Tulare Mosquito Abatement District
District Headquarters: Mefford Field - Tulare
6575 Dale Fry Rd Tulare CA 93274
PH (559) 686-6628 FAX (559) 686-2013 Email: TulareMosquito@gmail.com

MANAGER
Marshall Norgaard

April 6, 2016

ATTN: Gil Vazquez
Division of Water Quality c/o State Water Resources Control Board
1001 I Street 15th Floor
Sacramento CA 95814

Regarding: Application by the Tulare Mosquito Abatement District for Renewal of the District's National Pollutant Discharge Elimination System Permit (NPDES) under General Permit NO CAG990004

I have included information for renewal of our permit and also the filing fee of $242.00.

Marshall Norgaard
Marshall Norgaard
District Manger
Tulare Mosquito Abatement District

Payroll2016 / NPDESApplicationFee2016

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 Tulare Mosquito Abatement District			
B. Mailing Address 6575 Dale Fry Road			
C. City Tulare	D. County Tulare	E. State CA	F. Zip Code 93274
G. Contact Person Marshall Norgaard	H. Email address tularemosquito@Gmail.com	I. Title Manager	J. Phone (559) 686 6628

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. Sources of standing water breeding mosquitoes in our District's
Owner's name: Service Area in Tulare County will be controlled (Refer to Tab 1)
Name of the conveyance system: _____
Applications will be made to conveyance systems in Tulare County.
Refer to Tab 2 for Agency Listing

☐ 3. Directly to river, lake, creek, stream, bay, ocean, etc.
Name of water body: _____

* 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

Refer to Tab 3

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.

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."

