TEHAMA COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT
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January 5, 2012

Phil Isorena, Chief
NPDES Wastewater Unit
State Water Resources Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812-0100

Dear Phil Isorena,

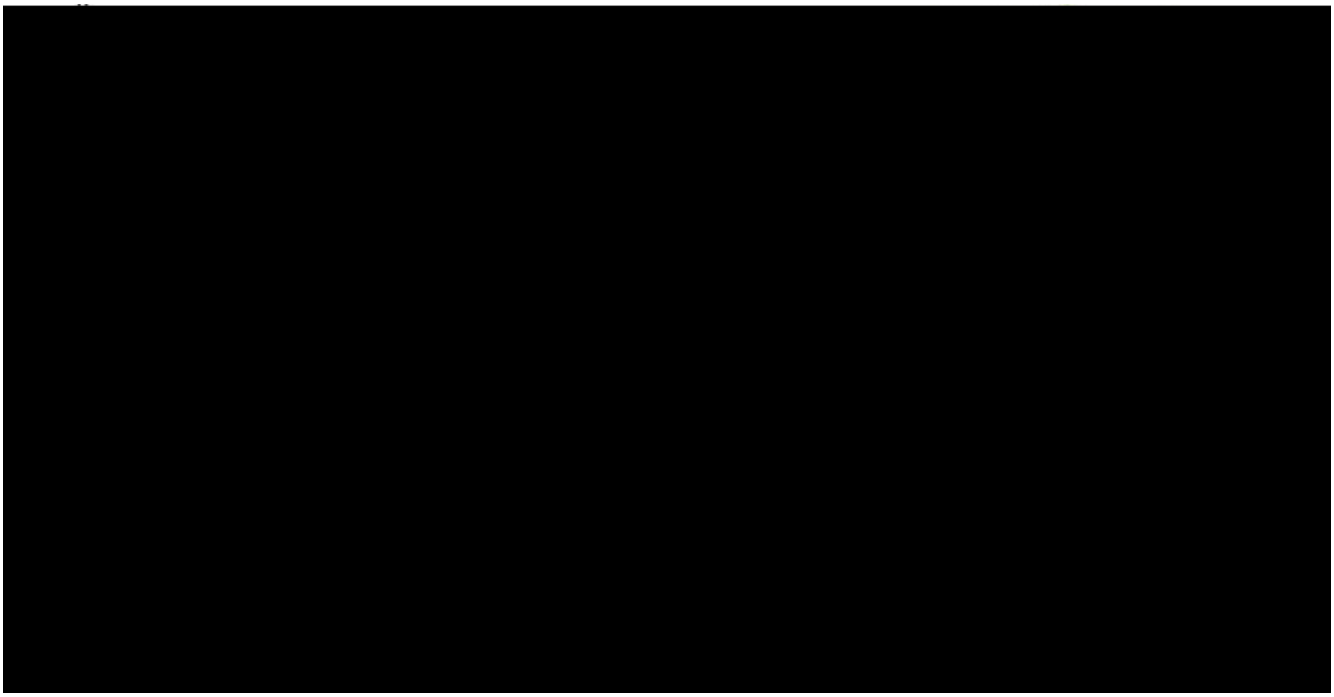
Enclosed is Tehama County Mosquito and Vector Control District's (District) addendum to the Pesticide Application Plan (PAP) for the NPDES Vector Control Permit Application for the District. The District's service area and hydrology maps were sent in the original PAP but are included in this addendum. Should you have any question or further inquiries, please don't contact me.

Respectfully,

D. Andrew Cox
District Manager

1. **Historical applications to/over/near waters of the U.S. (high water mark of various creeks and streams, adulticide applications over named water body, etc.)**
   In prior years, the District has applied larvicides directly to or adulticides in the vicinity of the following water bodies and their unnamed tributaries:

Antelope Creek
Battle Creek
Black Butte Lake
Blue Tent Creek
Brickyard Creek
Brush Creek
Butler Slough
Burch Creek
Champlin Slough
Clover Creek
Cottonwood Creek
Craig Creek
Coyote Creek
Dibble Creek
Ditch Creek
Dry Creek
Corning Canal
East Sand Slough
Elder Creek
Deer Creek
Delaney Slough
Elmore Creek
Flume Creek
Frazier Creek
Grizzly Creek
Hall Creek
Hoag Slough
Hooker Creek
Houghton Creek
Inks Creek
Jackson Spring Creek
Jewett Creek
Campbell Creek
Hog Gulch Creek
Kopta slough
Little Antelope Creek
Little Dry Creek
Little Grizzly Creek
Little Pine Creek
Little Salt Creek
Liza Creek
Little Wildcat Creek
McCarty Creek
McClure Creek
Meeker Creek
Middle Fork Hall Cr
Middle Fork Brush Cr
Moore Creek
Lake California
Nevada Creek
New Creek
Nine Mile Creek
North Fork Dibble Cr
Mill Creek
Millrace Creek
Kingsley Creek
Laniger Lakes
Kendrick Creek
North Fork Dibble Cr
North Fork Dye Cr
North Fork Hall Cr
North Fork Mill Cr
North Fork Red Bank Cr
Oat Creek
Parker Creek
Patterson Creek
Paynes Creek
Paynes Creek Slough
Pine Creek
Rattlesnake Creek
Red Bank Creek
Reeds Creek
Rice Creek
Rodeo Creek
Sacramento River
Salt Creek
Samson Slough
Sehorn Creek
Sevenmile Creek
Singer Creek
Sour Grass Creek
South fork Cottonwood Cr
South Fork Dibble Creek
South Fork Hall Creek
South Fork Patterson Cr
Spring Branch
Spring Creek
Stony Creek
Tehama-Colusa Canal
Thomes Creek
Toomes Creek
Wildcat Creek
Willow Creek



