CA 95322

City of Livingston
1416 "C" Street
Livingston, CA 95334

Centinella Water District
P.O. Box 98
Westly, CA 95387

Central California Irrigation District
P.O. Box 1231
Los Banos, CA 93635

Country Club County Water District
10437 Morro Bay Lane
Turlock, CA 95380

Delhi County Water District
9738 Stephens Street
Delhi, CA 95315

Eagle Field Water District
51170 West Althea
Firebaugh, CA 93622

Franklin County Water District
2115 N. Drake Avenue
Merced, CA 95348

Grassland Water District
22759 S. Mercey Springs Road
Los Banos, CA 93639

Gustine Drainage District
366 6th Street
Gustine, CA 95322

Hilmar County Water District
8319 Lander Ave
Hilmar, CA 95324

Le Grand Water District
13038 E. Jefferson
Le Grand, CA 95333

Merced Irrigation District
P.O. Box 2288
Merced, CA 95344-0288

Merquin County Water District
19684 2nd Ave
Stevinson, CA 95374

Pacheco Water District
P.O. Box 1447
Los Banos, Ca 93635

San Luis Water District
1015 Sixth Street
Los Banos, CA 93635

Santa Nella Water District
12931 S, Highway 33
Santa Nella, CA 95322

South Dos Palos Water District
Midway Community Services District
21476 S. Reynolds Avenue
South Dos Palos, CA 93665

Winton Water and Sanitary District
P.O. Box 970
Winton, CA 95388

Stevinson Water District
P.O. Box 818
Newman, CA 95360

Ballico - Cortez Water District

Charleston Drainage District (Merced)

North Dos Palos Water District



MERCED COUNTY MOSQUITO ABATEMENT DISTRICT

3478 Beachwood Drive • P.O. Box 909 • Merced, California 95341
209-722-1527 • 800-622-3242 • Fax: 209-722-3051

MEMBER



MVC
ASSOCIATION
of CALIFORNIA

March 24, 2016

Dear Agency Manager,

The Merced County Mosquito Abatement District will be conducting larvicide and adulticide operations to and over the Grassland wetlands, Merced and San Joaquin Rivers and their tributaries, and other waters of the US which may be under your jurisdiction for mosquito control purposes. The applications are typically made from April – November, but can occur year round if weather conditions and mosquito populations warrant. There are no water restrictions or precautions during treatment. The District is required to notify all government agencies that may be affected by these applications under the requirements of the General NPDES Permit for Biological and Residual Pesticide Discharges from Vector Control Applications. Please contact Allan Inman if you have additional questions.

Respectfully submitted,

Allan D. Inman
Manager-Entomologist
209-722-1527
mcmadmanager@unwiredbb.com

March 24, 2016

Notice of Intent to Apply Public Health Pesticides for Vector Control Purposes to Surface Waters and Waters of the U.S. Within Merced County.

The Merced County Mosquito Abatement District will be conducting larvicide and adulticide operations to and over the Grassland wetlands, Merced and San Joaquin Rivers and their tributaries, and other waters of the U.S. owned and controlled by an entity other than the District for mosquito control purposes per the requirements of the General NPDES Permit for Biological and Residual Pesticide Discharges for Vector Control Applications.

The NPDES Permit requirements for listing of the Public Health Pesticides anticipated to be used were modified from the previous permit, to the new permit which is being issued in 2016. The newer requirements specify that any pesticide product can be used that contain approved active ingredients, provided all pesticides label restrictions and instructions are followed. In addition, pesticides which fall under the "minimum risk" category can be used. The minimum risk pesticides have been exempted from FIFRA requirements. The following tables list the active ingredients approved for the FIFRA regulated pesticides.