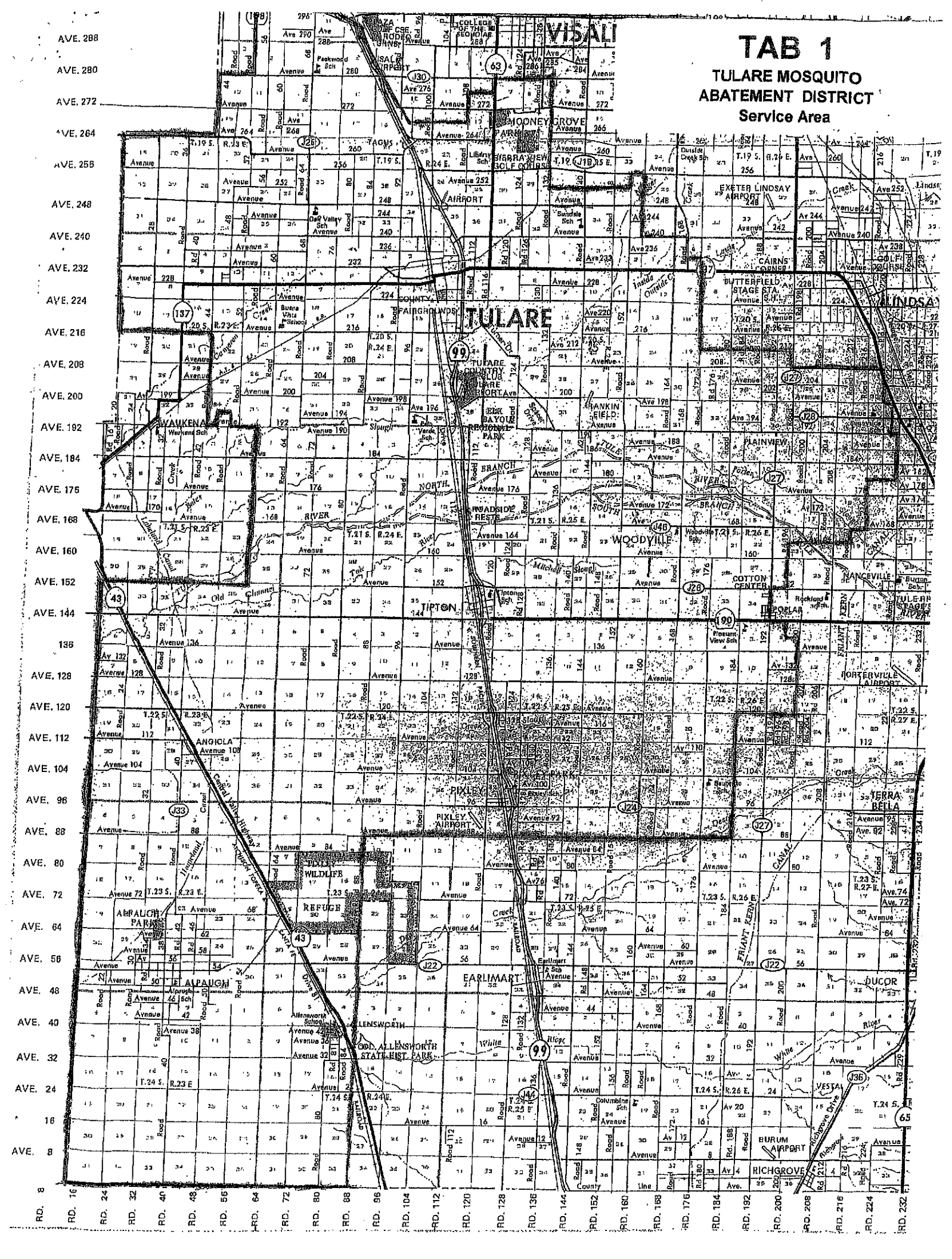
A. Printed Name: Marshall Norgaard

B. Signature: Marshall Norgaard **Date:** 04/06/16

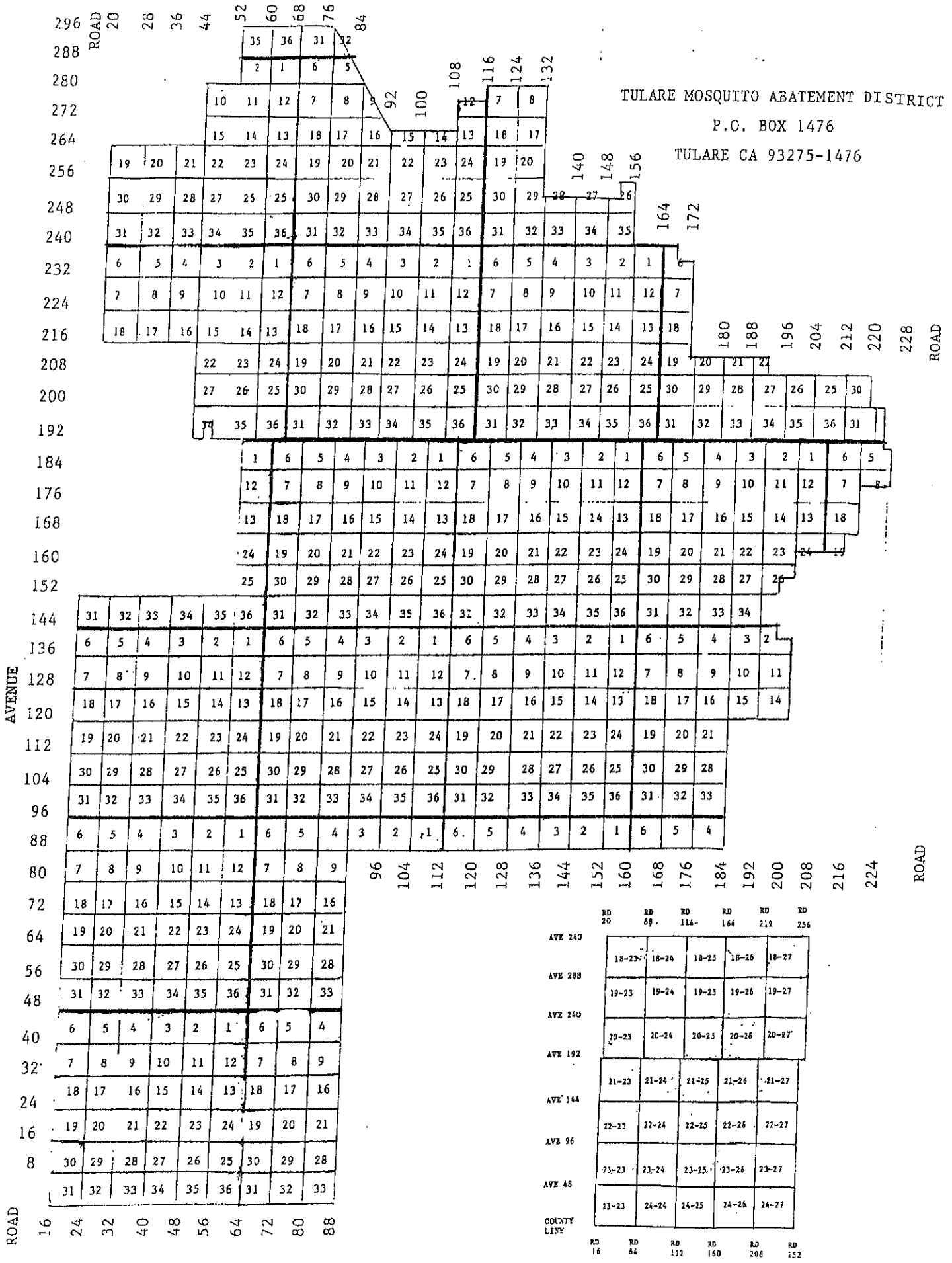
C. Title: District Manager

X. FOR STATE WATER BOARD USE ONLY

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


TAB 1
TULARE MOSQUITO
ABATEMENT DISTRICT
Service Area
VISALIA
TULARE
TIPTON
PIXLEY
EARLIMART
WOODVILLE
ALPAUGH
ALLENSWORTH
POPLAR
COTTON CENTER
PLAINVIEW
WAUKENA
TERRA BELLA
DUCOR
RICHGROVE
BURUM AIRPORT
EXETER LINDSAY AIRPORT
VISALIA AIRPORT
PIXLEY AIRPORT
PORTERVILLE AIRPORT
TULARE COUNTY FAIRGROUNDS
TULARE COUNTRY CLUB
ELK BAYOU REGIONAL PARK
ROADSIDE REST
PIXLEY WILDLIFE REFUGE
GEN. ALLENSWORTH STATE HIST. PARK
MOONEY GROVE PARK
SIERRA VIEW GOLF COURSE
CAIRNS CORNER GOLF
BUTTERFIELD STAGE STA.
FRANKIN FIELD
AVE. 288
AVE. 280
AVE. 272
AVE. 264
AVE. 256
AVE. 248
AVE. 240
AVE. 232
AVE. 224
AVE. 216
AVE. 208
AVE. 200
AVE. 192
AVE. 184
AVE. 176
AVE. 168
AVE. 160
AVE. 152
AVE. 144
136
AVE. 128
AVE. 120
AVE. 112
AVE. 104
AVE. 96
AVE. 88
AVE. 80
AVE. 72
AVE. 64
AVE. 56
AVE. 48
AVE. 40
AVE. 32
AVE. 24
16
AVE. 8
8
RD. 16
RD. 24
RD. 32
RD. 40
RD. 48
RD. 56
RD. 64
RD. 72
RD. 80
RD. 88
RD. 96
RD. 104
RD. 112
RD. 120
RD. 128
RD. 136
RD. 144
RD. 152
RD. 160
RD. 168
RD. 176
RD. 184
RD. 192
RD. 200
RD. 208
RD. 216
RD. 224
RD. 232

TULARE MOSQUITO ABATEMENT DISTRICT
P.O. BOX 1476
TULARE CA 93275-1476



BOUNDARY DESCRIPTION OF TULARE MOSQUITO ABATEMENT DISTRICT
(Prepared on 14/MAY/80 form original 1943 & 1948 documents.)

Starting from the Northwest corner of Section 19 (in Township 19, Range 23), go East 3 miles to the NE corner of S21; then go N 2 miles to the NW corner of S10; then go E 1 mile to the NE corner of S10; then go north 2 miles to the NW corner of S35 (in Township 18, Range 23). Then go east 3½ miles along section lines to the mid-point of the northern boundary of S32, T18, R24; Then go south ¼ mile. From that point, go due west a distance of 1,428.6 feet; Then south-easterly (paralleling the railroad) for 1,380.2 feet; then go westerly (about 2° south of due west for 879.2 feet - which will put you at the easterly right-of-way of the SP railroad - follow that right-of-way south-easterly to the east-to-west mid-line of S16 (T19, R24). Then go east along mid-section lines for 2¼ miles (more or less) to the eastern edge of Section 14: Then north along the section line , for 1 mile, to the mid-point of the eastern edge of section 11; Then go east 1 mile (along the mid-section line) to the western edge of Section 7 (in T19 & R25). Then go north ½ mile to the northwest corner of S7; Then go east for 2 miles to the northeast corner of S8. Then go south 3½ miles along section lines to the eastern end of the east-to-west mid-section line Section 29. Then go east (along mid-section lines) for two-and-three-fourths of a mile (which will put you ¼ mile east of the exact center of Section 26.) From that point, go north for ½ mile to the northern boundary of S26. Then go east ¼ mile to the NE corner of that Section 26. Then go south 2 miles to the NE corner of S2 (Range 25, Township 20). Then go east 1½ miles along section lines to the mid-point of the northern (east-to-west) boundary of Section 6 (in T20, R26). Then

go south for ½ mile to the exact center of that Section 6. Then east ½ mile to that S6's eastern boundary. Then go south along section lines 3 miles to the mid-point of the eastern (north-to-south) boundary of Section 19. Then east (along mid-section lines) for 3 miles to the eastern boundary of Section 22. Then go south for ½ mile to the SE corner of that S22. Then go east along section lines for two and three-quarters miles more-or-less. (This will put you on the northern line of Section 30 at a point ¼ mile west of that Section's NE corner.) From that point, go south 1 mile to the southern boundary of Section 30 Then go east along section lines for ½ mile. (This will put you on the northern boundary of Section 32 at a point which is ¼ mile east of that Section's NW corner.) From that point, go south for 1 mile to the southern boundary line of S32 - which will put you ¼ mile east of that section's SW corner. From that point, the lower tier of sections are not properly centered, so you must go straight south into Section 5 for ¼ mile; then east ¼ mile (so as to "cut out" the NE one-sixteeth of Section 5). Then go south for 1¼ mile to the mid-point of Section 8's eastern boundary. Go west 1 mile all the way across the middle of section 8; Then go south 1½ mile to the SE corner of S18. Then go west along the section line for three-quarters of a mile to a point ¼ mile east of the SW corner of Section 18. From there, go south into S19 for ½ mile (which will put you ¼ mile west of the exact middle of Section 19.) Then west for 1 mile to a point which is ¼ mile west of the exact center of Section 24, in T21, R26. Go south ½ mile to Section 24's southern boundary. (That will put you at a point which is ¼ mile east of the SW corner of Section 24.) Then go west ¼ mile to the NE corner of S26, T21, R26. Then south

