ATTACHMENT G – NOTICE OF INTENT

WATER QUALITY ORDER NO. 2011-XXXX-DWQ
GENERAL PERMIT NO. CAG 990004

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#5A09AP00003 ☐C. Change of ownership or responsibility: WDID# _____

II. DISCHARGER INFORMATION

A. Name Vector Control CSA #3 of County of El Dorado			
B. Mailing Address 2850 Fairlane Ct. "C"			
C. City Placerville	D. County El Dorado	E. State CA	F. Zip Code 95667
G. Contact Person Fred Sanford	H. Email address Fred.sanford@edcgov.us	I. Title Supervising Environmental Health Specialist	J. Phone (530) 621-7614

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: Lake Tahoe, Truckee River and tributaries, Folsom Lake, South Fork of American River and tributaries Snow melt pools, Irrigated Farm Land, Riparian Areas, Wetlands, Roadside Ditches Abandoned Swimming pools, Ornamental Ponds, Pastures, Catch Basins, Detention Basins/Retention Basins

* 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 __6 and 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: __x__Vector Larvae ___x__ Adult Vector

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

Valent Biosciences Vectobac, Wellmark Altosid Liquid Larvicide, Zoecon Altosid XR 150 Day Briquets, Zoecon Altosid 30 Day Briquets, Valent Biosciences Vectobac G, Valent Biosciences Vectobac CG, Bayer Environmental Science Pyrenone 25-5

C. Period of Application: Start Date April 1, 2011 End Date November 1, 2011

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 PAP 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 General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: **Fred Sanford**

B. Signature: Fred Sanford **Date: 3/18/2011**

C. Title: **Supervising Environmental Health Specialist**

X. FOR STATE WATER BOARD USE ONLY

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

3/28/2011

El Dorado County Water ways

Region 5:

Folsom Lake
South Fork of the American River
Webber Creek
Hangtown Creek
Consumnes River (three forks)
Carson Creek
And Tributaries.

Region 6:
Lake Tahoe
Truckee River
Fallen Leaf Lake
And Tributaries.

Note: we do not treat these waters directly. We usually stay a minimum of 100 feet away or more.

CALIFORNIA'S 58 COUNTIES

EL DORADO COUNTY G.I.S.

