RECEIVED
MAY 0 1 2016
DIVISION OF WATER QUALITY

# ATTACHMENT E – NOTICE OF INTENT

0039

## 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# 3 440709307 |

### II. DISCHARGER INFORMATION

| | | | |
|---|---|---|---|
| A. Name: Santa Cruz County Mosquito and Vector Control CSA 53 | | | |
| B. Mailing Address: 640 Capitola Road | | | |
| C. City: Santa Cruz | D. County: Santa Cruz | E. State: CA | F. Zip Code: 95062 |
| G. Contact Person: Paul Binding | H. Email address: agc020@agdept.com | I. Title: Manager | J. Phone: 831-454-2590 |

### 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: various - see Attachment A
Name of the conveyance system: applications may be made to various conveyance systems within Santa Cruz county.

☒ 3. Directly to river, lake, creek, stream, bay, ocean, etc.
Name of water body: various - see Attachment A - Applications historically have been made to inland and coastal lakes and sloughs and stream and river drainages, primarily shallow, still, vegetated margins, San Lorenzo River, Soquel Creek, Pajaro River.
* 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 3
(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 Jan 1 year round End Date Dec 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.

**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:** Paul Binding

**B. Signature:** Paul Binding **Date:** 3/29/16

**C. Title:** Assistant Vector Control Manager

**X. FOR STATE WATER BOARD USE ONLY**

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

# INSTRUCTIONS FOR COMPLETING THE 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

These instructions are intended to help you, the Discharger, to complete the Notice of Intent (NOI) form for the Statewide General National Pollutant Discharge Elimination System (NPDES) permit. **Please type or print clearly when completing the NOI form**. For any field, if more space is needed, submit a supplemental letter with the NOI.

Send the completed and signed form along with the filing fee and supporting documentation to the State Water Resources Control Board (State Water Board).

### ***Section I – Notice of Intent Status***

Indicate whether this request is for the first time coverage under this Order or a change of information for the discharge already covered under this Order. For a change of information or ownership, please supply the eleven-digit Waste Discharge Identification (WDID) number for the discharge.

### ***Section II – Discharger Information***

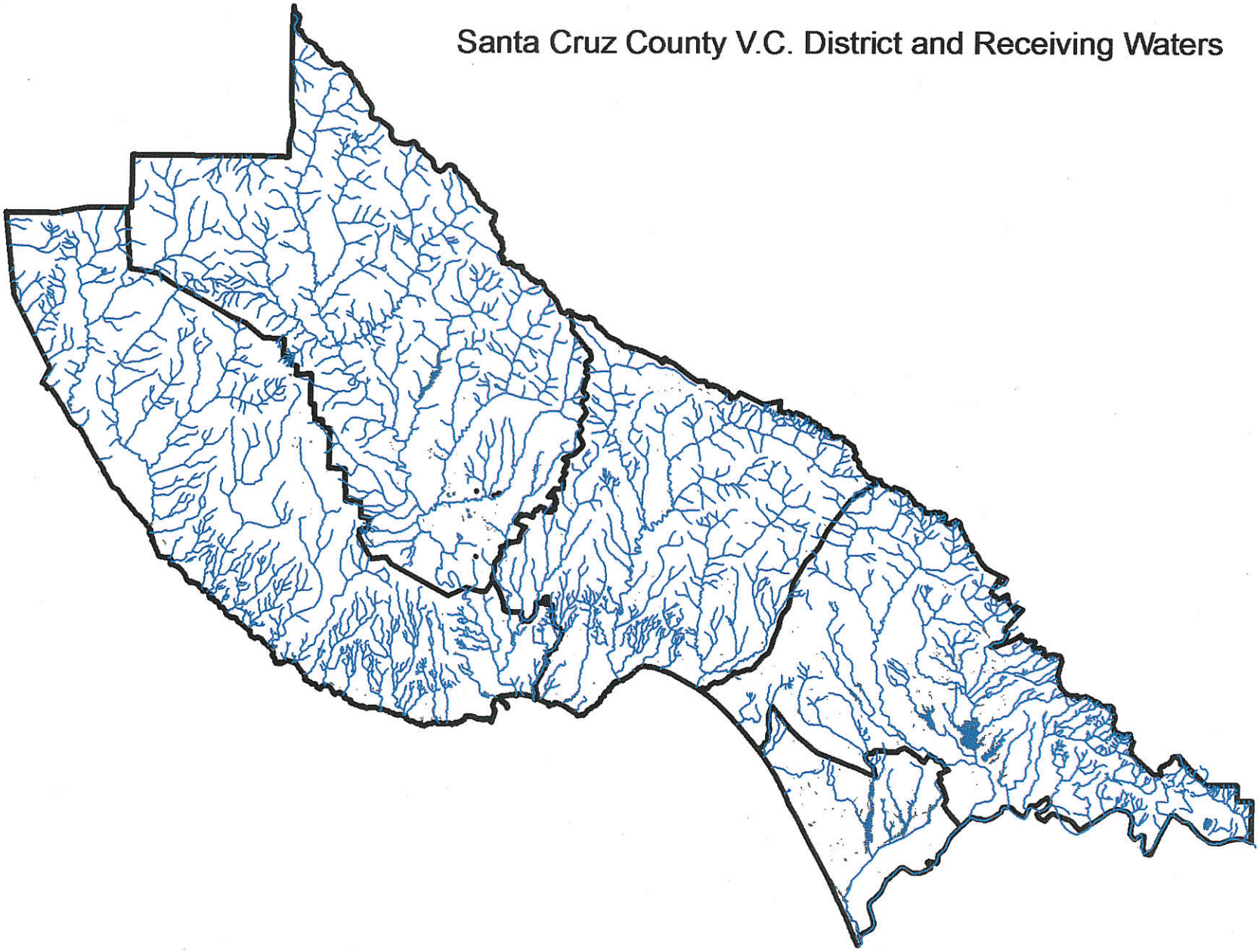
A. Enter the name of the Discharger.
B. Enter the street number and street name where correspondence should be sent (P.O. Box is acceptable).
C. Enter the city that applies to the mailing address given.
D. Enter the county that applies to the mailing address given.
E. Enter the state that applies to the mailing address given.
F. Enter the zip code that applies to the mailing address given.
G. Enter the name (first and last) of the contact person.
H. Enter the email address of the contact person.
I. Enter the contact person's title.
J. Enter the daytime telephone number of the contact person.