center of S26. Then go south ½ mile; Then west three-quarters of a mile to the SW corner of S26. Then south 1 mile to the SE corner of S34; Then east ½ mile; Then south for three-fourths of a mile to a point which is ¼ mile south of the center of Section 2, T22, R26. Then go east ½ mile to a point which is ¼ mile north of the SE corner of S2. Then south 2¼ miles to the SE corner of S14. Then west 2 miles to the NE corner of Section 21. Then go south 4 miles to the SE corner of Section 4, Township 23, Range 26. Then go west along section lines for 12 miles to the NE corner of Section 9, T23, R24. Then go south 11 miles to the County Line (at the SE corner of S33, in T24 & R24). From that point, go west for 9 miles along the section lines (which is also the Kern County Line) to the SW corner of Section 31, Township 24, Range 23. Then north for 19 miles along section lines (which is also the Kings County Line) to the NW corner of S31, T21, R23. Then east for 5 miles to the NW corner of S36. Then north for 5 miles to the NE corner of S1, T21, R23. Then west for three-quarters of a mile along section lines to a point ¼ mile west of the SE corner of S34. Then go north ½ mile; Then go west ½ mile (to a point which is ¼ mile west of the exact center of S34). From that point, go south ½ mile; Then go west ¼ of a mile to the SW corner of Section 34 (in T20 & R23). Then go north along section lines for 3 miles to the NW corner of S22. Then go west for 3 miles to the SW corner of Section 18. From that point, go north along section lines for 6 miles to the place of beginning - which was (and is) the NW corner of Section 19, Township 19 South, & Range 23 East.

NOI Agency List

City of Tulare

City of Visalia

County of Tulare

Tulare Irrigation District

Lower Tule River Irrigation District

Kaweah Water Delta Conservation Irrigation District

Active Ingredients

Bacillus thuringiensis subsp. *Israelensis (Bti)*
Bacillus sphaericus (Bs) (Lysinibacillus sphaericus)
Methoprene
Monomolecular Films
Petroleum Distillates
Spinosad
Temephos
Deltamethrin
Etofenprox
Lambda-Cyhalothrin
Malathion
Naled
N-octyl bicycloheptene dicarboximide (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 C.F.R. section 152.25

Statement of Best Management Practices
And
Monitoring Plan
For
Tulare Mosquito Abatement District

FOR WATER QUALITY ORDER NO **2011-0002-DWQ** STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR DISCHARGERS OF AQUATIC PESTICIDES TO WATERS OF THE UNITED STATES (GENERAL PERMIT) NO. **CAG990004**

BACKGROUND

The above named district is seeking coverage under the General Permit as a "public entity" that applies aquatic pesticides for vector control in waters of the United States. As provisioned by the State Water Resources Control Board (SWRCB) Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Mosquito Abatement Districts (MAD) are allowed categorical exemptions from meeting priority pollutant/objectives for public health pest management. The Tulare Mosquito Abatement District (TMAD) is an independent special district working under the California Department of Public Health Cooperative Agreement. (Section 116180, Health and Safety Code, Division 3.

While the primary mission of the TMAD is to protect the public from vector-borne diseases, the TMAD is also required to be a good environmental steward. The TMAD operates under integrated pest management programs that manage mosquitoes while minimizing environmental impacts. The mosquito larvicides used by the TMAD are applied to water bodies with the purpose and intent of killing mosquito larvae, extensive research has indicated that little or no lasting environmental impacts are imparted. Currently used aquatic pesticides (*Bacillus thuringiensis israelensis*, *B. sphaericus*, methoprene and surface films) degrade rapidly in the environment, thus the extent and duration of residues may be considered negligible. When integrated with other strategies including vegetation management, surface acting agents, and predatory mosquito fish, these aquatic pesticides constitute safe and effective best management practices (BMP).

This document presents the BMP of the TMAD as a requisite to the General Permit. Currently established TMAD practices are environmentally safe, using least-toxic alternatives and proven IPM systems. Aquatic pesticides are applied at low rates leaving the physical parameters of the environment (i.e., temperature, salinity, turbidity and pH) unchanged. Therefore, the TMAD is proposing broad exemptions to General Permit requirements that are presented and justified below.

Statement of Best Management Practices

INTRODUCTION

The TMAD's Service Area is shown on the map enclosed as **TAB 1.** The District was formed pursuant to California Health and Safety Code (Division 3, Sections 2000 *et seq.*) or Government Code (25210.80) by local citizens and governments to reduce the nuisance of biting mosquitoes and the associated risks of vector-borne disease to residents of the area. This includes vector-borne diseases such as West Nile virus and malaria.

A diverse group of agencies regulate and oversee the TMAD pesticide use. Vector control districts are indirectly regulated by the Department of Pesticide Regulation (DPR). Supervisors and applicators are licensed through the California Department of Public Health (CDPH). Pesticide use by vector control agencies is reported to the County Agricultural Commission (CAC) in accordance with a 1995 Memorandum of Understanding among DPR, CDPH, and the CAC's for the Protection of Human Health from the Adverse Effects of Pesticides and with cooperative agreements entered into between CDPH and vector control agencies, pursuant to Health and Safety Code section 116180.

The TMAD has implemented Best Management Practices (BMP)s based on the philosophy of integrated pest management (IPM). The basic components of the programs are:

(1) surveillance of pest populations,
(2) determination pf treatment thresholds,
(3) selection from a variety of control options including physical, cultural, biological and chemical techniques
(4) training and certification of applicators
(5) public education

1. MOSQUITO SURVEILLANCE

Surveillance of pest populations is essential for assessing the necessity, location, timing and choice of appropriate control measures. It reduces the extent and duration of pesticide use, by restricting treatments to areas where mosquito populations exceed established thresholds.

Several mosquito species occur in the central valley of California. **TAB 2** lists species of mosquitoes in the central valley controlled by the Tulare Mosquito Abatement District in our service area. The species differ in their biology, nuisance and disease potential and susceptibility to larvicides.

The diversity of sources where mosquitoes are found in our area during surveillance activities is listed in **TAB 3, Definitions** of Breeding Source Types.
Field data such as; species, density, and stages present are used to select an appropriate control strategy from integrated pest management alternatives.
Surveillance for immature mosquitoes is conducted by TMAD staff assigned to zones within districts. These technicians maintain a list of known sites of mosquito development 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.

A. Adult Mosquito Surveillance

Although control of larval mosquitoes 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 sites of larval development. Adult mosquitoes are sampled using standardized trapping techniques (i.e., New Jersey light traps, carbon dioxide-baited traps and ovipositor 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.

B. Service Requests

Information on adult mosquito abundance from traps is augmented by tracking mosquito complaints from residents. Analysis of service requests allows district staff to gauge the success of control efforts and locate undetected sources of mosquito development. The TMAD conducts public outreach programs and encourages local residents to contact them 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

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

Advantages: The use of mosquitofish 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 mosquitofish in certain habitats. Mosquitofish may be preyed upon by other predators. They are opportunistic feeders and may prefer alternative prey when available. Introduction of mosquitofish 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 populations are unlikely to impact water quality.