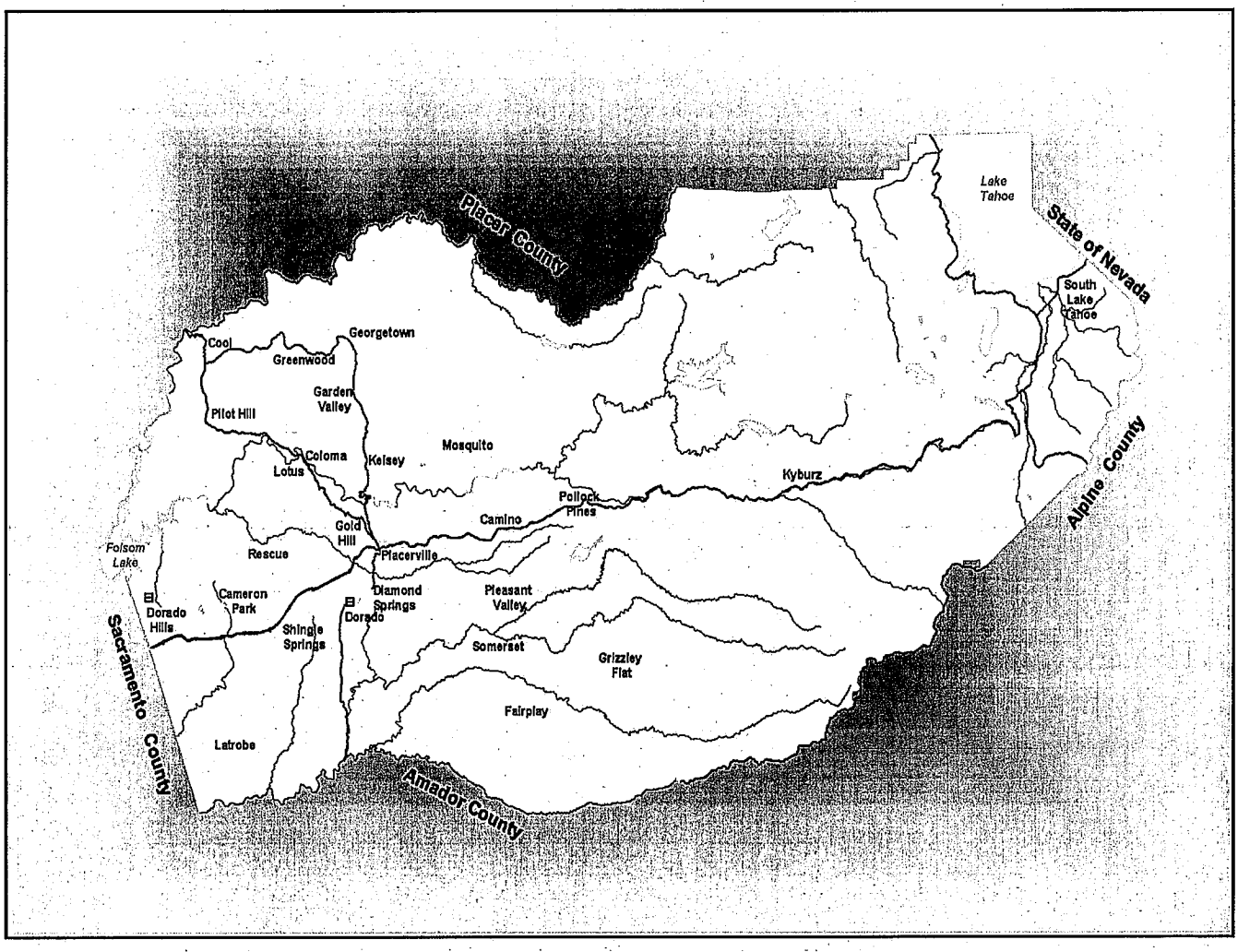
MAP LIBRARY

COMMUNITY PAGE

Get Adobe Acrobat Reader

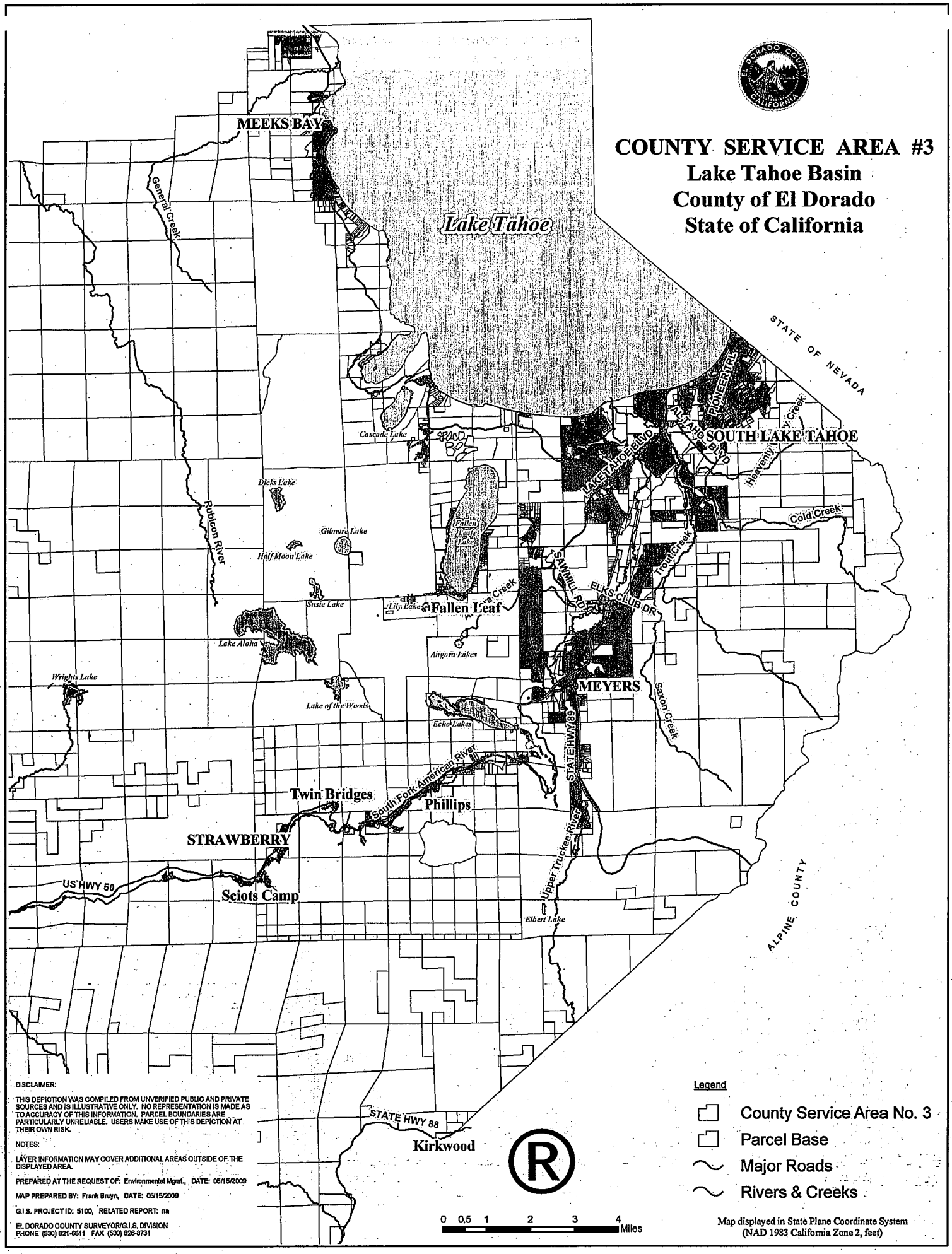
In order to view a map, you will need a copy of Adobe Acrobat Reader 6.0 loaded on your computer. This application was created to run on Internet Explorer 5.5 or Netscape 7.0.

GO TO MAPS CONTAINING DATA CONCERNING A COMMUNITY BY CLICKING ON THE MAP OR BY SELECTING FROM THE LIST OF TEXT:



Cameron Park	El Dorado Hills	Grizzly Flat	Pilot Hill	Somerset
Camino	Fairplay	Kelsey	Placerville	South County Area
Coloma	Garden Valley	Latrobe	Pleasant Valley	Tahoe Area
Cool	Georgetown	Lotus	Pollock Pines	Western Slope Area
Diamond Springs	Gold Hill	Mosquito	Rescue	Whole County Area
El Dorado	Greenwood	North County Area	Shingle Springs	

revision date: 03/06/2008



DISCLAIMER:

THIS DEPICTION WAS COMPILED FROM UNVERIFIED PUBLIC AND PRIVATE SOURCES AND IS ILLUSTRATIVE ONLY. NO REPRESENTATION IS MADE AS TO ACCURACY OF THIS INFORMATION. PARCEL BOUNDARIES ARE PARTICULARLY UNRELIABLE. USERS MAKE USE OF THIS DEPICTION AT THEIR OWN RISK.