### ***Section III – Billing Address***

Enter the information **only** if it is different from Section II above.

A. Enter the name (first and last) of the person who will be responsible for the billing.
B. Enter the street number and street name where the billing should be sent (P.O. Box is acceptable).
C. Enter the city that applies to the billing address.
D. Enter the county that applies to the billing address.

# Santa Cruz County V.C. District and Receiving Waters



3/30/2016

# County of Santa Cruz

**OFFICE OF THE AGRICULTURAL COMMISSIONER**
**MOSQUITO AND VECTOR CONTROL CSA 53**
640 Capitola Road, Santa Cruz, California 95062
(831) 454-2590 Fax (831) 464-9161 Internet www.agdept.com

JUAN HIDALGO
AGRICULTURAL COMMISSIONER

PAUL L. BINDING
MANAGER


January 25, 2016

NOTICE TO POTENTIALLY INTERESTED AGENCIES

City of Capitola
City of Santa Cruz
City of Watsonville
City of Scotts Valley
CalTrans
Resource Conservation District
Pajaro Valley Water Management
California Department of Parks and Rec.
United States Fish and Wildlife Service
California Department of Fish and Wildlife
Santa Cruz County Parks Department
Scotts Valley Water District
San Lorenzo Valley Water District
Lompico Water District
Soquel Water District

**County of Santa Cruz (Agricultural Commissioner Department – Mosquito Abatement and Vector Control division) Notice of Intent to continue to apply mosquitocides for public health purposes to Surface Waters and Waters of the U.S. within Santa Cruz County as part of the Integrated Vector Management program.**

To Whom It May Concern:

Santa Cruz County Mosquito Abatement and Vector Control (MAVC) intends to make public health pesticide applications to, over and adjacent to constructed conveyances, surface waters and other waters of the U.S. owned and controlled by an entity other than MAVC for vector 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 will be issued in 2016. The newer requirements specify that any pesticide product can be used that contains approved active ingredients, provided all pesticide 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* subsp. *israelensis (Bti)* |
| *Bacillus sphaericus (Bs)* |
| Methoprene |
| Monomolecular Films |
| Petroleum Distillates |
| Spinosad |
| Temephos |

