

**Pesticide Application Plan for the Owens Valley Mosquito Abatement Program in accordance with  
WATER QUALITY ORDER NO. 2011-0002-DWQ  
GENERAL PERMIT NO. CAG 990004  
STATEWIDE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
(NPDES) PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE  
DISCHARGES TO WATERS OF THE UNITED STATES  
FROM VECTOR CONTROL APPLICATIONS**

The Discharger shall develop a Pesticides Application Plan (PAP) that contains the following elements:

- 1. Description of ALL target areas, if different from the water body of the target area, in to which larvicides and adulticides are being planned to be applied or may be applied to control vectors. The description shall include adjacent areas, if different from the water body of the target areas;**

See attached map.

The Owens Valley Mosquito Abatement Program (OVMAP) operates in about 1200 square miles from the Inyo/Mono county line in the north to State Hwy 190 in the south; the base of the White Mountains in the east to the Eastern slope of the Sierra Nevada in the west.

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

Please see the Best Management Practices for Mosquito Control in California and Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley.

- 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 Attachments E and F within NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. for Vector Control Applications. Products may be applied by hand, truck, backpack, hand can, helicopter, or airplane according to label directions.

- 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 OVMAP's preferred solution, and whenever possible the agency works with property owners to affect long-term solutions to reduce or eliminate the need for continued applications as described in Best Management Practices for Mosquito Control in California, Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley, and Suggested Irrigation Practices for the Reduction of Mosquito Breeding in the Owens Valley. The typical sources treated by this agency include:

- Irrigated pastureland

- Riparian areas of the Owens River from several miles North of Bishop to Owens Lake. These treatments are never directly to the river but to areas that, due to flooding, fill beyond the banks of the river itself forming stagnant pools.
- Alpine Wetland Meadows
- Stagnate Settling Ponds
- Underground Vaults and Drainages
- Roadside ditches with standing water
- Golf Course Features
- Snowmelt Pools, sloughs, and Ponds
- Residential Standing Water Features
- Manmade Drainages
- Ponds and lakes (rarely)

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

With any source of mosquitoes or other vectors, the OVMAP's first goal is to look for ways to eliminate the source, or if that is not possible, for ways to reduce the potential for vectors. The most commonly used methods and their limitations are included in the Best Management Practices for Mosquito Control in California.

See page 10, Non-Chemical Larval Control Measures, in Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley for specifics.

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

The need to apply product is determined by surveillance. Actual use varies annually depending on mosquito abundance. The pesticide amounts presented below were taken from the OVMAP's 2010 PUR as an estimate of pesticide use in 2011. Other public health pesticides in addition to those listed below may be used as part of the agency's best management practices.

<b>Pesticide Name (from label)</b>	<b>EPA Registration Number</b>	<b>Amount applied</b>	<b>Units</b>
Pyrenone 25-5	432-1050	63	gal
Zenivex E20	2724-791	5	gal
Agnique MMF	53263-28	40	gal
Altosid SBG	2724-489	62	lbs
Altosid XR-G	2724-451	391	lbs
Fourstar briquettes	83362-3	66	lbs
Vectobac TP	73049-13	528	lbs
GB-1111	8329-72	13	gal
BVA 2 oil	70589-1	13	gal
VectoBac G	73049-10	395	lbs
Vectolex CG	73049-20	1000	lbs
Vectomax CG	73049-429	305	lbs
Altosid 30-day pellets	2724-448	112	lbs

**7. Representative monitoring locations\* and the justification for selecting these monitoring 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; and**

OVMAP strives to use as little adulticide product as possible throughout the mosquito season. In fact, a perfect year for us would be no adulticide applied. We have approached this ideal over the years, never quite getting there, through practicing feasible alternatives such as:

- Education of the ranching community responsible for irrigations of area pastureland. Please see the Suggested Irrigation Practices for the Reduction of Mosquito Breeding in the Owens Valley.
- We work within a hierarchy of solutions to the mosquito problem for each source. Each source is evaluated based on the conditions present at the time of surveillance including weather, temperature, time of year, proximity to population centers. We follow the hierarchy detailed in Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley on pages 10-16. This hierarchy begins with non-chemical methods including elimination of the source or the addition of biological predators.
- We work closely with LADWP and their needs regarding flow changes in the Owens River. The Owens River is very difficult to larvicide and large fluctuations often result in hatches of floodwater mosquitoes that require adulticiding. This, from their Pleasant Valley Reservoir (P.V.) operations manual, is a fluctuation procedure in which we attempt to strand developing larvae without the use of chemicals:

**Mosquito Abatement:** when conditions allow, during the mid-March to early October mosquito season, and the ultimate goal is to raise P.V. outflow above 450 cfs (and into the oxbows) then it is beneficial to the Inyo County mosquito abatement program to first raise PV outflow briefly, then lower it again briefly, before making the permanent flow increases. More specifically: raise PV up to 600-650 cfs, as quickly as the Northern District Engineer will allow, and leave it there for approximately four days. Then lower PV's outflow, according to the above flow-change restrictions, to 400-450 cfs, leaving it there for approximately five days. The flow can then be increased to the desired higher rate. These flows and durations are approximate, the actual numbers should be worked out only after consultation with the Manager of the Owens Valley Mosquito Abatement Program.