Active ingredients for larval mosquito control:

Bacillus thuringiensis var. israelensis
Bacillus sphaericus
Methoprene
Mineral Oil
Monomolecular Films
Petroleum Distillates
Spinosad

Active ingredients for adult mosquito control:

Bifenthrin
Deltamethrin
Lambda-Cyhalothrin
Malathion
Naled
Piperonyl Butoxide
Permethrin
Prallethrin
Pyrethrin
Resmethrin
Sumithrin

The purpose of the use of the listed pesticides is for the control of larval and adult mosquitoes to minimize the threat of mosquito-borne diseases and biting annoyances.

The applications are typically made from April – November, but can occur year round if weather conditions and mosquito populations warrant.

There are no water use restrictions or precautions during treatment.

Interested persons may contact the District for additional information.

Allan Inman
Manager-Entomologist
Merced County Mosquito Abatement District
P.O. Box 909
Merced, CA 95341
1-209-722-1527
mcmadmanager@unwiredbb.com
www.mcmosquito.org

Merced County Mosquito Abatement District PAP:

- 1. Description of all target areas, if different from the water body of the target area, in to which larvicides and adulticides are being planned to be applied or may be applied to control vectors. The description shall include adjacent areas, if different from the water body of the target areas:**

Please see Agency Boundary Map. Typically, mosquito control operations will be concentrated in the Grassland wetland area treating seasonal and permanent wetlands used to attract and maintain migratory waterfowl. Secondary applications are conducted along the Merced River near Livingston, tributaries of the Merced River in the City of Merced (e.g., Bear Creek, Black Rascal Creek, Fahrens Creek, and Cottonwood Creek), and the congruence of the Merced and San Joaquin River adjacent to Stevinson.

- 2. Discussion of the factors influencing the decision to select pesticide applications for mosquito control;**

Mosquito control strategies have developed over the years beyond source reduction, biological control, and chemical control. Prescription mosquito control has been adopted as control methodologies have become "species specific" in order to increase efficacy. The Grassland wetland is the largest contiguous wetland in the western United States. While the Merced County MAD promotes BMP's (e.g., wetland BMP's promulgated by the California Department of Public Health and the Central Valley Joint Venture's Mosquito Working Group, U.S. Bureau of Reclamation) convincing a duck club manager to adopt such BMP's has always been problematic. The extent of these wetlands does not allow the use of fish for larval control or ground applied larvicides. The Merced County MAD owns four aircraft and relies on novel aerial application techniques of biological and biorational larvicides as our primary control strategy. The larvicides are applied to the breeding sites utilizing low volumes and small droplet spectra. Rotary atomizers dispense the material at droplet sizes ranging from 80 to 100 microns and application rates of .75 to 16 ounces per acre. Typical agricultural operations utilize droplet sizes larger than 200 microns with application rates of several gallons per acre. The specificity of the products, their modes of action, dosage rates, and the novel application technology employed by the Merced County MAD negate any potential deleterious effect on water quality. These larvicide applications are supplemented by aerial applications along wetland corridors to build a buffer zone between the wetlands and populated areas. For disease control and West Nile virus prevention the Merced County MAD has adopted an early season adulticide strategy designed to decrease peak mosquito populations (T. Moon. UC-Berkeley. "A Statistical Model of the Dynamics of a Mosquito Vector Population"). While the District utilizes the California Mosquito-Borne Virus Surveillance and Response Plan (2011) as a guide the District has adopted a more aggressive strategy and initiates aerial adulticiding in urban areas at the first detection of any West Nile virus surveillance activity. The adherence to this aggressive strategy is based on management's experience outside the state of California designing control programs for malaria, St. Louis Encephalitis, and Easter Equine

Encephalitis. In a normal mosquito year all adulticiding operations are based on surveillance (light trap and landing rate counts) as well as requests from the public. Excepting the aforementioned disease prevention strategies, the District embraces BMP's for mosquito control recommended by the California Department of Public Health and the Mosquito and Vector Control Association of California.