Solutions to Barriers: Strict stocking guidelines adopted by MAD restrict the use of mosquitofish 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 over 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.

TAB 4 Lists Mosquito Pesticides available for mosquito control in California

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 CG.

Advantages: BTI is highly target-specific and has been found to have significant effects only on mosquito larvae, and closely related insects (eg., blackflies and some midges). It is available in a variety of liquid, granular and pellted formulations which 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 reduces 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 not is therefore not effective against nonfeeding stages such as late 4th instar larvae or pupae. BS is also ineffective against certain mosquito species such as those developing in, seasonal forest pools or treeholes. 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 it 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. 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 charcoal-based carriers such as pellets and briquettes for longer residual activity ranging 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 for 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. Methoprene use is avoided in vernal pools. There may be toxicity 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.

F. Surfactants

Product Names: Cocobear Oil, 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, are similarly affected. GB1111 forms a visible film on the water surface that dissipates in two or three days.

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).

G. Cultural Practices

Wetland design criteria were developed and endorsed by CDPH and described in their booklet "Best Management Practices for Mosquito Control on California State Properties". Guidelines for the following source types are included in the above publication 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
* Sedimentation ponds and retention basins

* Utility construction practices

The TMAD also provides 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. The MAD have established guidelines for water management based on information from University of California Agricultural Extension Service (UCAES). Districts provide these guidelines to property owners to promote proper irrigation techniques for pastures, duck clubs and other wetlands to reduce mosquito development...

Vegetation Management

Vegetation Management requires working with landowners for removal of vegetation within mosquito developmental sites to promote water circulation, increase access of natural predators such as fish to provide TMAD staff access for surveillance and treatment operations.
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 biotic 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.

Solutions to barriers: Intensive surveillance in and around target sites ensures that nontargets are not affected. Coordination with landowners and appropriate regulatory authorities verifies that reasonable and acceptable applications occur.

4. TRAINING AND CERTIFICATION

All MAD applicators must be certified to apply public health pesticides. The CDPH Vector-Borne Disease Section administers certification training and testing. All mosquito control personnel applying pesticides or overseeing the application of pesticides must obtain a Vector Control Technician certificate number. The Mosquito and Vector Control Association of California (MVCAC) 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. All of this Districts employees hold all four certificates.

Individual districts 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 each 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 CDPH for final approval. Thirty-six hours of CEU credits are offered each two-year cycle.

5. OVERSIGHT / MONITORING PLAN

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, Mosquito Abatement and Vector Control District Law, Sections 2000 *et seq.*). 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:

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

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

Public Education

An integral part of our BMP is to provide information to the public to assist them in resolving their pest problems. Specialized staff at the TMAD 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.

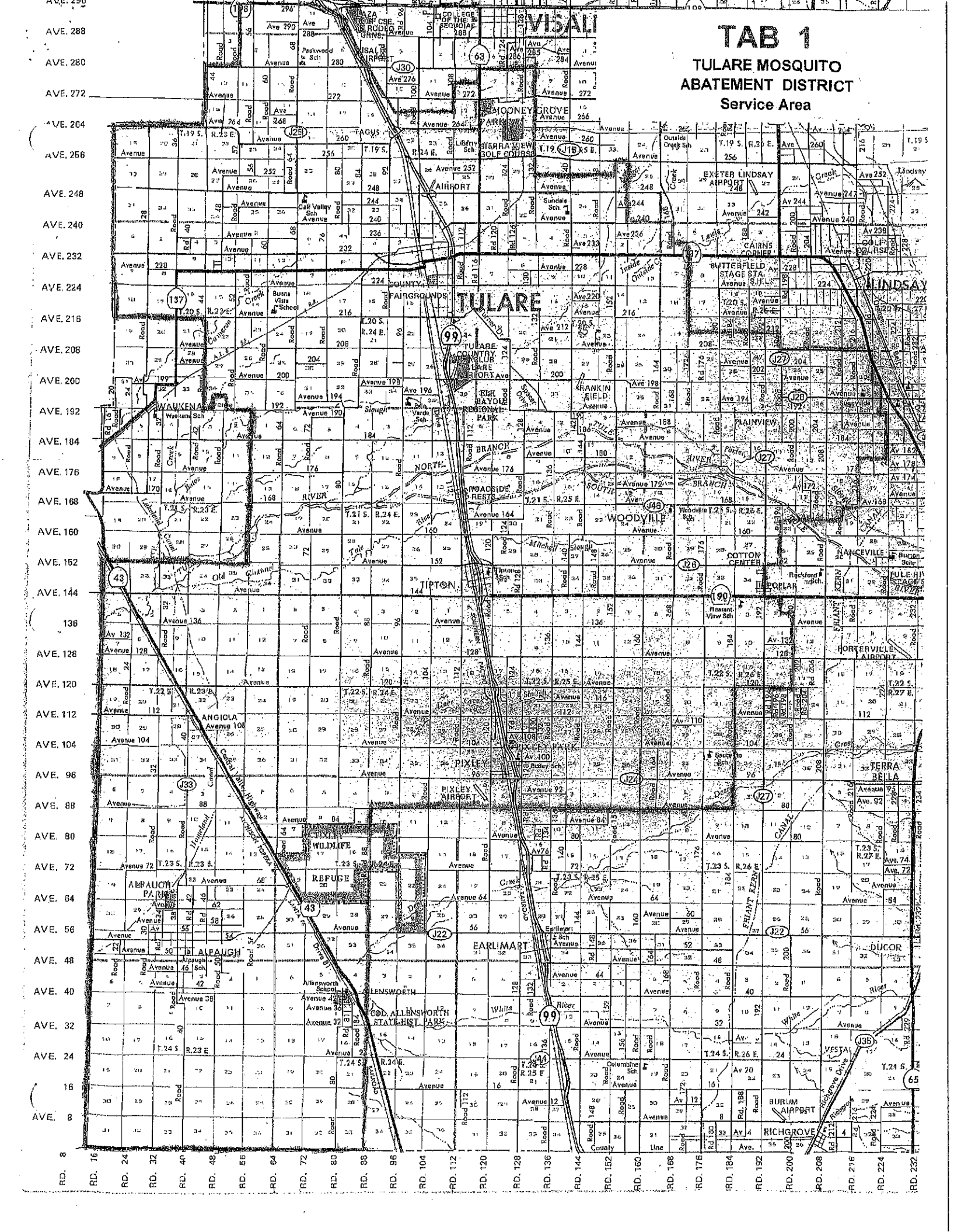
TAB Listing

1. **Map showing location of Tulare Mosquito Abatement District Service Area**
2. **Mosquito species controlled by Tulare Mosquito Abatement District**
3. **Definitions of breeding source types**
4. **Mosquito pesticides**

TAB 1

TULARE MOSQUITO ABATEMENT DISTRICT

Service Area



TAB 2

MOSQUITO SPECIES CONTROLLED BY TULARE MOSQUITO ABATMENT DISTRICT

***Aedes nigromaculis* (pasture mosquito)**
This is a spring, summer and fall species occurs (sometimes along with Aedes melanimon) in sunlit agricultural sources, especially irrigated pastures. Females are vicious day and dusk biters, dispersing many miles from larval sources to feed on large domestic mammals and man. Although short lived, it is a major pest mosquito in the Central Valley.

Aedes melanimum
This is a spring, summer and fall species occurs (sometimes along with Aedes nigromaculis) in sunlit agricultural sources, especially irrigated pastures. Females are vicious day and dusk biters, dispersing many miles from larval sources to feed on large domestic mammals and man. Although short lived, it is a major pest mosquito in the Central Valley.