**9. Description of the BMPs to be implemented. The BMPs shall include at a minimum:**

The OVMAP's BMPs are described in the Best Management Practices for Mosquito Control in California and in the California Mosquito-borne Virus Surveillance and Response Plan. Specific elements have been highlighted below under items a-f.

**a. measures to prevent pesticide spill;**

All pesticide applicators receive annual spill prevention and response training. Agency employees ensure daily that application equipment is in proper working order. Spill mitigation devices are placed in all vehicles and pesticide storage areas.

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

Application equipment is calibrated at least annually as required by the Department of Pesticide Regulations (DPR) and the terms of a cooperative agreement with the California Department of Public Health (CDPH).

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

This will be included in our pesticide applicators annual pesticide application and safety training, continuing education programs, and/or regional NPDES Permit training programs.

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

The OVMAP calibrates truck-mounted and handheld larviciding equipment each year to meet application specifications. Management reviews application records daily to ensure appropriate amounts of material are being used. Ultra-low volume (ULV) application equipment is calibrated for output and droplet size to meet label requirements. Aerial larviciding equipment is calibrated by the Contractor. Aerial adulticide equipment is calibrated regularly and droplet size will be monitored by the agency to ensure droplets meet label requirements. Airplanes used in urban ULV applications and the primary airplane used for rural ULV application is equipped with advanced guidance and drift management equipment to ensure the best available technology is being used to place product in the intended area. If a secondary airplane is used in rural ULV applications it will be equipped with an advanced guidance system.

**e. descriptions of specific BMPs for each pesticide product used; and**

Please see the Best Management Practices for Mosquito Control in California for general pesticide application BMPs, and the current approved pesticide labels for application BMPs for specific products.

**f. descriptions of specific BMPs for each type of environmental setting (agricultural, urban, and wetland).**

Please see the Best Management Practices for Mosquito Control in California.

**10. Identification of the problem. Prior to first pesticide application covered under this General Permit that will result in a discharge of biological and residual pesticides to waters of the US, and at least once each calendar year thereafter prior to the first pesticide application for that calendar year, the Discharger must do the following for each vector management area:**

- a. If applicable, establish densities for larval and adult vector populations to serve as action threshold(s) for implementing pest management strategies;**

The OVMAP staff only applies pesticides to sources of mosquitoes that represent imminent threats to public health or quality of life. The presence of any mosquito may necessitate treatment, however higher thresholds may be applied depending on the agency's resources, disease activity, surveillance data, 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.

- b. Identify target vector species to develop species-specific pest management strategies based on developmental and behavioral considerations for each species; Please see the Best Management Practices for Mosquito Control in California, Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley, and the California Mosquito-borne Virus Surveillance and Response Plan.**

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

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the agency's preferred solution, and whenever possible the agency works with property owners to implement long-term solutions to reduce or eliminate the need for continued pesticide applications as described in the Best Management Practices for Mosquito Control in California, Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley, and Suggested Irrigation Practices for the Reduction of Mosquito Breeding in the Owens Valley.

- 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 agency uses. The OVMAP continually collects adult and larval mosquito surveillance data, dead bird reports, and monitors regional mosquito-borne disease activity detected in humans, horses, birds, and/or other animals, and uses these data to guide mosquito control activities.

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

- a. **Evaluating the following management options, in which the impact to water quality, impact to non-target organisms, vector resistance, feasibility, and cost effectiveness should be considered:**

- **No action**
- **Prevention**
- **Mechanical or physical methods**
- **Cultural methods**
- **Biological control agents**
- **Pesticides**

**If there are no alternatives to pesticides, dischargers shall use the least amount of pesticide necessary to effectively control the target pest.**

Please see Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley and Suggested Irrigation Practices for the Reduction of Mosquito Breeding in the Owens Valley.

Implementing preferred alternatives depends a variety of factors including availability of agency resources, cooperation with stakeholders, coordination with other regulatory agencies, and the anticipated efficacy of the alternative. If a pesticide-free alternative does not sufficiently reduce the risk to public health, pesticides are considered, beginning with the least amount necessary to effectively control the target vector.

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

Please see Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley and Suggested Irrigation Practices for the Reduction of Mosquito Breeding in the Owens Valley.

**12. Correct Use of Pesticides**

**Coalition's or Discharger's use of pesticides must ensure that all reasonable precautions are taken to minimize the impacts caused by pesticide applications. Reasonable**

**precautions include using the right spraying techniques and equipment, taking account of weather conditions and the need to protect the environment.**

This is an existing practice of the OVMAP, and is required to comply with the Department of Pesticide Regulation's (DPR) requirements and the terms of our California Department of Public Health (CDPH) Cooperative Agreement. All pesticide applicators receive annual safety and spill training in addition to their regular continuing education.

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

**[www.inyomonoagriculture.com](http://www.inyomonoagriculture.com)**

**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.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 OVMAP at (760) 873-7853.

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.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 OVMAP at (760) 873-7853.

MVCAC NPDES Coalition Monitoring Plan. 2011.

Integrated Pest Management Strategies for the Control of Mosquitoes in the Owens Valley. 2010.

Suggested Irrigation Practices for the Reduction of Mosquito Breeding in the Owens Valley.