NOTES:

LAYER INFORMATION MAY COVER ADDITIONAL AREAS OUTSIDE OF THE DISPLAYED AREA.

PREPARED AT THE REQUEST OF: Environmental Mgmt., DATE: 05/15/2009

MAP PREPARED BY: Frank Bruyn, DATE: 05/15/2009

G.I.S. PROJECT ID: 5100, RELATED REPORT: na

EL DORADO COUNTY SURVEYOR/G.I.S. DIVISION
PHONE (530) 621-5511 FAX (530) 626-8731

3/21/2011

County of El Dorado (EDC) and Vector Control (VCD) CSA #3

Pesticides Application Plan (PAP)

The District's service area encompasses 195 square miles from the crest of the Sierra Nevada mountain range near Echo Summit to the shore of Lake Tahoe in both the City of South Lake Tahoe and the unincorporated area of El Dorado County in Region 6. Some treatment occurs on the western slope of the County by Environmental Management Department (EMD) Staff in region 5. **(See Map)**

The EDC VCD and EDC EMD have implemented Best Management Practices (BMP) based on integrated pest management (IPM). The basic components of the programs are: surveillance of pest populations, determination of treatment thresholds, selection from a variety of control options including physical, cultural, biological and chemical techniques, training and certification of applicators and public education.

Anticipated Application Area and the Target Area to be Treated

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the District and County's preferred solution, and whenever possible the District 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. The typical sources treated by this District include:

Snow melt pools
Irrigated Farm Land
Riparian Areas
Wetlands
Roadside Ditches
Abandoned Swimming pools
Ornamental Ponds
Pastures
Catch Basins
Detention Basins/Retention Basins

1) MOSQUITO SURVEILLANCE

Surveillance of pest populations is essential for assessing the necessity, location, timing and choice of appropriate control measures. It reduces the areal extent and duration of pesticide use, by restricting treatments to areas where mosquito populations exceed established thresholds. The 54 mosquito species known in California differ in their biology, nuisance and disease potential and susceptibility to larvicides. Information on the species, density, and stages present is used to

select an appropriate control strategy from integrated pest management alternatives.

Only those mosquito sources that County and District staff determine to represent imminent threats to public health or quality of life are treated. The presence of any mosquito may necessitate treatment, however higher thresholds may be applied depending on the County and District's resources, disease activity, 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.

A. Larval Mosquito Surveillance

Surveillance of immature mosquitoes is conducted by EDC VCD and EDC EMD staff ("technicians") assigned to zones within the District and County. These technicians maintain a list of known mosquito developmental sites and visit them on a regular basis. When a site is surveyed, water is sampled with a 1 pint dipper to check for the presence of mosquitoes. Samples are examined in the field or laboratory to determine the abundance, species, and life-stage of mosquitoes present. This information is compared to historical records and used as a basis for treatment decisions.

B. Adult Mosquito Surveillance

Although larval mosquito control is preferred, it is not possible to identify all larval sources. Therefore, adult mosquito surveillance is needed to pinpoint problem areas and locate previously unrecognized or new larval developmental sites. Adult mosquitoes are sampled using standardized trapping techniques (i.e., New Jersey light traps, carbon dioxide-baited traps and oviposition traps).

Mosquitoes collected by these techniques are counted and identified to species. The spatial and seasonal abundance of adult mosquitoes is monitored on a regular basis and compared to historical data.

Species of mosquitoes found within El Dorado County: Aedes cataphylla, Aedes dorsalis, Aedes fitchi, Aedes hemiteleus, Aedes hexodontus, Aedes increpitus,Aedes sierrensis, Aedes tahoensis, Aedes vexans, Aedes ventrovittis, Anopheles franciscanus, Anopheles freeborni, Anopheles punctipennis, Culex apicaltis, Culex boharti, Culex pipiens (quinquefaciatus, Culex stigmatosoma, Culex tarsalis, Culex territans, Culex thriambus, Culiseta incidens, Culiseta inornata, Culiseta impatiens, Culiseta particeps, Coquillettidia perturbans

C. Service Requests

Information on adult mosquito abundance from traps is augmented by tracking mosquito complaints from residents. Analysis of service requests allows and County staff to gauge the success of control efforts and locate undetected sources of mosquito development. EDC VCD and EDC EMD conduct public outreach programs and encourages local residents to contact the and EDC EMD to request services. When such requests are received, technicians visit the area, interview residents and search for sources that may have been missed. Residents are asked to provide a sample of the insect causing the problem. Identification of these samples provides information on the species present and can be helpful in locating the source of the complaint.

2. PRE-TREATMENT DECISION-MAKING

A. Thresholds

Treatment thresholds are established for mosquito developmental sites where potential disease vector and/or nuisance risks are evident. Therefore, only those sources that represent imminent threats to public health or quality of life are treated. Treatment thresholds are based on the following criteria:

- Mosquito species present
- Mosquito stage of development
- Nuisance or disease potential
- Mosquito abundance
- Flight range
- Proximity to populated areas
- Size of source
- Presence/absence of natural enemies or predators
- Presence of sensitive/endangered species

B. Selection of Control Strategy

When thresholds are exceeded an appropriate control strategy is implemented. Control strategies are selected to minimize potential environmental impacts while maximizing efficacy. The method of control is based on the above threshold criteria but also:

- Habitat type
- Water conditions and quality
- Weather conditions
- Cost
- Site accessibility
- Size of site and number of other developmental sites

3. CONTROL STRATEGIES

A. Source Reduction

Source reduction includes elements such as, physical control, habitat manipulation and water management, and forms an important component of the EDC VCD and EDC EMD IPM program.