***Aedes sierrensis* (Tree hole mosquito)**
This species breeds in tree holes (rot cavities or depressions in tress which hold water). If near trees and partially filled with organic debris, containers such as tires and buckets may produce these mosquitoes. The eggs hatch when the tree hole or container fills with water. The adults hatch in March and remain in the area until early summer. This mosquito has a short flight range, is an aggressive biter, and is the primary vector of Canine Heartworm in California. It is found in any area where suitable tree holes are found.

Aedes vexans
This is a spring, summer, and fall species occurs in all types of floodwater situations including temporary pools formed along flooded river bottoms, irrigated pastures, roadside ditches, etc. Females are vicious day or evening bitters, flying great distances to feed on large mammals, including man. They are considered a local major pest and known vector of canine heartworm.

***Culex pipiens* (House mosquito)**
This mosquito is generally an urban problem. It thrives in small sources and containers with a high concentration of organic material. Storm drains, catch basins, utility vaults, septic tanks, flooded basements, and sumps provide ideal development sites. This species is also commonly found in discarded containers in residential yards that fill with rainwater. Adults can be found all year but are most common during warmer months (spring through fall). These mosquitoes readily enter homes, usually biting at night.

***Culex tarsalis* (Encephalitis mosquito)**
This mosquito is produced in rain pools, marshes, swimming pools, ponds, and other relatively clean fresh-water sources. This species feeds primarily on birds and is only moderately aggressive towards man. However, they are potential vectors of mosquito-borne encephalitis viruses and are therefore of special concern to MVCDs.

Culiseta inornata
Females of this species rest during the summer and become active in the spring and fall. Eggs are laid on the water surface. Many generations can be produced in a single season. This mosquito bites at dusk in the fall and spring. They are moderately aggressive, quite large, and may reach very high numbers. It is very noticeable to the public because of its size and activity. Adults of this species are generally found close to temporary fresh-water sources. .

Anopheles freeborni (Malaria mosquito)
Larva occur in clear, seepage water in sunlit algal-laden pools. They are extremely abundant in Central Valley rice fields. They overwinter as adult females. Females are active at dusk, flying great distances to feed on most mammal. They readily enter houses to attack man.

TAB 3

DEFINITIONS OF BREEDING SOURCE TYPES
(RECEIVING WATERS)

Sources are any place that holds water and provides a habitat for mosquito larva to grow. The below defined sources are the types generally used by the Central Valley Region Mosquito and Control Districts for describing the place where mosquito larva are found or adult mosquitoes have emerged. Categorizing by Agricultural, Natural, Domestic or Commercial is used to loosely define where these sources are found, but is not restrictive in the use e.g. a fish pond is a fish pond whether in a commercial establishment or private residence, etc.

AGRICULTURAL

Pastures: Irrigated fields. Water source - irrigation water

Stock Ponds: Artificially constructed ponds to catch and hold runoff water used for stock watering or irrigation. Source of water - natural runoff.

Dairy drains: Holding ponds for polluted water from dairy operations Source of water - wash down and runoff from dairy operations

Duck ponds: Ponds managed for attracting ducks for hunting. Source of water - rainfall, pumped in from wells or other source.

Agricultural drains: Ditches used for draining excess water from agricultural operations. Source of water - irrigation.

Return Sumps: Holding ponds used to collect excess agricultural water for return to fields or disposal to another source. Source of water - irrigation.

Watering troughs: Tanks, troughs, or other containers used for watering stock. Source of water - pumped.

Tail water: Water left in low portions of an agricultural field from irrigation. Source of water - irrigation.

Other Agricultural: This source is used for agricultural source not covered above.

NATURAL

Creeks: Natural, or slightly modified main channels of creeks. Source of water - rainfall, natural runoff, domestic or agricultural runoff.

Creek potholes: Potholes holding water that are separated from main creek channel. Source of water - natural runoff, seepage from main channel.

Lakes: Large (20 acres+) natural or artificial bodies of water, usually deeper than 20 feet. Source of water - natural runoff, rainfall, pumped.

Ponds: Small (less than 20 acres) natural or artificial bodies of water, usually shallower than 20 feet. Source of water - natural runoff, drainage from artificial watershed, rain, pumped.

Treeholes: Rot cavities or cavities caused by tree growth (pans). Source of water - rainfall and occasionally from irrigation.

Temporary pools, Storm water: Areas that collect rain water or in domestic areas occasionally collect irrigation water. Source of water - rainfall, occasionally irrigation.

Marsh (freshwater): Shallow marshy areas, artificial or natural with emergent vegetation. Source of water - natural or artificial runoff, rainfall.

Other: This source is used for natural sources not covered above.

DOMESTIC

Fish ponds: Artificially constructed landscape ponds for fish or accent. Source of water - pumped, rainfall.

Septic tanks: Underground storage and processing tanks for sewage. Source of water - sewer.

Wells: Drilled or dug wells for water, usually old and no longer used. Source of water - natural water table level.

Swimming pools: In ground or above ground swimming pools. Source of water - pumped, rainfall.

Bird baths: Small pools or ornamental structures for bird watering. Source of water - pumped, rain.

Cesspools: Open collection ponds for sewage (no longer legal). Source of water - sewage.

Flooded basements: Water in basements or under a structure. Source of water - sewage, seepage, runoff.

Domestic - containers: Any container - buckets, tubs, boat, barrel, wheelbarrows, etc. found in a yard and containing water. Source of water - rainfall, irrigation, pumped.

COMMERCIAL

Catch basins, gutters: Basins or gutters used to collect and direct runoff water. Found in streets, parking lots, loading docks or private driveways. Source of water - rainfall, irrigation, seepage, pumped.

Storm drains: Underground structures for carrying runoff water. Source of water - rainfall, runoff from irrigation, seepage.

Gravel pit: Pond or pit created to mine gravel. Source of water - rainfall, natural ground water.

Borrow pit: Pits or depressions created to obtain soil for construction. Usually found along railroad tracks, highways or occasionally buildings. Source of water - rainfall, runoff.

Sewer ponds/ treatment plants: Ponds and water holding structures used for sewage treatment. Source of water - sewer.

Utility vaults: Underground structures constructed for utilities - PG&E, water departments, telephone, Western Union, or private. Source of water - rainfall, seepage, runoff.

Cemetery urns: Containers provided for flower on grave sites. Source of water - rainfall, irrigation.

Sumps: Holding ponds or structures for collecting industrial waste water or runoff. Source of water - rainfall, runoff, industrial processes.

Sewer lines: Underground structures for collecting and carrying sewage. Source of water - sewer.

Tanks, pickle vats: Tanks and vats. Pickle vats used in the production of pickles. Source of water - rainfall, pumped, irrigation.

Channel (lined): Channels lined with rock or concrete used for flood control or to collect runoff. Source of water - rainfall, runoff.

Channel (unlined): Channels with soil bottoms and sides used for flood control or to collect runoff. Source of water - rainfall, runoff.

Tires: Stored or discarded tires. Source of water - rain, irrigation.

Broken or Leaking pipes: Water sources created by broken or leaking pipes. Source of water – pumped.

Seepage: Water sources created by seepage from natural or unknown sources. Source of water -seepage from springs, ground water, or subterranean runoff.

Commercial other: Commercial sources not covered by above.