Active Ingredients for adult mosquito control:

| |
|---|
| Deltamethrin |
| Etofenprox |
| Lambda-Cyhalothrin |
| Malathion |
| Naled |
| N-octyl bicycloheptene dicarboximide (MGK-264) |
| Piperonyl butoxide (PBO) |
| Permethrin |
| Prallethrin |
| Pyrethrin |
| Resmethrin |
| Sumithrin |

The general time period for the application of the pesticides is January through December, 2016. Locations of expected use will be constructed conveyances, surface waters and other waters of the U.S. located within Santa Cruz County. MAVC typically uses larvicide applications for the purpose of reducing mosquitoes in an effort to reduce threat of mosquito-borne diseases and biting nuisance. When surveillance indicators exceed threshold levels larvicide applications may be made in strict compliance with pesticide label requirements. These larvicides are described as bacterial products, insect growth regulators and larvicidal oils. In addition to the larvicides, the County's mosquito-borne disease response plan allows for the potential use of adulticides if necessary in an emergency public health situation.

Mosquito breeding sources treated with mosquitocides used by MAVC require no water use restrictions or additional restrictions or precautions to be taken by your employees or the public.

Interested persons may contact MAVC at (831)454-2590 for additional information.

# Santa Cruz County Mosquito and Vector Control (MVC) Pesticides Application Plan (PAP) for General Permit No. CAG 990004

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;**

   See attached Santa Cruz County Hydrography map. The target area is potentially any fresh or brackish water within the boundaries of the County of Santa Cruz that are still or standing water sites for more than 96 hours (4 days), permanent or temporary, natural or man-made, that may or may not have potential inflow or outflow, high wetland or wildlife values or be hydrologically connected to other sites. A majority of these sites are subject to disturbance that makes them attractive to mosquitoes, such as by flooding by natural event or artificial means, or be subject to high organic nutrient load and reduced animal and plant diversity. Within this area there are also discrete artificial and natural containers that breed mosquitoes. Historically, most larvicides used by Santa Cruz County Mosquito and Vector Control (MVC) have been applied to areas of the 700 acre Watsonville Slough system, primarily to areas within the flight range of mosquito species of public health significance to human habitation and activity, heavily vegetated with poor circulation and low diversity. Some other sites requiring frequent treatment are inlet arms of Pinto Lake County Park that receive high nutrient runoff, and other margins and inlets of inland lakes with invasive floating and emergent vegetation such as Lake Tynan and Atkinson Lake, seasonal water bodies such as woodland pools, College Lake and the Ellicott Slough NWR ditches, terminal oceanside ponds and estuaries such as Neary Lagoon, Sunset State Beach marsh, Schwann Lake and the Watsonville Slough estuary at the Pajaro River. Most suburban drainages and streams and the San Lorenzo River require treatment of cut-off ponding and oxbows and because of seasonal low-flow ponding adjacent to man-made or natural obstructions.

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

   Please see the Statement of Best Management Practices for Santa Cruz County Mosquito and Vector Control and Best Mosquito Management – Santa Cruz County Previously submitted to the Water Board and on our web site (see References). Both documents describe surveillance methods conducted by MVC to monitor abundance and distribution of the many mosquito species found in the County, and the reason why, after practicing or considering other Integrated Vector Management (IVM) options, mosquitocide intervention is sometimes appropriate and required to manage them once populations are found to exceed public health nuisance or disease thresholds or in response to requests for relief from pestiferous biting, strictly following pesticide labeling. Also previously submitted is a schematic of the MVC's Mosquito Control Strategy and graphs of Larval Treatment Criteria and Control Selection Criteria (see References).

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 adjuvents and surfactants used;**

   The NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vectro Control Applications was amended to list the approved active ingredients rather than having specific pesticide products named. Products may be applied by hand, truck, backpack, hand can, boat, ATV, helicopter, or airplane and are used according to label directions. *Please

note that the MVC has not used organophosphate mosquitocides since 1995. See also the MVC CEQA Technical Review (Section VI or 6) upon request.