3. Pesticide products or types expected to be used and if known, their degradation by-products, the method in which they are applied, and if applicable, the adjuvants and surfactants used:

The NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications was amended to list the approved active ingredients rather than having specific products named. All pesticide label restrictions and instructions will be followed for pesticides which contain the active ingredients listed below. In addition, pesticides which fall under the "minimum risk" category may be used. The minimum risk pesticides have been exempted from FIFRA requirements. The following list of products may be used by the District for larval or adult control. All of these products may be applied by ground (hand-held, truck mounted, ATV, backpack, hand can sprayers, etc.) or by air (fixed wing aircraft).

Active Ingredients:

Bacillus thuringiensis var. israelensis
Bacillus sphaericus (Lysinibacillus sphaericus)
Bifenthrin
Deltamethrin
Etofenprox
Lambda-Cyhalothrin
Malathion
Methoprene
Mineral Oil
Monomolecular Films
Naled
Petroleum Distillates
Permethrin
Piperonyl Butoxide
Prallethrin
Resmethrin
Spinosad
Sumithrin

Any minimum risk category pesticides that are FIFRA exempt and registered for use in California and used in a manner specified in 40 C.F.R. section 152.25

4. Description of all the application areas and the target areas in the system that are being planned to be applied or may be applied. Provide a map showing these areas.

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the Merced County MAD's preferred solution, and whenever possible the District works with property owners to affect long-term solutions to reduce or eliminate the need for continued applications. Mosquito breeding sources and areas that require adult mosquito control are difficult to predict from year to year based on variations in weather and local environmental condition. The Merced County MAD categorizes its sources as either: 1) Natural, 2) Agricultural, 3) Industrial, or 4) Domestic. Typical sources under each category follows:

Natural – floodwater, rain pools, federal wetlands, state wetlands, private wetlands, and other

Agricultural – irrigated pastures/crops, canals/ditches, dairy lagoons, drains, and sumps; and other

Industrial – sewage lagoons, cannery waste, and other

Domestic – catch basins/gutters, swimming pools, and other

Please see Agency Boundary Map and response to Question No. 1.

5. Other control methods used (alternatives) and their limitations;

With any source of mosquitoes or other vectors, the Merced County Mosquito Abatement District's first goal is to look for ways to eliminate the source, or if that is not possible, for ways to reduce the potential for vectors. The most commonly used methods and their limitations are included in the "Best Management Practices for Mosquito Control in California."

Biological Control. Mosquito fish are the best known form of biological control. The sheer volume of breeding sites and the inability of mosquito fish to rapidly disperse throughout large areas prohibit the large scale use of fish in Merced County. With a small rearing capacity, the District limits the distribution of fish only to domestic sites breeding sites.

Legal Abatement. The Merced County MAD is empowered by the California Health and Safety to abate all nuisances. The Board of Trustees (governing body of the District) emphasized cooperation rather than the "heavy handed" use of the Health and Safety Code to eliminate mosquito breeding sites. The Board has emphasized the use legal abatement when the mosquito source may be contributing to a disease outbreak rather than just creating a nuisance.

Natural Control. "Mother Nature" does her part to control mosquitoes as only 20% or less of the eggs that hatch ever reach the adult stage. The District utilizes natural control in remote areas of the Merced County. Additionally, the District utilizes larvicides that at label rates are very specific to mosquito larvae and preserve the natural predator population. Additionally, the District builds specificity into its adulticiding operations by utilizing a tight droplet spectrum and timing the majority of applications to coincide with peak mosquito activity. Natural control, however, is not sufficient to prevent disease or even reduce nuisance mosquito populations to tolerable levels.

Physical Control. The District promotes physical control by promoting "vegetation management" protocols in wetlands and dairy lagoons. Additionally, District personnel review and comment on proposed projects in Merced County that by design may produce mosquitoes.

6. How much product is needed and how this amount was determined:

It is very difficult to pre-determine the amount of pesticides that will be used during the year. Every year is unique and pesticide use can vary widely from year-to-year. The pesticide amounts presented below were taken from the Merced County MAD's 2015 Pesticide Use Report.