Definitions for the source of the water

The general descriptions of the source of the water are used throughout these descriptions.

Irrigation: Water used for irrigating crops or watering landscaping.

Rainfall: Water accumulating directly from rain.

Runoff: Water from surface runoff from rain, irrigation, or other sources.

Pumped: Water from municipal, well, or commercial source.

Sewer: Water from black or gray water sewage.

Seepage: Water from subterranean natural or unknown source.

TAB 4

MOSQUITO PESTICIDES (IN STOCK OR COULD BE USED)

Product Name	Active Ingredient
Agnique MMF	Ethoxylated alcohol
Altosid Liquid Larvicide	s-methoprene
Altosid Pellets 4.25	s-methoprene
Altosid 2.1 XR briquets	s-methoprene
Altosid 8.6 briquets	s-methoprene
Altosid XRG	s-methoprene
Altosid WSP	s-methoprene
Altosid SR-10	s-methoprene
Altosid SBG	s-methopene
Aquahalt	Pyrethrins
FourStar Bti Briquets 45	*Bacillus thuringiensis var. israelensis*
FourStar Bti Briquets 150	*Bacillus thuringiensis var. israelensis*
Pyrenone 25-5	Pyrethrins
Cocobear Oil	Mineral Oil (highly refined, petroleum-based "napthenic oil")
Teknar HP-D	*Bacillus thuringiensis var. israelensis*
Mosquito Dunks	*Bacillus thuringiensis var. israelensis*
Vectobac 12AS	*Bacillus thuringiensis var. israelensis*
Vectolex CG	*Bacillus sphaericus*
Vectobac G Granules	*Bacillus sphaericus*
Vectolex WDG	*Bacillus sphaericus*
Vectolex WSP	*Bacillus sphaericus*

Primary Products used: Altosid Liquid Larvicide (A.L.L.), Altosid WSP, Teknar HP-D, Agnique MMF, Pyrenone 25-5, Cocobear Oil, Vectolex WSP

Tulare 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 and Boundary Description, **Tab1**

2. Discussion of the factors influencing the decision to select pesticide applications for vector control:

Please see the Best Management Practices for Mosquito Control in 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:

Please see the Best Management Practices for Mosquito Control in California
Products will be applied by truck, backpack, hand can and airplane.
Products specific to our District are listed on **Tab 2**

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 District'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 the District's Mosquito Reduction Best Management Practices Document. The typical sources treated by this District include: permanent/semipermanent/ seasonal wetlands, pastures, irrigated crops and associated water conveyance systems, storm drains river seepage and creeks. Please see Service Area Map.

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

With any mosquito or other vector source, the District'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 District's Mosquito Reduction Best Management Practices Document. The District distributes Gambusia affinis to irrigation drains and neglected swimming pools on a yearly basis.

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

Please refer to **Tab 3** which represents the totals of all pesticide applications within the District's Service Area for 2015. Determining application totals for sources as Waters of the U.S. is difficult due to yearly variability. No applications were made to Waters of the U.S. in 2015. However 2016 may require some applications.

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

Please see the Best Management Practices for Mosquito Control in California

9. Description of the BMPs to be implemented:

a. measures to prevent pesticide spill

District staff monitors application equipment on a daily basis to ensure it remains in proper working order. Spill mitigation devices are placed in all spray vehicles and pesticide storage areas to respond to spills. Employees are trained on spill prevention and response annually.

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

Spray equipment is calibrated each year and is a part of the MOU with CDPH.

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

Applicators are required to complete pesticide training yearly.

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

District will calibrate truck and hand larviciding equipment each year to meet application specifications. Supervisors review spray records daily to ensure appropriate amounts of materials are being used. ULV equipment is calibrated for output and droplet size to meet label requirements. Aerial equipment is also calibrated to ensure droplets meet requirements for both ULV and larviciding. The District's aircraft is also equipped with advanced guidance systems to ensure the best available technology is being used to place product in the intended area.

10. Identification of the problem.

The District's BMPs are described in the Best Management Practices for Mosquito Control in California and the California Mosquito-borne Virus Surveillance Response Plan.

a. Establish densities for larval and adult vector populations to serve as action thresholds for implementing pest management strategies

Only those mosquito sources that 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 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
Presence of sensitive/endangered species or habitats

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

Please see the Best Management Practices for Mosquito Control in California and the California Mosquito-borne Virus Surveillance and Response Plan.

Refer to **Tab 4** for target vector species controlled by our District.

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

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the District's preferred solution, and whenever possible the District works with property owners to implement long-term solutions to reduce or eliminate the need for continued applications as described in Best Management Practices 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 included in the Best Management Practices for Mosquito Control in California and the California Mosquito-borne Virus Surveillance and Response Plan that the Districts uses. The District continually collects adult and larval mosquito surveillance data, dead bird reports and uses them to guide mosquito control activities.

11. Examination of Pesticide Use Alternatives.

a. Evaluating management and treatment options that may impact water quality, non-target organisms, vector resistance, feasibility, and cost effectiveness, such as:

No Action

Source prevention

Mechanical or physical source reduction 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.

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

This is described in the Best Management Practices for Mosquito Control in California and in the California Mosquito-borne Virus Surveillance and Response Plan that are used by this District.

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 proper 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 continued education.

E. Pesticide Application Log

The Discharger shall maintain a log for each pesticide application. The application log shall contain, at a minimum, 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 the 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 by the Discharger, and volume or mass of each component discharged;**

   This is an existing practice of the District as required to comply with DPR regulations and our CDPH Cooperative Agreement requirements. The District utilizes hand held and laptop data collection devices to input necessary and practical application permit data into our database.

References:

Best Management Practices For Mosquito Control in California

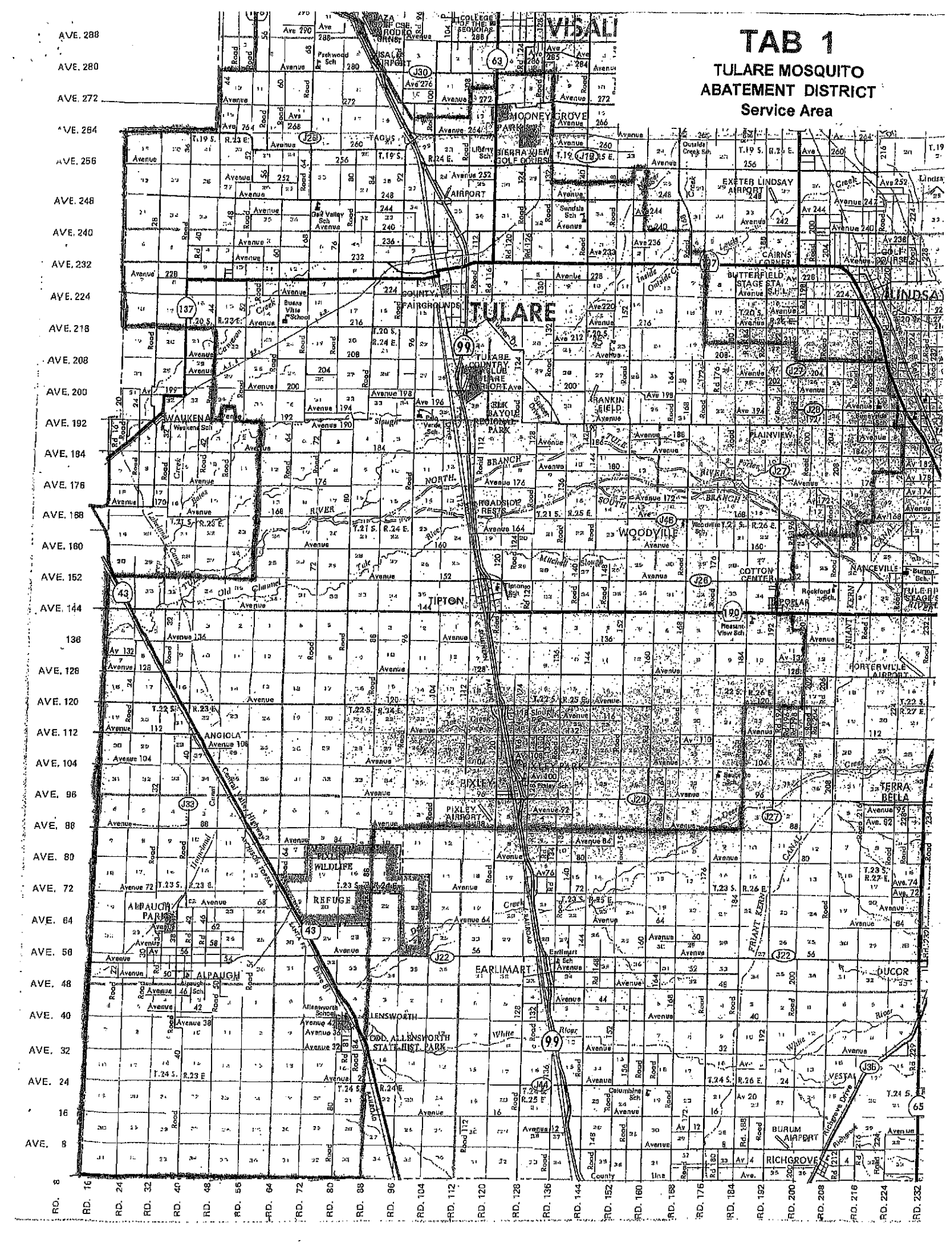
California Mosquito-borne Virus Surveillance Response Plan

MVCAC NPDES Coalition Monitoring Plan

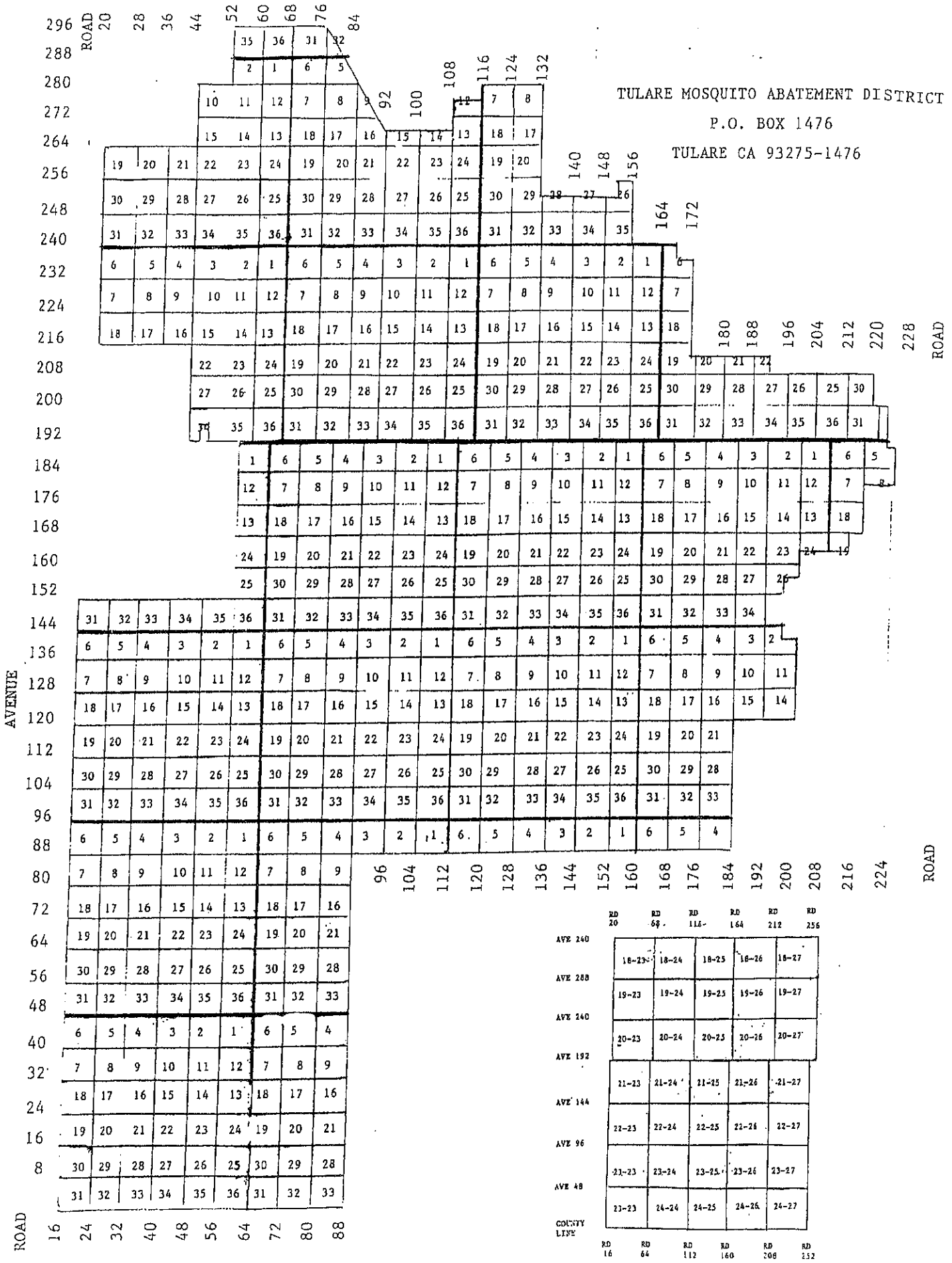
TAB 1

TULARE MOSQUITO ABATEMENT DISTRICT

Service Area



TULARE MOSQUITO ABATEMENT DISTRICT
P.O. BOX 1476
TULARE CA 93275-1476



BOUNDARY DESCRIPTION OF TULARE MOSQUITO ABATEMENT DISTRICT
(Prepared on 14/MAY/80 form original 1943 & 1948 documents.)