**List of Active Ingredients**

| |
|---|
| *Bacillus thuringiensis* subsp. *israelensis (Bti)* |
| *Bacillus sphaericus (Bs) (Lysinibacillus sphaericus)* |
| Methoprene |
| Monomolecular Films |
| Petroleum Distallates |
| Spinosad |
| Temephos |
| Deltamethrin |
| Etofenprox |
| Lamda-Cyhalothrin |
| Malathion |
| Naled |
| N-octyl bicycloheptene dicardoximide (MGK-264) |
| Piperonyl butoxide (PBO) |
| Permethrin |
| Prallethrin |
| Pyrethrin |
| Resmethrin |
| Sumithrin |
| Any minimum risk category pesticides that are FIFRA exempt and registered for use in California and used in a manner specified in 40 CFR section 152.25 |

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

Please see answer to Item #1. The MVC treated 611 sites with larvicides in 2015, many of which could meet the definition of waters of the U.S. Any standing water site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the MVC's preferred solution, and whenever possible the MVC works with property owners to effect long-term solutions to reduce or eliminate the need for continued applications as described in Best Management Practices for Mosquito Control in California and the MVC CEQA Technical Review (see References). Please see the attached Hydrography map of the County/application area. The typical sources treated by MVC include:

| Habitat Type | | | |
|---|---|---|---|
| TYPE CODE | HABITAT TYPE | ABBREVIATION | DESCRIPTION |
| 0 | CATCH BASIN | CB | INCLUDES GUTTERS, STREET DRAINS AND BMPs |
| 1 | PERMANENT POND | PD | PONDS THAT HOLD WATER YEAR ROUND |
| 2 | EPHEMERAL POND | EP | NATURAL SEASONAL PONDING |
| 3 | FRESHWATER MARSH | MA | LOWLYING AREA OF SOFT WATERLOGGED GROUND, STANDING WATER, characterized by a growth of grasses, sedges, cattails, and rushes |
| 4 | BRACKISH MARSH | BM | SOMEWHAT SALTY MARSH |
| 5 | FLOODED AREA | FA | ANY AREA THAT EXPERIENCES INFREQUENT OR SEASONAL FLOODING FROM NATURAL OR IRRIGATION SOURCES |
| 6 | CHANNEL, DITCH | CH | MAN-MADE CONCRETE, WOODEN OR EARTHEN CHANNELS FOR WATER DIVERSION |
| 7 | AGRICULTURAL USE | AG | ALL MAN-MADE SOURCES CREATED FOR AGRICULTURAL USE |
| 8 | ARTIFICIAL CONTAINER | AC | KIDDIE POOLS, HORSE TROUGHS, JUNKYARD ITEMS, BOATS, BUCKETS, TARPS, ROOF TOPS, URNS, ORNAMENTAL PONDS, ETC. |
| 9 | MISCELLANEOUS PONDING | MP | RUTS, UNDER HOUSES, RAILROAD TRACKS |
| 10 | TREEHOLE | TH | HOLES IN THE TREE ITSELF |
| 11 | CREEK/STREAM/ NATURAL DRAINAGE | CK | NOT MAN-MADE; STAGNANT EDGES AND CUT-OFF SECTIONS |
| 12 | GREEN POOLS & JACUZZIS | GP | NEGLECTED |
| 13 | SEWAGE/SEPTIC | SE | INCLUDES PONDS, SEPTIC TANKS, DRAINS, TREATMENT PLANTS |

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

With any mosquito or other vector source, the MVC's first goal is to look for ways to eliminate the source, or, if that is not possible, for ways to reduce the vector potential. The most commonly used methods and their limitations are included in the referenced Best Management Practices for Mosquito Control in California (pages 9-19 and Appendix A) and previously submitted Statement of Best Management Practices for Santa Cruz County Mosquito and Vector Control and Best Mosquito Management – Santa Cruz County (see References).