B. Physical Control

The goal of physical control is to eliminate or reduce mosquito production at a particular site through alteration of habitat. Physical control is usually the most effective mosquito control technique because it provides a long-term solution by reducing or eliminating mosquito developmental sites and ultimately reduces the need for chemical applications.

Historically (circa 1903), the first physical control efforts were projects undertaken to reduce the populations of salt marsh mosquitoes in marshes near San Rafael. Two years later, similar work was undertaken in the marshes near San Mateo. Networks of ditches were created by hand to enhance drainage and promote tidal circulation. Since then, various types of machinery have been used to create ditches necessary to promote water circulation. In recent years, a number of environmental modification projects have been undertaken in collaboration with the U.S. Fish and Wildlife Service (USFWS) to reduce potential mosquito developmental sites and enhance wildlife habitat. Re-circulation ditches allow tidewater to enter the marsh at high tide and drain off at low tide. Water remaining in the ditch bottoms at low tide provides habitat for mosquito-eating fish. These projects have reduced the need to apply chemicals on thousands of acres of salt marsh in the San Francisco Bay. Similar projects have been undertaken in Sacramento and Yolo Counties.

Physical control programs conducted by the EDC VCD and EDC EMD may be categorized into three areas: "maintenance", "new construction", and "cultural practices" such as vegetation management and water management.

Maintenance activities are conducted within seasonal wetlands, ditches, canals, and in some creeks adjacent to these wetlands. The following activities are classified as maintenance:

- Removal of sediments from existing water circulation ditches
- Repair of existing water control structures
- Removal of debris, weeds and emergent vegetation in natural channels
- Clearance of brush for access to streams tributary to wetland areas
- Filling of existing, non-functional water circulation ditches to achieve required water circulation dynamics and restore ditched wetlands.

New projects, such as wetland restoration, excavation of new ditches, construction of new water control structures, all require review and assessment under CEQA. Since this can be a time- consuming and expensive proposition, EDC VCD and EDC EMD try to work with landowners and resource groups to manage their lands in a manner that does not promote mosquito development. EDC VCD and EDC EMD staffs review proposals for wetlands construction to assess their impact on mosquito production. The staff then submits recommendations on hydrological design and maintenance that will reduce the production of mosquitoes and other vectors. This proactive approach involves a collaborative effort between landowners and EDC VCD and EDC EMD. Implementation of these standards may include cultural practices such as water management and aquatic vegetation control.

C. Biological control

Biological control agents of mosquito larvae include predatory fish, predatory aquatic invertebrates and mosquito pathogens. Of these, only mosquitofish are available in sufficient quantity for use in mosquito control programs. Natural predators may sometimes be present in numbers sufficient to reduce larval mosquito populations. Biological control is sometimes used in conjunction with selective bacterial or chemical insecticides.

Mosquitofish *(Gambusia affinis)/* Threespine Stickleback *(Gasterosteus aculeatus),* and Guppies *(Poecilia reticulata)*

The mosquitofish, *Gambusia affinis,* is a natural predator of mosquito larvae used throughout the world as a biological control agent for mosquitoes. Although not native to California, mosquitofish are now ubiquitous throughout most of the State's waterways and tributaries,

where they have become an integral part of aquatic food chains. They can be stocked in mosquito larval sources by trained technicians or distributed to the public for stocking in backyard ornamental ponds and other artificial containers.

Advantages: The use of predatory fish as a component of an IPM program may be environmentally and economically preferable to habitat modification or the exclusive use of pesticides, particularly in altered or artificial aquatic habitats. Mosquitofish are self-propagating, have a high reproductive potential and thrive in shallow, vegetated waters preferred by many mosquito species. They prefer to feed at the surface where mosquito larvae concentrate. These fish can be readily mass-reared for stocking or collected seasonally from sources with established populations for redistribution.

Barriers to Use: Water quality conditions, including temperature, dissolved oxygen, pH and pollutants may reduce or prevent survival and/or reproduction of predatory fish in certain habitats. Guppies will not survive when temperatures dip below *52°* F. All of the fish may be preyed upon by other predators. They are opportunistic feeders and may prefer alternative prey when available. Introduction of predatory fish may modify food chains in small contained pools and have potential impacts on endemic fish and shrimp in such situations. Some wildlife agencies suspect mosquitofish may impact survival of amphibian larvae through predation. Recent research has shown no significant impact on survival of the threatened California red-legged frog (Lawler et al. 1998), but mosquitofish have been shown to negatively impact the survival of the California tiger salamander (Leyse and Lawler 2000).

Impact on water quality: Mosquitofish, Threespine Stickleback, and guppy populations are unlikely to impact water quality.

Solutions to Barriers: Strict stocking guidelines adopted by MVCD restrict the use of predatory fish to habitats such as artificial containers, ornamental ponds, abandoned swimming pools, cattle troughs, stock ponds, etc.... . . where water quality is suitable for survival and sensitive or endangered aquatic organisms are not present Fish are generally stocked at population densities lower than those required for effective mosquito control and allowed to reproduce naturally commensurate with the availability of mosquito larvae and other prey. Guidelines prevent seasonal stocking in natural habitats during times of year when amphibian larvae or other sensitive species/life stages may be present.