TEHAMA COUNTY MVCD BOUNDRY MAP, SERVICE AREA and HYDROLOGY

Map of Tehama County and District
Yellow and Gray shaded areas are the District control operation areas
Major Hydrology within County and District control operation areas

2. Specific BMPs that the agency uses and give examples of where they have been implemented in the past instead of directly referencing the State BMP manual.

The Tehama County Mosquito and Vector Control District (District) is aware that adjusting land management practices and installing proper Best Management Practices (BMPs) can reduce mosquito populations thereby reducing mosquito control costs, reducing the amount of pesticide used in mosquito control applications, helping to protect the public's health, and contributing to the District's integrated vector management (IVM) approach to mosquito and vector control.

IVM is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. The District's IVM program uses current, comprehensive information on the life cycles of pests and their interaction with the environment. This information is used to manage pest nuisance and public health threats by the most economical means, and with the least possible hazard to people, property, and the environment. The District's IVM includes vector surveillance, source reduction and/or elimination, best management practices, public education, biological control, chemical control and monitoring.

The District has used many BMPs throughout its 94 year existence and are a critical component of Districts IVM program. BMPs for mosquito harboring sites (breeding sources) come in all shapes and sizes. Mosquito breeding sources may be as small as bucket or as large as several hundred acres of agricultural used land or managed wetlands.

Examples of BMPs used to manage small mosquito breeding sources is to physically control or eliminate the source (e.g. turning over water buckets, washing out bird baths, unclogging boat drains, turning over flower pots, unclogging rain gutters, using pumps to pump water out of unused/abandoned items such as broken fountains and/or discarded chest freezers, etc.). Another form of physical control the District has

used and/or implemented a program utilizing water absorbing polymers in cemetery vases and utilizing this same product or sand for tree hole filling. For sources that are permanent or cannot be physically controlled, the District will access if biological control measures will work such as planting mosquitofish (*Gambusia affinis*).

For larger mosquito breeding sources, the District works cooperatively with property owners and/or land managers to affect short and long term management strategies. Examples of BMPs used to manage medium to large mosquito breeding areas the District has used; changed irrigation practices of agricultural lands and managed wetlands, water conveyance system improvements, water conveyance system design, managed wetland design and maintenance, agricultural design and maintenance, repairs of water leaks, maintenance of unmaintained swimming pools, maintenance of storm water systems/structures, storm water design, aerators, etc..

The District works with all county and city local governments to assess the best ways to reduce mosquito breeding habitat.

3. Limitations of each agency in utilizing BMPs in their district. (Funding, feasibility, equipment, negotiations with landowners, etc.)

BMPs are not always followed or implemented due to several factors or limitations. Usually the factors and/or limitations are the costs and/or regulations.

Financial constraints on other cooperative public agencies are a significant limitation. Proper maintenance of storm water systems (e.g. pumping/vacuuming clogged storm drains/drain inlets, removal of emergent vegetation from retention/detention ponds, proper maintenance and design of waste water treatment facilities, etc.) is consistently overlooked or underfunded.

The cost of equipment, employee time, treatment materials is a significant limitation. Mitigating large mosquito sources requires a significant investment in equipment and trained personnel for moving soil and vegetation, which is beyond the means of most property owners and this District. Most landowners are relatively cooperative, but they lack the resources for long-term source reduction (e.g., installation of new water conveyances, emergent vegetation control, and re-grading irrigated agricultural land to reduce mosquito habitat). The District is sometimes unable to access known or suspected mosquito sources due to impenetrable vegetation (which the District lacks the resources to remove) or uncooperative residents/ property owners (which interfere with the timely inspection/treatment of larval sources). Compliance with permits, monitoring requirements, and paperwork is requiring more employee time, which reduces the number of man-hours available for our employees to inspect mosquito sources and implement non-pesticide alternatives.

Legal restrictions and/or regulations to manipulate land, vegetation, or redesign is a significant limitation. Regulations and State and Federal laws prohibiting the necessary land improvements due to the presence of threatened or endangered species is a large limitation that does not allow for proper BMPs to be implemented. Additionally, cooperative working agreements between State, Federal, and private managed wetlands/rice land is a limitation (e.g. providing incentive programs to increase migratory waterfowl habitat).

Lastly, biological control such as mosquitofish may not be suitable in all mosquito breeding sources due to poor water quality, mosquito larvae densities, emergent vegetation, temporary source (dries up), source may have sensitive species, and/or sources may drain into natural waterways.