Starting from the Northwest corner of Section 19 (in Township 19, Range 23), go East 3 miles to the NE corner of S21; then go N 2 miles to the NW corner of S10; then go E 1 mile to the NE corner of S10; then go north 2 miles to the NW corner of S35 (in Township 18, Range 23). Then go east 3½ miles along section lines to the mid-point of the northern boundary of S32, T18, R24; Then go south ¼ mile. From that point, go due west a distance of 1,428.6 feet; Then south-easterly (paralleling the railroad) for 1,380.2 feet; then go westerly (about 2° south of due west for 879.2 feet - which will put you at the easterly right-of-way of the SP railroad - follow that right-of-way south-easterly to the east-to-west mid-line of S16 (T19, R24). Then go east along mid-section lines for 2¼ miles (more or less) to the eastern edge of Section 14: Then north along the section line , for 1 mile, to the mid-point of the eastern edge of section 11; Then go east 1 mile (along the mid-section line) to the western edge of Section 7 (in T19 & R25). Then go north ½ mile to the northwest corner of S7; Then go east for 2 miles to the northeast corner of S8. Then go south 3½ miles along section lines to the eastern end of the east-to-west mid-section line Section 29. Then go east (along mid-section lines) for two-and-three-fourths of a mile (which will put you ¼ mile east of the exact center of Section 26.) From that point, go north for ½ mile to the northern boundary of S26. Then go east ¼ mile to the NE corner of that Section 26. Then go south 2 miles to the NE corner of S2 (Range 25, Township 20). Then go east 1½ miles along section lines to the mid-point of the northern (east-to-west) boundary of Section 6 (in T20, R26). Then

go south for ½ mile to the exact center of that Section 6. Then east ½ mile to that S6's eastern boundary. Then go south along section lines 3 miles to the mid-point of the eastern (north-to-south) boundary of Section 19. Then east (along mid-section lines) for 3 miles to the eastern boundary of Section 22. Then go south for ½ mile to the SE corner of that S22. Then go east along section lines for two and three-quarters miles more-or-less. (This will put you on the northern line of Section 30 at a point ¼ mile west of that Section's NE corner.) From that point, go south 1 mile to the southern boundary of Section 30 Then go east along section lines for ½ mile. (This will put you on the northern boundary of Section 32 at a point which is ¼ mile east of that Section's NW corner.) From that point, go south for 1 mile to the southern boundary line of S32 - which will put you ¼ mile east of that section's SW corner. From that point, the lower tier of sections are not properly centered, so you must go straight south into Section 5 for ¼ mile; then east ¼ mile (so as to "cut out" the NE one-sixteeth of Section 5). Then go south for 1¼ mile to the mid-point of Section 8's eastern boundary. Go west 1 mile all the way across the middle of section 8; Then go south 1½ mile to the SE corner of S18. Then go west along the section line for three-quarters of a mile to a point ¼ mile east of the SW corner of Section 18. From there, go south into S19 for ½ mile (which will put you ¼ mile west of the exact middle of Section 19.) Then west for 1 mile to a point which is ¼ mile west of the exact center of Section 24, in T21, R26. Go south ½ mile to Section 24's southern boundary. (That will put you at a point which is ¼ mile east of the SW corner of Section 24.) Then go west ¼ mile to the NE corner of S26, T21, R26. Then south

center of S26. Then go south ½ mile; Then west three-quarters of a mile to the SW corner of S26. Then south 1 mile to the SE corner of S34; Then east ½ mile; Then south for three-fourths of a mile to a point which is ¼ mile south of the center of Section 2, T22, R26. Then go east ½ mile to a point which is ¼ mile north of the SE corner of S2. Then south 2¼ miles to the SE corner of S14. Then west 2 miles to the NE corner of Section 21. Then go south 4 miles to the SE corner of Section 4, Township 23, Range 26. Then go west along section lines for 12 miles to the NE corner of Section 9, T23, R24. Then go south 11 miles to the County Line (at the SE corner of S33, in T24 & R24). From that point, go west for 9 miles along the section lines (which is also the Kern County Line) to the SW corner of Section 31, Township 24, Range 23. Then north for 19 miles along section lines (which is also the Kings County Line) to the NW corner of S31, T21, R23. Then east for 5 miles to the NW corner of S36. Then north for 5 miles to the NE corner of S1, T21, R23. Then west for three-quarters of a mile along section lines to a point ¼ mile west of the SE corner of S34. Then go north ½ mile; Then go west ½ mile (to a point which is ¼ mile west of the exact center of S34). From that point, go south ½ mile; Then go west ¼ of a mile to the SW corner of Section 34 (in T20 & R23). Then go north along section lines for 3 miles to the NW corner of S22. Then go west for 3 miles to the SW corner of Section 18. From that point, go north along section lines for 6 miles to the place of beginning - which was (and is) the NW corner of Section 19, Township 19 South, & Range 23 East.

Active Ingredients

Bacillus thuringiensis subsp. *Israelensis (Bti)*
Bacillus sphaericus (Bs) (Lysinibacillus sphaericus)
Methoprene
Monomolecular Films
Petroleum Distillates
Spinosad
Temephos
Deltamethrin
Etofenprox
Lambda-Cyhalothrin
Malathion
Naled
N-octyl bicycloheptene dicarboximide (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 C.F.R. section 152.25

Tulare Mosquito Abatement District
District Headquarters: Mefford Field - Tulare
6575 Dale Fry Rd Tulare CA 93274
PH (559) 686-6628 FAX (559) 686-2013 Email: TulareMosquito@gmail.com

Tab 3

February 12, 2016

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

RE: ORDER # 2011-0002-DWQ NPDES # CAG 990004

Dear Ms. Whitney,

The attached report represents the Tulare Mosquito Abatement District's submission for the year ending 2015 NPDES Report as required by the Regional Permit Order Number 2011-0002-DWQ.

Our District did not make any applications of pesticides to Waters of the United States during 2015 for this report.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the information or those directly responsible for gathering 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 and imprisonment for knowing violations." (40 C.F.R. 122.22(d).)

If you have any questions regarding this report, please contact our office.

Sincerely Yours

Marshall Norgaard

Marshall Norgaard
District Manager

Order # 2011-0002-DWQ
NPDES# CAG 990004

Tulare Mosquito Abatement District
2015 NPDES Annual Report

1. Annual Report

a. Executive Summary

Tulare Mosquito Abatement District complied with the applicable components of the General NPDES Permit for Biological and Residual Pesticide Discharges from Vector Control Applications (General Permit). The District is a member of the MVCAC NPDES Permit Coalition. No applications to the "Waters of the U.S." were made by the District during the period of this report.

b. Summary of Monitoring Data

The MVCAC NPDES Permit Coalition Annual Report will provide information on the incidence of West Nile Virus and other similar public health threats. The report also provides data from District agencies where monitoring of treatments were made to "Waters of the U.S.".

c. Best Management Practices (BMP) Identification.

BMP's utilized by the District are outlined in the District's PAP. These included: emphasis on reducing mosquito breeding habitat through non-chemical means, training employees to prevent spills and applying appropriate amount of chemical in each treatment area, calibrate application equipment and use a biology based assessment for determining treatment thresholds. Findings included in the MVCAC NPDES Permit Coalition Annual Report will be used to update the District's PAP.

d. Violation Discussion

No violations of this General Permit were observed.

e. Map of Applications

N/A, No applications to "Waters of the U.S." were made by the District during the period of this report.

f. Log of Applications made to" Waters of the U.S.".

N/A, No applications to "Waters of the U.S." were made by the District during the period of this report.

g. General Information on Applications

Dosage, concentration and quantity of pesticides used by the District are in compliance with FIFRA pesticide label instructions and our County Agricultural Commissioner.

h. Sampling Results

N/A, No applications to "Waters of the U.S." were made by the District during the period of this report.

i. BMP, PAP, Monitoring Program, Recommendations

There are currently no recommedations suggested for improving the current PAP and monitoring plan.

j. Pesticide Application Log

N/A No applications to "Waters of the U.S." wre made by the District durfing the period of this report.

2. **Updated PAP Components**

N/A

3. **Self Monitoring Reports**

N/A

4. **Monitoring Reports**

The Coalition Monitoring Annual Report will summarize the direction and outcome of the conversations between the MVCAC and the SWRCB on potential changes to the Vector Control Report.