Natural predators: aquatic invertebrates

Many aquatic invertebrates, including diving beetles, dragonfly and damselfly naiads, backswimmers, water bugs and hydra are natural predators of mosquito larvae.

Advantages: In situations where natural predators are sufficiently abundant, additional mosquito control measures including application of pesticides may be deemed unnecessary.

Barriers to Use: Predatory aquatic invertebrates are frequently not sufficiently abundant to achieve effective larval control, particularly in disturbed habitats. Most are generalist feeders and may prefer alternative prey to mosquito larvae if available and more accessible. Seasonal abundance and developmental rates often lag behind mosquito populations. Introduction or augmentation of natural predators has been suggested as a means of biological control, however there are currently no commercial sources since suitable mass-rearing techniques are not available.

Solutions to Barriers: The presence and abundance of natural predators is noted and taken into account during the larval surveillance process. Conservation of natural predators, whenever possible, is achieved through use of highly target-specific pesticides including bacterial insecticides, with minimal impacts on non-target organisms.

Impact on water quality: As predatory invertebrates represent a natural part of aquatic ecosystems, they are unlikely to impact water quality. There are no established standards, tolerance, or EPA approved tests for aquatic invertebrate populations.

Fungal pathogens *(Lagenidium giganteum)*
Product name: Laginex

Lagenidium giganteum is a fungal parasite of mosquito larvae. It is highly host-specific; other aquatic organisms are not susceptible and there is no mammalian toxicity. Unfortunately, the effectiveness of this pathogen has proven to be extremely variable due to stringent environmental requirements for growth and development of the fungus. Although commercial formulations (aqueous suspension) of this pathogen have been produced, severe limitations on its availability, shelf life and handling, as well as inconsistent results have prevented its integration into mosquito control programs in California.

Advantages: Use of fungal pathogens as part of an integrated pest management program may reduce the need for use of conventional insecticides. *Lagenidium* may recycle naturally in certain habitats, providing long-term larval control reducing the need for repeated applications.

Barriers to Use: Commercial availability is uncertain. Because it contains living fungal mycelium the material has a very limited shelf life and is difficult to handle and apply. It is also very sensitive to environmental conditions (i.e., pH, salinity, and temperature), which makes its effectiveness highly variable.

Solutions to Barriers: *Lagenidium* is not currently in routine use in either El Dorado County mosquito control program due to problems with availability and reliability of control.

Impact on water quality: *Lagenidium* is a naturally occurring biological control agent At a typical application rate of 10 oz of active ingredient (mycelium) per acre it is unlikely to have any detectable effect on water quality. There are no established standards, tolerances or EPA approved tests for *Lagenidium.*

D. Bacterial insecticides

Bacterial insecticides contain naturally produced bacterial proteins that are toxic to mosquito larvae when ingested in sufficient quantity. Although they are biological agents, such products are labeled and registered by the Environmental Protection Agency as pesticides and are considered by some to be a form of Chemical Control.

Bacillus thuringiensis var. *israelensis* (BTI)

Product names: Acrobe, Bactimos pellets, Teknar HP-D, Vectobac 12AS, Vectobac G, Vectobac TP

Advantages: BTI is highly target-specific and has been found to have significant effects only on mosquito larvae, and closely related insects (eg. black flies and some midges). It is available in a variety of liquid, granular and pelleted formulations that provide some flexibility in application methods and equipment. BTI has no measurable toxicity to vertebrates and is classified by EPA as "Practically Non-Toxic" (Caution). BTI formulations contain a combination of five different proteins within a larger crystal. These proteins have varying modes of action and synergistically act to reduce the likelihood of resistance developing in larval mosquito populations.

Barriers to Use: Bacterial insecticides must be fed upon by larvae in sufficient quantity to be effective. Therefore applications must be carefully timed to coincide with periods in the life cycle when larvae are actively feeding. Pupae and late 4th stage larvae do not feed and therefore will not be controlled by BTI. Low water temperature inhibits larval feeding behavior, reducing the effectiveness of BTI during the cooler months. High organic conditions also reduce the effectiveness of BTI. Cost per acre

treated is generally higher than surfactants or organophosphate insecticides.

Solutions to Barriers: An increased frequency of surveillance of larvae ensures that bacterial insecticides can be applied during the appropriate stages of larval development to prevent adult mosquito emergence.

Impact on water quality: BTI contains naturally produced bacterial proteins generally regarded as environmentally safe. It leaves no residues and is quickly biodegraded. At the application rates used in mosquito control programs, BTI is unlikely to have any measurable effect on water quality. There are no established standards, tolerances or EPA approved tests. Other naturally occurring strains of this bacterium are commonly found in aquatic habitats.

Bacillus sphaericus (BS)

Product names: Vectolex CG, Vectolex WDG

Advantages; BS is another bacterial pesticide with attributes similar to those of BTI. The efficacy of this bacterium is not affected by the degree of organic pollution in larval development sites and it may actually cycle in habitats containing high densities of mosquitoes, reducing the need for repeated applications.

Barriers to Use: Like BTI, BS must be consumed by mosquito larvae and is therefore not effective against nonfeeding stages such as late 4th instar larvae or pupae. BS is also ineffective against certain mosquito species. Toxicity of BS to mosquitoes is due to a single toxin rather than a complex of several molecules as is the case with BTI, Development of resistance has been reported in Brazil, Thailand, and France in sites where BS was the sole material applied to control mosquitoes for extended periods of time.