Specific BMP's incorporating IVM methods used by the MVC include collaborating with other agencies to improve wetland diversity, water quality and circulation (MVC is member of Watsonville Slough Stewardship Committee), stocking mosquito fish (*Gambusia affinis*) where this biological control method is appropriate, educating residents that mosquitoes develop in

standing water and encouraging them to remove sources of standing water on their property (County Fair and Earth Day booths, radio advertising, press releases, etc.), and working with property owners to find long-term water and vegetation management strategies that meet their needs while minimizing the need for public health pesticide applications. The MVC also reviews development plans that create, restore or affect wetlands or stormwater BMP's to evaluate and consult on their vector potential. The MVC works with property owners, municipalities and agencies to use BMP's to reduce mosquitoes. Some examples include:

1. A trial to reduce invasive, exotic parrotfeather (*Myriophyllum* sp.) from Lake Tynan using aquatic glyphosate herbicide, leading to property owners controlling the weed with minimal herbicide use and reducing mosquito trap counts from thousands per night to tens.
2. Advising City of Santa Cruz on Jessie Street marsh management to reduce breeding habitat (See Comments on Jessie Street Marsh Management Plan, 2002 in References).
3. The MVC also reviews and comments on development plans that create, restore or affect wetlands or stormwater BMP's to evaluate, consult and reduce their vector potential. (Two examples: City of Watsonville - Slough housing developments; NPDES Phase II)
4. University of California – Santa Cruz, Arboretum pond mosquito reduction strategy implementing access improvements to target highest breeding areas with selective applications; advised clean-out of stormwater drains to reduce necessary treatments. (See University of California – Santa Cruz, Mosquito Monitoring and Treatment in References)
5. Using CA Conservation Corps grant and labor, collaborated to mechanically remove vegetation in trial to reduce mosquito breeding to area of Pinto Lake, 2010. Using CalFire trail crews, cut trail into and reduced vegetation within flood retention basin at Scotts Valley High School, 2010. Collaborated with SC Land Trust and used CalFire to cut perimeter trail around section of Hanson Slough for access to high breeding area, reducing need for repeated applications to larger area, 2010.

Pesticide use by MVC is only one aspect of an IVM strategy. This strategy, utilizing vector ecology, includes the use of physical and biological control techniques whenever possible and is based on a program of continuous monitoring of both adult and immature mosquito populations.

Ironically, increased regulation tends to increase reliance on responsive rather than preventive mosquito control. Permitting increases layers of complexity and costs for small public health pest agencies like MVC and could reduce resources available for non-pesticide IVM methods such as source reduction and education. Monitoring and administrative requirements of the weed permit inhibit MVC from pursuing judicious management of invasive weeds that harbor breeding mosquitoes, therefore mosquitocide use could potentially increase in necessary response. In addition, hindrances in obtaining source reduction permits impact MVC's ability to maintain access trails within wetlands, hindering surveillance to establish breeding above threshold levels, reducing ability to conduct minimized, targeted applications, potentially increasing pesticide use over broader areas. Likewise, this Vector Control General Permit requires redundant monitoring and testing already required by FIFRA labeling compliance, re-directing taxpayer funding away from managing mosquitoes and other vectors without substantial environmental benefit.

**6. How much product is needed and how this amounts was determined;**

| Pesticide/Units | Units/Acre | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| **Mosquito Larvicides** | | | | | |
| **Methoprene – Altosid** | | | | | |
| Briquets - (lbs) Label SDS | 7.0 | 14.9 | 8.0 | 7.07 | 5.1 |
| Briquets - XR (lbs) Label SDS | 41.8 | 37.8 | 39.7 | 54.0 | 59.3 |
| Packets – WSP (lbs) Label SDS | 5 - 20 | 77.0 | 20.7 | 1.6 | 15.4 |
| Pellets (lbs) Label SDS | 5 - 10 | 0.9 | 7.1 | 10.4 | 9.3 |
| Single Brood Granule (lbs) Label SDS | 5 - 20 | 190.1 | 241.1 | 0 | 0.1 |
| Granule – XR (lbs) Label SDS | 5 - 20 | 533.8 | 514.1 | 351.2 | 41.0 |
| Liquid (gal) Label SDS | 0.03 | 0 | 0 | 0.03 | 0.03 |
| Tossits (lbs) Label SDS | 5 - 10 | 0.6 | 0 | 0 | 0.1 |
| **Biological Agents** | | | | | |
| *Bacillus thuringiensis israelensis* (Bti) | | | | | |
| Aquabac 200G (lbs) Label SDS | 5 - 20 | 97.8 | 21.7 | 286.0 | 176.9 |
| Vectobac 12AS (gal) Label SDS | 0.06 - 0.13 | 0.1 | .0001 | 0.7 | 0.3 |
| Vectobac G granules (lbs) Label SDS | 5 - 20 | 491.1 | 1470.1 | 23.5 | 2.1 |
| AllPro Sustain MGB (lbs) Label and SDS | | - | - | 7.2 | 49.7 |
| ***Bacillus sphaericus (Bs)*** | | | | | |
| Vectolex (lbs) Label SDS | 5 - 20 | 16 | .002 | 58.0 | 5.1 |
| Vectolex WDG (lbs) Label SDS | 0.75 - 1.3 | 2.3 | 1.0 | 1.7 | 1.4 |
| Vectolex WSP (lbs) Label SDS | 5 - 20 | 2.3 | 3.2 | 1.6 | 5.4 |