<u>Material</u>	<u>Gallons/LBS</u>	<u>Acres Treated</u>
Methoprene 30-day briquets	7,705 (each)	17.65
Methoprene 20%	183 gallons	23,530
Methoprene Pellets	261.03 lbs.	40.83
Spinosid Liquid	83.62	3,822
Spinosid 30-day granule	542 lbs.	47.32
BTI Liquid	3,040 gallons	24,620
BTI granule	2,758.55 lbs.	175.02
BTI 45-day briquet	409 each	.82
Mineral Oil	8,774.88 gallons	2,927.97
Pyrethrin 5%	646.62 gallons	108,123.78
Pyrethrin 6%	463.77 gallons	92,761
Pyrethrin 12%	96.22 gallons	38,492
Permethrin	16.56 gallons	797.40
Etofenprox	539.08 gallons	115,023

7. Representative monitoring locations and the justification for selecting these monitoring locations:

Please see the MVCAC NPDES Coalition Monitoring Plan.

8. Evaluation of available BMPs to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts; and

District personnel meet with representatives of the Grassland Water District, California Department of Fish & Game, USF&WS, California Waterfowl Association, and Ducks Unlimited annually to discuss the fall flood-up of Grassland wetlands. The Merced County MAD emphasizes the adoption of mosquito control BMP's for wetlands as promulgated by the California Department of Public Health and the Central Valley Joint Venture's Mosquito Working Group, U.S. Bureau of Reclamation. USF&WS delays the fall flooding in wetland cells in close proximity to the City of Gustine. The District encourages duck club managers to flood their respective clubs as quickly and as deep as possible and to hold the water level steady (especially during the early season flood-up). District personnel perform "quality control" inspections throughout the season to determine pesticide, BMP implementation, and efficacy.

9. Description of the BMPs to be implemented:

a. measures to prevent pesticide spill:

All pesticide applicators receive annual spill prevention and response training. Agency employees ensure daily that application equipment is in proper working order. Spill mitigation devices are placed in all vehicles and pesticide storage areas. Application equipment is inspected daily during the season and receives monthly servicing.

b. measures to ensure that only a minimum and consistent amount is used:

Spray equipment is calibrated at least annually as required by the Department of Pesticide Regulations (DPR) and the terms of a cooperative agreement with the California Department of Public Health (CDPH). Truck-mounted ULV sprayers are calibrated in accordance with the pesticide label on a monthly basis from May through October. Aircraft are calibrated on an as-needed basis throughout spray season.

c. a plan to educate Coalition's or Discharger's staff and pesticide applicator on any potential adverse effects to waters of the U.S. from the pesticide application:

District personnel receive pesticide training on an annual basis. NPDES training will be incorporated into the annual pesticide training and will be presented during regional continuing education programs. All certified employees are required to attend or receive 20 hours of continuing education units to maintain certification.

d. descriptions of specific BMPs for each application mode, e.g. aerial, truck, hand, etc.:

The Merced County MAD calibrates handheld larviciding equipment each year in accordance with equipment specifications and pesticide label directions. Truck mounted ULV aerosol generators and mist blowers are calibrated monthly from May through October. Droplet size is measured and adjusted at least three times during

the year utilizing a KLD Labs DC-III Portable Droplet Counter. Management personnel review daily work and application records to ensure appropriate amounts of material are being used. The District's aircraft are equipped with Micronair AU-5000 rotary atomizer nozzles. Droplet size is determined by setting the rpm's of the atomizers. District personnel adjust droplet size at least twice during the spray season. All aircraft are calibrated prior to spray season. Additionally, the pilot in command monitors the amount of pesticide dispensed after each flight to insure the proper application rates. Aircraft used in urban ULV applications and the primary airplane used for rural ULV application is equipped with advanced guidance and drift management equipment (Wingman GX) to ensure the best available technology is being used. The Wingman utilizes real time weather at the release altitude and computer modeled droplet data to determine the fate of the aerosol cloud to treat only the targeted area.

e. descriptions of specific BMPs for each pesticide product used:

Please see the [Best Management Practices for Mosquito Control in California](#) for general pesticide application BMPs, and the current approved pesticide labels for application BMPs for specific products.