Solutions to Barriers: Information obtained from larval surveillance on the stage and species of mosquitoes present can increase the effectiveness of this material, restricting its use to sources containing susceptible mosquitoes. Development of resistance can be delayed by rotating BS with other mosquitocidal agents.

Impact on water quality: BS is a naturally occurring bacterium and is environmentally safe. It leaves no residues and is quickly biodegraded. At the application rates used in mosquito control programs, BS is unlikely to have any measurable effect on water quality. There are no established standards, tolerances or EPA approved tests. Other naturally occurring strains of this bacterium are commonly found in aquatic habitats.

E. Chemical Control

Methoprene

Product Names: Altosid briquets, Altosid liquid larvicide, Altosid pellets, Altosid SBG, Altosid XR briquets, Altosid XRG

Advantages: Methoprene is a larvicide that mimics the natural growth regulator used by insects. Methoprene can be applied as liquid or solid formulation or combined with BTI or BS to form a "duplex' application. Methoprene is a desirable IPM control strategy since affected larvae remain available as prey items for predators and the rest of the food chain. This material breaks down quickly in sunlight and when applied as a liquid formulation it is effective for only 3 to *5* days. Methoprene has been impregnated into inert, charcoal-based carriers such as pellets and briquettes to meter out a consistent amount that ranges up to *150* days. The availability of different formulations provides options for treatment under a wide range of environmental conditions. Studies on nontarget organisms have found methoprene to be nontoxic to vertebrates and most invertebrates when exposed at concentrations used by mosquito control.
Barriers to Use: Methoprene products must be applied to larval stage mosquitoes since it is not effective against the other life stages. Monitoring for effectiveness is difficult since mortality is delayed. Methoprene is more expensive than most other mosquitocidal agents. EDC VCD and EDC EMD do not use methoprene in vernal pools due to potential impacts to certain nontarget crustacean and insect species.

Solutions to Barriers: Surveillance and monitoring can provide information on mosquito larval stage present, timing for applications and efficacy of the treatments.

Impact on Water Quality: Methoprene does not have a significant impact on water quality. It is rapidly degraded in the environment and is not known to have persistent or toxic breakdown products. It is applied and has been shown to be effective against mosquitoes at levels far below those that can be detected by any currently available test. Methoprene has been approved by the World Health Organization for use in drinking water containers.

Surfactants

Product Names: Golden Bear 1111, Agnique MMF

Surfactants are "surface-acting agents" that are either petroleum or isostearyl alcohol-based materials that form a thin layer on the water surface. These materials typically kill surface- breathing insects by mechanically blocking the respiratory mechanism.

Advantages: These materials are the only materials efficacious for reducing mosquito pupae since other larviciding strategies (i.e., methoprene, BTI and BS) are ineffective to that life stage. Agnique forms an invisible monomolecular film that is visually undetectable. Treatments are simplified due to the spreading action of the surfactant across the water surface and into inaccessible areas. These surfactants are considered "practically nontoxic" by the EPA. Agnique is labeled 'safe for use" in drinking water.

Barriers to Using: The drawback of using oils in habitats where natural enemies are established is that surface-breathing insects, particularly mosquito predators, may be similarly affected. GB 1111 forms a visible film on the water surface.

Solutions to Barriers: As a general rule, surfactant use is considered after alternate control strategies have been ruled out or in habitats that are not supporting a rich macro-invertebrate community (i.e., manmade sites).

F. Cultural Practices

Wetland design criteria has been developed and issued by the EDC VCD and EDC EMD. These criteria are shared with various governmental agencies and private parties involved in the planning process for projects having the potential of creating mosquito breeding problems. Guidelines for the following source types are included and may be considered cultural control techniques:

* Drainageway construction and maintenance practices
* Dredge material disposal sites
* Irrigated pastures
* Permanent ponds used as waterfowl habitat
* Permanent Water impoundments
* Marsh
* Sedimentation ponds and retention basins
* Utility construction practices

EDC VCD and EDC EMD also provide literature and education programs for homeowners and contractors on elimination of mosquito developmental sites from residential property. These sources include rain gutters, artificial containers, ornamental ponds, abandoned swimming pools, tree holes, septic tanks, and other impounded waters.

Water Management consists of techniques to control the timing, quantity and flow rate of water circulation in managed wetlands to minimize mosquito development. EDC VCD and EDC EMD have established guidelines for water management based on information from University of

California Agricultural Extension Service (UCAES). Staff provide these guidelines to property owners to promote proper irrigation techniques for pastures, duck clubs and other wetlands to reduce mosquito development.

G. Vegetation Management

Vegetation Management consists of the removal of vegetation within mosquito developmental sites to promote water circulation, increase access of natural predators such as fish or provide EDC VCD and EDC EMD staff access for surveillance and treatment operations. Vegetation management is achieved either through recommendations to the landowner or by the use of hand tools and the application of selective herbicides.

Vegetation management, one aspect of physical mosquito control, is an effective long-term control strategy that is occasionally employed by EDC VCD and EDC EMD. This methodology utilizes water management, burning, physical removal, and chemical means to manage vegetation within mosquito developmental sites. The presence of vegetation provides harborage for immature and adult mosquitoes by protecting them from potential predators as well as the effects of wind and wave action, which readily cause mortality. Vegetation reduction not only enhances the effects of predators and abiotic factors, but also reduces the need for chemical control. Several factors can limit the utilization of vegetation management. These include: sensitivity of the habitat, presence of special status species, size of the site, density and type of vegetation, species of mosquito and weather.