| | | | | | |
|---|---|---|---|---|---|
| ***Bti** with **Bs*** | | | | | |
| ***Vectomax (lbs) Label SDS*** | ***5 - 20*** | 1623.6 | 2777.0 | 1512.5 | 388.5 |
| ***Vectomax WSP (lbs) Label SDS*** | ***5 - 20*** | - | - | - | 31.5 |
| ***Fourstar pouch (lbs)*** | ***5 - 20*** | - | - | - | 23.2 |
| ***Fourstar 45-day briquette (lbs) Label SDS*** | ***5 - 20*** | - | 7.5 | 2.4 | 0.6 |
| ***Fourstar 180-day briquette (lbs) Label SDS*** | | - | 18.2 | 4.9 | 0 |
| ***Spinosad*** | | | | | |
| ***Natular granule (lbs) Label SDS*** | ***5 - 20*** | 4.2 | 260.9 | 847.6 | 86.4 |
| ***Natular 30 day granule*** | | - | - | - | 325.5 |
| ***Natular 30 day tablet (lbs) Label SDS*** | ***5 - 20*** | - | 1.1 | 4.0 | 20.8.0 |
| ***Natular 180 day tablet (lbs) Label SDS*** | ***5 - 20*** | - | 21.7 | 74.6 | 0.8 |
| ***Water Surface Films*** | | | | | |
| Agnique MMF (gal) Label SDS | 0.5 - 1.0 | .5 | 0.01 | 0.1 | 0 |
| Agnique Granule (lbs) Label SDS | 10 - 20 | 0 | 2.2 | 90.7 | 4.3 |
| Golden Bear 1111 (gal) Label SDS | 3 - 5 | 7.2 | 10.0 | 6.5 | 0 |
| Coco Bear (gal) Label SDS | 3 - 5 | - | - | 39.3 | 16.9 |
| ***Mosquito Adulticides*** | | | | | |
| ***Pyrethroids (Cyfluthrin)*** | | | | | |
| ***Tempo Ultra SC (gal) Label SDS*** | ***0.03 - 0.07*** | 0 | 0 | 0.04 | .01 |

Note: Amounts include larvicides reported separately to the Agricultural Commissioner by R&B Helicopters under contract to Santa Cruz County Mosquito and Vector Control.

This chart reports all mosquito larvicides used by Santa Cruz County Mosquito and Vector Control, for the purpose of estimating use in 2016. Other public health pesticides in addition to those listed above may be used as part of the agency's best management practices. The need to apply product is determined by surveillance. Actual use varies annually depending on mosquito abundance. All materials have label signal word Caution.
These amounts reflect the total used both in waters of the U.S. and in other County sites.

7. **Representative monitoring locations* and the justification for selecting these locations;**
   Please see the MVCAC NPDES Coalition Monitoring Plan (see References). However, note that the MVC has not used organophosphates, although it may potentially if mosquito-borne virus or severe nuisance conditions warrant.

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**
   Please see answers to Item #5; the MVC frequently will use larvicides to reduce immediate mosquito problem, then work with the landowner or responsible agencies to pursue a long-term or preventive source reduction, educational or biological solution. Surveillance using trap monitoring, resident complaints and dipper counts provide measurements of success. See the Best Management Practices for Mosquito Control in California (pages 9-19 and Appendix A) for relevant statewide BMPs and the Statement of Best Management Practices for Santa Cruz Mosquito and Vector Control and Best Mosquito Management – Santa Cruz County and also Ellicott Slough NWR – CDFG Ecological Reserve: Draft Monitoring and Treatment Plan 2010 (see References). Ironically, increased permit requirements could reduce access to available feasible alternatives such as source reduction (including invasive vegetation management) that reduces mosquito breeding and mosquitocide use for reasons stated in answer to Item #5.