f. descriptions of specific BMPs for each type of environmental setting (agricultural, urban, and wetland):

BMP's for wetlands have been previously discussed in this document. The District has developed and disseminated guidelines for eliminating mosquito sources around the farm, dairy, and individual home. Agricultural BMP's concentrate on source reduction and water management, but also include vegetation management in and around dairy lagoons to eliminate harborage for mosquito larvae. In urban settings source reduction around the individual home is emphasized. In urban settings source reduction, water management, vegetation management around drainage basins, and the maintenance of curb and gutters takes priority. District involvement in the planning stages of all projects in wetlands, agricultural, and urban areas is critical to eliminating potential mosquito breeding sites. Legal abatement is the last option employed by the District to eliminate mosquito breeding sites.

10. Identification of the problem. Prior to first pesticide application covered under this General Permit that will result in a discharge of biological and residual pesticides to waters of the US, and at least once each calendar year thereafter prior to the first pesticide application for that calendar year, the Discharger must do the following for each vector management area:

- a. If applicable, establish densities for larval and adult vector populations to serve as action threshold(s) for implementing pest management strategies:**

Merced County MAD personnel only apply pesticides to sources of mosquitoes that represent imminent threats to public health or quality of life. The presence of any mosquito may necessitate treatment, however higher thresholds may be applied depending on the agency's resources, disease activity, surveillance data, or local needs. Treatment thresholds are based on a combination of one or more of the following criteria:

- Mosquito species present
- Mosquito stage of development
- Pest, nuisance, or disease potential
- Disease activity
- Mosquito abundance
- Flight range
- Proximity to populated areas
- Size of source
- Presence/absence of natural enemies or predators
- Presence of sensitive/endangered species or habitats.

b. Identify target vector species to develop species-specific pest management strategies based on developmental and behavioral considerations for each species:

Merced County is noted for its diversity of mosquito breeding habits and the resulting mosquito fauna produced in these sites. From a public health stand point the most important mosquito breeding habitat in Merced County are the 100,000+ acres of wetlands flooded for migratory waterfowl habitat and 300+ dairies. *Culex tarsalis*, western encephalitis mosquito, thrive in the freshwater wetlands and is a vector of West Nile virus, Western Equine Encephalitis, and St. Louis Encephalitis. *Culex pipiens* complex, are an excellent vector of West Nile virus and St. Louis Encephalitis. A fairly recent phenomenon is the presence of these two mosquito species in unkempt swimming pools at abandoned homes due to the mortgage crisis. Merced County's 30,000+ acres of irrigated pasture is another excellent breeding site. *Aedes melanimon*, floodwater mosquito, is associated with seasonal wetlands and irrigated pastures. It is a secondary vector of Western Equine Encephalitis, a vicious biter, and disperses several miles from the breeding site. *Aedes nigromaculis*, irrigated pasture mosquito, are considered a major pest in the Central Valley. The 2,500+ acres of rice in Merced County provides excellent habitat for *Culex tarsalis* and *Anopheles freeborni*, western malaria mosquito.

c. Identify known breeding areas for source reduction, larval control program, and habitat management; and

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the agency's preferred solution, and whenever possible the

agency works with property owners to implement long-term solutions to reduce or eliminate the need for continued pesticide applications.

- d. **Analyze existing surveillance data to identify new or unidentified sources of vector problems as well as areas that have recurring vector problems.**

The Merced County MAD continually collects adult and larval mosquito surveillance data, dead bird reports, and sentinel chicken test results, and monitors regional mosquito-borne disease activity detected in humans, horses, birds, and/or other animals, and uses these data to guide mosquito control activities. Particular emphasis is placed in areas which historically have been the sites of previous West Nile virus activity (e.g., Merced, Livingston, Delhi, and Hilmar). As previously mentioned, abandoned houses with swimming pools have provided a new urban West Nile virus threat.