I. Burning

This technique is used to achieve effective mosquito control where the density of unwanted vegetation precludes the use of other methodologies. Burning requires a permit, and coordination with local fire agencies and the El Dorado County Air Quality Management District. This strategy is limited to manmade impoundments and fallow farmlands. Factors limiting the use of this technique include weather, the limited number of approved bum days, and proximity of human habitation. As a general rule, burning is a last resort and will not been used by EDC VCD or EDC EMD.

II. Physical Removal/Mowing/Trimming

Physical removal of vegetation is used to clear obstructed channels and ditches to promote water circulation, effectiveness of predators and improve access for mosquito control personnel to enter mosquito developmental sites. Ditches and channels can be cleared with a variety of tools ranging from shovels and small

pruners to weed whackers and large mechanized equipment. Most removal activities performed by EDC VCD and EDC EMD staff utilize small hand tools or motorized equipment (backhoe). This is the most frequently employed management technique once all necessary permits have been obtained and it is performed in all types of habitats. Unfortunately, its effectiveness is temporary and labor intensive, and therefore requires routine maintenance on an annual or at least biennial basis. Other limiting factors include cost, the presence of sensitive species or habitats and the limited time period that EDC VCD and EDC EMD are allowed to perform the activity for many types of mosquito developmental sites.

III. Chemical

Chemical control of vegetation could occur in man-made habitats such as impoundments, channels and ditches. Both pre- and post-emergent herbicides could be used, with strict attention given to label requirements, weather conditions, potential for runoff and drift, and proximity of sensitive receptors such as special-status species, sensitive habitats, livestock, crops, and people. Routine intensive surveys are conducted to address many of these factors. The County and District does not currently use this method to control vegetation.

H. ORGANOPHOSPHATES (OP)

While EDC VCD has used organophosphates in the past, OP use in recent years has been limited due to mosquito resistance and other factors. Mosquito and vector control agencies that operate under the California Health and Safety Codes may utilize those materials registered as mosquito larvicides under the Federal Fungicide, Insecticide, and Rodenticide Act. Such materials used in accordance with label instructions are allowed by law. However, as a result of heightened concern over environmental impacts and worker health and safety, most of the districts have voluntarily eliminated their use. Organophosphate use will probably be reserved for emergency use against disease outbreaks and epidemics. Please also see the Best Management Practices for Mosquito Control in California

4. 2010 YEAR END PESTICIDE USE REPORT TOTALS

Valent Biosciences Vectobac 12 AS 73049-38 AA	36 ounces
Wellmark Altosid Liquid Larvicide 2724-392 AA	9 ounces

Zoecon Altosid XR 150 Day Briquets 2724-421 ZA	6.74 lbs.
Zoecon Altosid 30 Day Briquets 2724-375 ZA	1.82 lbs.
Valent Biosciences Vectobac G 73049-10 AA	68.75 lbs.
Valent Biosciences Vectobac CG 73049-429 ZB	21.75 lbs.
Bayer Environmental Science Pyrenone 25-5	256 ounces

Application logs are maintained for all sites treated.The application log contains the following information, when practical, for larvicide or adulticide applications:

1. Date of application;
2. Location of the application and target areas (e.g., address, crossroads, or map coordinates);
3. Name of applicator;
4. The names of the water bodies treated if known/ named(i.e., canal, creek, lake, etc.);
5. Application details, such as when the application started and stopped, pesticide application rate and concentration, water flow rate of the target area, surface water area, volume of water treated, pesticide(s) and adjuvants used and volume or mass of each component discharged;

This is an existing practice of the County and District as required to comply with DPR regulations and our CDPH Cooperative Agreement requirements.

5. MONITORING

County of El Dorado is a member of the MVCAC NPDES Coalition Monitoring Plan (see attached agreement)

6. UPDATES AND CHANGES

The county of El Dorado will update the PAP as needed and submit the revised PAP to the State Water Board for approval if there are any changes to the original PAP.

7. TRAINING AND CERTIFICATION

EDC VCD and EDC EMD applicators must be certified to apply public health pesticides. The CDPH Vector-Bone Disease Section administers certification training and testing. All mosquito control personnel applying pesticides or

overseeing the application of pesticides must obtain and maintain a Vector Control Technician certificate. The Mosquito and Vector Control Association of California provides training materials and exams are conducted by the CDPH. All certificate holders must maintain continuing education credit in at least two and as many as four subcategories. Category A (Laws and Regulations) and category B (Mosquito Biology) is mandatory for all certificate holders and requires 12 and 8 continuing education units (CEU) respectively, in a two year period. Category C (Terrestrial Invertebrate Control) and Category D (Vertebrate Control) are optional both with 8 hours of CEU per two-year cycle.

EDC VCD and EDC EMD conduct a number of in-house educational and safety programs to increase the expertise of the operational staff Ultimate decisions regarding the need for and application of pesticides rest on the field staff based on information acquired from surveillance data. Decisions to apply a particular product are made in accordance to California Environmental Quality Act (CEQA) documentation including threshold levels and other information regarding habitat type, distance from populated areas, and water quality data. Training opportunities to accumulate CEU credits are made available by the MVCAC regional committees that develop training programs fine-tuned to the local ecology and unique problems of the region. Training programs are submitted to the MVCAC state training coordinator for approval and then to the California Department of Public Health for final approval. Thirty-six hours of CEU credits are offered each two-year cycle.

