LAKE COUNTY VECTOR CONTROL DISTRICT
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Philip S. Isorena
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California State Water Resources Control Board / Division of Water Quality
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October 4, 2011

Dear Philip,

Enclosed is the addendum to the PAP for the NPDES Vector Control Permit for the Lake County Vector Control District.

Please advise me if you require additional information.

Sincerely,

Jamesina J. Scott, Ph.D., SDA
District Manager and Research Director
jjscott@lcvcd.org

Addendum to Lake County Vector Control District's Notice of Intent (NOI) (October 4, 2011)

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:

Clear Lake	Bucksnort Cr	Herman Cr	Rumsey Slough
Hidden Valley Lake	Bucksnort Cr	Herndon Cr	Rush Cr
Lake Pillsbury	Butts Cr	Highland Cr	So. Fork Long Valley Cr
Spring Valley Lake	Cache Cr	High Valley Cr	So. Fork Scotts Cr
Upper Blue Lake	Cassidy Cr	Hill Cr	Salmon Cr
Lower Blue Lake	Clayton Cr	Hoffman Cr	Salt Flat Cr
Highlands Sprgs Res	Clover Cr	Hog Hollow Cr	Scotts Cr
Detert Res	Cold Cr	Hoodoo Cr	Seigler Canyon Cr
McCreary Lake	Cole Cr	Houghton Cr	Soda Cr
Lake Bordeaux	Cooper Cr	Jones Cr	Spikenard Cr
Lake Burgundy	Copsey Cr	Kelsey Cr	Squaw Valley Cr
Thurston Lake	Coyote Cr	Kirkpatrick Cr	St. Helena Cr
Borax Lake	Crazy Cr	Long Valley Cr	St. Marys Cr
Little Borax Lake	Davis Cr	Lyons Cr	Sulphur Cr
Herman Lake	Dayle Cr	Lyons Valley Cr	Sweet Springs Cr
Adobe Cr	Dorr Cr	Manning Cr	Sweetwater Cr
Alley Cr	Dry Cr	Meyers Cr	Thompson Cr
Anderson Cr	Eel River	Middle Cr	Thurston Cr
Appletree Cr	Forbes Cr	Mill Cr	Welch Cr
Asbill Cr	Fuller Cr	Molesworth Cr	West Fork Middle Cr
Bad Cr	Gallagher Cr	Morrison Cr	Widow Cr
Bear Canyon Cr	Grizzly Cr	No. Fork Cache Cr	Wild Bill Cr
Benmore Cr	Gunning Cr	Perini Cr	Wildhorse Cr
Big Canyon Cr	Gunther Cr	Poge Cr	Wilkinson Cr
Black Oak Sprgs Cr	Harbin Cr	Pool Cr	Willow Cr
Black Rock Cr	Harris Cr	Putah Cr	Wolf Cr
Bradford Cr	Hendricks Cr	Robinson Cr	

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.**
   When a source of standing water that is harboring mosquitoes is detected, the District's first goal is to eliminate or reduce that source to reduce the need for ongoing treatment. These sources may be as small as a bucket of water or as large as several hundred acres of irrigated pasture.

For small mosquito sources, we are often able to eliminate the source (e.g., turning over a water-filled bucket). Sources that are permanent or cannot be drained (ornamental ponds, neglected swimming pools, animal watering troughs) are typically stocked with mosquito fish (*Gabusia affinis*).

For larger sources, we work with property owners to effect long-term management strategies (e.g., putting neglected swimming pools back into service or draining/removing the pools; changing irrigation practices or improving drainage of irrigated pastures; repairing water leaks).

Since 2009, we have been working with the Lake County Special Districts (LCSD) and the Spring Valley Property Owners Association (SVPOA) to reduce mosquito habitat in Spring Valley Lake. Approximately six acres of that lake produced tremendous numbers of the floodwater mosquito *Aedes vexans*, and previously required extensive adulticide applications. We have worked closely with LCSD to coordinate a larvicide application (using the bacterial product Bti) with the date that they increase the lake level in the spring. We are also working with LCSD and the SVPOA on a long-term solution to restore the lake to its original size and reduce the area of shallow flooding to reduce or even avoid the need for future applications.

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

There are several limitations to the "ideal" implementation of mosquito best management practices in Lake County.

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., re-grading irrigated pastureland 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 person-hours available for our employees to inspect mosquito sources and implement non-pesticide alternatives.

In the case of treehole mosquitoes (*Aedes sierrensis*), there is no effective method for larval control or practical option for source reduction. These mosquitoes develop in treeholes, which are usually small sources with cryptic entrances. A single acre of oak woodland many contain several hundred flooded treeholes, and there is no effective method to find—let alone eliminate or larvicide—these sources. Consequently, only the adult stage is treated.

Mosquito fish may not be suitable in sources with poor water quality or in sources that drain into natural waterways.