9. **Description of the BMPs to be implemented. The BMPs shall include at a minimum:**
   Please see the Best Management Practices for Mosquito Control in California (pages 9-19 and Appendix A) and in the California Mosquito-borne Virus Surveillance and Response Plan (pages 3-9) and in the MVC Statement of Best Management Practices and in some detail throughout the MVC CEQA Technical Review, available upon request (see References).
   a. **measures to prevent pesticide spill;**
      All pesticide applicators receive annual spill prevention and response training. District employees ensure daily that application equipment is in proper working order. Spill mitigation devices are placed in all vehicles and pesticide storage areas.

   b. **measures to ensure that only a minimum and consistent amount is used**
      Application 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). MVC provides larval mosquito samples for statewide pesticide resistance studies and rotates larvicides types to forestall resistance. MVC applicators are trained to properly follow label, accurately measure and mix dosages and precisely measure areas to be treated. Areas of breeding over intervention thresholds are determined by dipper counts, then measured with GPS and/or using Geographic Information System map layers.

   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;**
      This has been an element of our Cooperative Agreement with the CA Department of Public Health and will be included in our pesticide applicators annual pesticide application and safety training, continuing education programs, and/or regional NPDES Permit training programs.

   d. **descriptions of specific BMPs for each application mode, e.g. aerial, truck, hand, etc.;**
      The MVC calibrates larviciding equipment each year to meet application specifications. Supervisors review application records to ensure appropriate amounts of material are being

used. Aerial larviciding equipment is calibrated by the contractor with MVC oversight. Ultra-low volume (ULV) adulticide application equipment, if needed, would be calibrated by the contractor for output and droplet size to meet label requirements. Aerial adulticide equipment, if needed, would be calibrated and droplet size will be monitored by the contractor to ensure droplets meet label requirements. Airplanes contracted for ULV applications, if needed, would be equipped with advanced guidance and drift management equipment to ensure the best available technology is being used to place product in the intended area.

e. **descriptions of specific BMPs for each pesticide product used; and**
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. See also the MVC's Statement of Best Management Practices, the Best Mosquito Management – Santa Cruz County and the MVC CEQA Technical Review (Section VI or 6) available upon request, referenced.

f. **descriptions of specific BMPs for each type of environmental setting (agricultural, urban, and wetland).** See responses to Item #5. Please see also the Best Management Practices for Mosquito Control in California for setting-specific, for MVC-specific see Best Mosquito Management – Santa Cruz County and MVC's Statement of Best Management Practices and for wetlands see Ellicott Slough NWR – CDFG Ecological Reserve: Draft Monitoring and Treatment Plan 2010 for a specific urban site see Comments on Jessie Street Marsh Management Plan, 2002 (in References).

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;**

    The MVC staff only applies pesticides to sources of mosquitoes that represent imminent threats to public health or quality of life. The presence of any mosquito may necessitate treatment (example: Asian Tiger mosquito *Aedes albopictus*), low thresholds may be established for vector species in close proximity to human activities, however different thresholds may be applied depending on MVC's resources, disease activity, or local needs. For this section, see the previously submitted Mosquito Management Criteria page, the previously submitted Larval Treatment Criteria page and Control Selection Criteria page. 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;**

Please see response to Item #1 and #2, Appendix D of the Best Management Practices for Mosquito Control in California and the California Mosquito-borne Virus Surveillance and Response Plan. Also visit last page of MVC's 2014 Annual Report, and also Ellicott Slough NWR – CDFG Ecological Reserve: Draft Monitoring and Treatment Plan 2010 and Larval Treatment Criteria chart and MVC CEQA Technical Review (page 42) upon request (See References) .

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 MVC's preferred solution, and whenever possible MVC works with property owners to implement long-term solutions to reduce or eliminate the need for continued applications as described in the response to Item 2 above and Appendix E in Best Management Practices for Mosquito Control in California.

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

This is described in the Best Management Practices for Mosquito Control in California and the California Mosquito-borne Virus Surveillance and Response Plan that MVC uses. The District continually collects adult and larval mosquito surveillance data, dead bird reports, and sentinel chicken test results and uses these data to guide mosquito control activities. The MVC uses Geographic Information Systems interactive with our trap surveillance, service request and work records databases to analyze changes in abundance and distribution of mosquitoes and uses spreadsheets and graphs to analyze trends. Also, periodic aerial photo surveillance reveals possible neglected pools, flooded areas and ponds.