8. OVERSIGHT

Members of the MVCAC operate under the California Health and Safety Code and the California Government Code (reference Division 1, Administration of Public Health, Chapter 2, Powers and Duties; also Part 2, Local Administration, Chapter 8, State Aid for Local Health Administration; Division 3, Pest Abatement, Chapter *5,* Mosquito Abatement Districts or Vector Control Districts, Sections 2200 - 2910). In addition, members of the MVCAC that are signatories to the California Department of Public Health Cooperative Agreement (Pursuant to Section 116180, Health and Safety Code) are required to comply with the following:

- Calibrate all application equipment using acceptable techniques before using; maintain calibration records for review by the County Agricultural Commissioner (CAC).

- Maintain for at least two years, pesticide use data for review by the CAC including a record of each pesticide application showing the target vector, the specific location treated, the size of the source, the formulations and amount of pesticides used, the method and equipment used, the type of habitat treated, the date of the application, and the name of the applicator.

- Submit to the CAC each month a Pesticide Use Report on Department of Pesticide Regulation form PR-ENF-060. The report shall include the manufacturer and product name, the EPA registration number from the label, the amount of pesticide used, the number of applications of each pesticide, and the total number of applications, per county, per month.

- Report to the CAC and the CDPH, in a manner specified any conspicuous or suspected adverse effects upon humans, domestic animals and other non-target organisms, or property from pesticide applications.

- Require appropriate certification of its employees by CDPH in order to verify their competence in using pesticides to control pest and vector organisms, and to maintain continuing education unit information for those employees participating in continuing education.

- Be inspected by the CAC on a regular basis to ensure that local activities are in compliance with state laws and regulations relating to pesticide use.

Other agencies such as local fire departments, California Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and others have jurisdiction and oversight over our activities. We work closely with these agencies to comply with their requirements.

9. PUBLIC EDUCATION

An integral part of the EDC VCD and EDC EMD BMPs is to provide information to the public to assist them in resolving their pest problems. Staff at the EDC VCD and EDC EMD provide public outreach in the form of presentations to schools, utility districts, homeowner associations, county fairs, home and garden shows, as well through the media such as newspaper, television, and radio. Information is provided on biological, physical and cultural control methods (i.e., BMPs) that property owner and managers can use to preclude or reduce mosquitoes and other disease and nuisance pests within their jurisdictions.

This is an existing practice of the County and 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.

10. UPDATES AND CHANGES

The county of El Dorado will update the PAP as needed and submit the revised PAP to the State Water Board for approval if there are any changes to the original PAP.

11. REFERENCES

Best Management Practices for Mosquito Control in California. 2010. 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 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 County of El Dorado VECTOR CONTROL/CSA #3 (530)573-3297.

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.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 County of El Dorado VECTOR CONTROL/CSA #3 (530)573-3297.

MVCAC NPDES Coalition Monitoring Plan. 2011

Quality Assurance Plan
for Application of Aquatic Pesticides to Waters of the US
by El Dorado County Vector Control (CSA #3) and El Dorado County Environmental Management Department

This Quality Assurance Plan uses the Cooperative Agreement between the California Department of Public Health (CDPH and the El Dorado County Vector Control (CSA #3) as its sole point of reference. Pursuant to Section 116180 of the California Health and Safety Code, the CDPH "may enter into a cooperative agreement with any local district or other public agency engaged in the work of controlling mosquitoes, gnats, flies, other insects, rodents, or other vectors and pests of public health importance, in areas and under terms, conditions and specifications as the director may prescribe".

El Dorado County Vector Control (CSA #3) has signed a cooperative agreement with CDPH for calendar year 2011 (enclosed).

The County and District, through the terms of the agreement, agrees to

1.) Calibrate all application equipment using acceptable techniques before using, and to maintain calibration records for review by the County Agricultural Commissioner. All equipment used by the County and District is calibrated at least once a year. Copies of calibration records are kept on file at the District and EMD Office.

2.) Maintain for at least two years for review by the County Agricultural Commissioner a record of each pesticide application showing the target vector, the specific location treated, the size of the source, the formulations and amount of pesticide used, the method and equipment used, the type of habitat treated, the date of the application, and the name of the applicator(s). Pesticide application records are kept on file for at least two years. EMD maintains a database covering the last five years of pesticide applications; previous years (dating back to 1985) are stored on hard copy.

3.) Submit to the County Agricultural Commissioner each month a Pesticide Use Report, on Department of Pesticide Regulation form PR-ENF-010. The report shall include the manufacturer and product name, the registration number from the label, the amount of each pesticide, the number of applications of each pesticide, and the total number of applications, per county, per month. The district and EMD has been performing this activity and will continue to do so.

4.) Report to the County Agricultural Commissioner and the Department of Public Health, in a manner specified, any conspicuous or suspected adverse effects upon humans, domestic animals and other non-target organisms, or property from pesticide applications.

5.) Require appropriate certification of its employees by the California Department of Health Services in order to verify their competence in using pesticides to control pest and vector organisms, and to maintain continuing education unit information for those employees participating in continuing education. All and County personnel that apply pesticides are certified through the California Department of Public Health to apply pesticides. All pesticide applications are performed pursuant to label instructions and in accordance with state and federal laws. All certified employees applying pesticides receive, at a minimum, 20 hours of continuing education hours per two-year cycle. Most El Dorado County Vector Control and Environmental Management employees receive over 20 hours in a single year.

6.) Be inspected by the County Agricultural Commissioner on a regular basis to ensure that local agency activities are in compliance with state laws and regulations relating to pesticide use. The District and EMD has worked cooperatively with both County Agricultural Commissioners to ensure agencies compliance with state or local laws.