11. Examination of Alternatives:

- a. **Evaluating the following management options, in which the impact to water quality, impact to non-target organisms, vector resistance, feasibility, and cost effectiveness should be considered:**

- **No action**
- **Prevention**
- **Mechanical or physical methods**
- **Cultural methods**
- **Biological control agents**
- **Pesticides**

If there are no alternatives to pesticides, dischargers shall use the least amount of pesticide necessary to effectively control the target pest.

The Merced County MAD uses the principles and practices of Integrated Vector Management (IVM) as described on pages 26 and 27 of the Best Management Practices for Mosquito Control in California. Locations where vectors may exist are assessed and the potential for using alternatives to pesticides is determined on a case-by-case basis. Commonly considered alternatives include: 1) Eliminate artificial sources of standing water; 2) Ensure temporary sources of surface water drain within four days (96 hours) to prevent adult mosquitoes from developing; 3) Control plant growth in ponds, ditches, and shallow wetlands; 4) Design facilities and water conveyance and/or holding structures to minimize the potential for producing mosquitoes; and 5) Use appropriate biological control methods that are available. Additional alternatives to using pesticides for managing mosquitoes are listed on pages 4-19 of the Best Management Practices for Mosquito Control in California.

Implementing preferred alternatives depends on a variety of factors including availability of agency resources, cooperation with stakeholders, coordination with other regulatory agencies, and the anticipated efficacy of the alternative. If a

pesticide-free alternative does not sufficiently reduce the risk to public health, pesticides are considered, beginning with the least amount necessary to effectively control the target vector.

b. Applying pesticides only when vectors are present at a level that will constitute a nuisance:

The District has no treatment thresholds for *Culex tarsalis* and *Culex pipiens* complex when West Nile virus activity is detected. The criteria for larviciding pastures to control nuisance mosquitoes is 5 larvae per dip (standard 350ml dipper) larviciding every other irrigation with the following exceptions: 1) the pasture is located next to or is close proximity to a school or health facility, and 2) the pasture is located adjacent to or affects a large suburban area or urban center. Use a treatment standard of 1 larva per dip for the exceptions. Ground adulticiding thresholds follow: 1) no block or large area spraying for *Aedes* spp. excepting schools and urban areas with a landing rate of at least 1 mosquito per minute. Other areas may be adulticided with a landing rate over 5 mosquitoes per minute. Service requests will be treated if they have a known mosquito problem. No treatment thresholds are observed when block spraying and individual spraying for *Culex* spp. when West Nile virus activity has been detected.

12. Correct Use of Pesticides:

Coalition's or Discharger's use of pesticides must ensure that all reasonable precautions are taken to minimize the impacts caused by pesticide applications. Reasonable precautions include using the right spraying techniques and equipment, taking account of weather conditions and the need to protect the environment:

This is an existing practice of the District and is required to comply with the Department of Pesticide Regulation's (DPR) requirements and the terms of our California Department of Public Health (CDPH) Cooperative Agreement. All pesticide applicators receive annual safety and spill training in addition to their regular continuing education.

13. Website for Public Notice:

www.mcmosquito.org

References:

Best Management Practices for Mosquito Control in California. 2011. Available by download from the California Department of Public Health—Vector-Borne Disease Section at <http://www.westnile.ca.gov/resources.php> under the heading *Mosquito Control and Repellent Information*. Copies may be also requested by calling the California Department of Public Health—Vector-Borne Disease Section at (916) 552-9730 or the Merced County Mosquito Abatement District at 209-722-1527.

California Mosquito-borne Virus Surveillance and Response Plan. 2010. [Note: this document is updated annually by CDPH]. Available by download from the California Department of Public Health—Vector-Borne Disease Section at <http://www.westnile.ca.gov/resources.php> under the heading *Response Plans and Guidelines*. Copies may be also requested by calling the California Department of Public Health—Vector-Borne Disease Section at (916) 552-9730 or the Merced County Mosquito Abatement District at 209-722-1527.

MVCAC NPDES Coalition Monitoring Plan.