11. **Examination of Alternatives. Dischargers shall continue to examine alternatives to pesticide use in order to reduce the need for applying larvicides that contain temephos and for spraying adulticides. Such methods include:**

    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 MVC uses the science of vector ecology and the principles of integrated vector management (IVM) as described schematically in the attached Mosquito Control Strategy and as described in the MVC Statement of Best Management Practices and Best Mosquito Management-Santa Cruz County (referenced). The MVC has never

used organophosphates such as temephos. The Santa Cruz County IPM-Departmental Advisory Group has exempted the MVC's public health pesticide applications from required reductions and considers MVC to be an IPM model program.

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

The MVC uses the principles of IVM as described in the MVC Statement of Best Management Practices and Best Management Practices – Santa Cruz County, prioritizing education of property owners to abate and reduce sources of breeding. The MVC conducts surveillance for larval and adult mosquitoes and intervenes with mosquitocides only when public health or human activities are threatened and levels of breeding exceed the action threshold, as described in the attached Mosquito Management Criteria page (referenced). See also response to Item #2.

A "nuisance" is specifically defined in California Health and Safety Code (HSC) §2002(j). This definition allows vector control agencies to address situations where even a low number of vectors may pose a substantial threat to public health and quality of life. In practice, the definition of a "nuisance" is generally only part of a decision to apply pesticides to areas covered under this permit. As summarized in the California Mosquito-borne Virus Surveillance and Response Plan, the overall risk to the public when vectors and/or vector-borne disease are present is used to select an available and appropriate material, rate, and application method to address that risk in the context of our IVM program.

**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 MVC, 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. If applicable, specify a website where public notices, required in Section VIII.B, may be found.**

http://www.agdept.com/mvc.html

**References:**

Statement of Best Management Practices for Santa Cruz County Mosquito and Vector Control. See copy previously submitted. Reviewed each year, updated as necessary. Available on website

for download underDocuments tab – NPDES Compliance. http://www.agdept.com/mvc.html

Best Mosquito Management – Santa Cruz County. Prepared by MVC in 2010 for the USFWS to assist with their preparation of a mosquito management plan for their Ellicott Slough refuge property. Available on website for download. http://www.agdept.com/mvc.html

Ellicott Slough NWR - CDFG Ecological Reserve: Draft Monitoring and Treatment Plan 2010. Prepared to augment the above document. Copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.

Comments on Jessie Street Marsh Management Plan, 2002. Copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.

University of California – Santa Cruz, Mosquito Monitoring and Treatment Plan, 2010. Copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.

Best Management Practices for Mosquito Control in California. 2012. Available by download from the California Department of Public Health at http://www.cdph.ca.gov/HealthInfo/discond/Pages/MosquitoBorneDiseases.aspx or 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 Santa Cruz County Mosquito VC at (831)454-2590.

California Mosquito-borne Virus Surveillance and Response Plan. 2015. [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.cdph.ca.gov/HealthInfo/discond/Pages/MosquitoBorneDiseases.aspx or 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 Santa Cruz County Mosquito VC at (831)454-2590.

Mosquito Vector Control Association of California (MVCAC) NPDES Coalition Monitoring Plan. 2016

Santa Cruz County Mosquito and Vector Control website at http://www.agdept.com/mvc.html CEQA Negative Declaration Technical Review copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.

Santa Cruz County Arbovirus Surveillance and Response Plan (2006) prepared at County Board of Supervisor request by the West Nile Virus Technical Advisory Committee (see attached).

Santa Cruz County Hydrography map dated 3/29/2016 showing pesticide application area which encompasses entire County.

Santa Cruz County Mosquito and Vector Control – Mosquito Control Strategy, schematic. Copies available at MVC website http://www.agdept.com/mvc.html under Main Menu.

Mosquito Management Criteria, determination of mosquitocide intervention threshold. Copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.

Larval Treatment Criteria, chart developed for MVC CEQA neg-dec 2005. Copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.

Control Selection Criteria, chart developed for MVC CEQA neg-dec 2005. Copies may be requested by calling the Santa Cruz County Mosquito VC at (831)454-2590.