

The NPDES Permit requires a Pesticides Application Plan (PAP) that contains the following elements:

1. Description of the target area and adjacent areas, if different from the water body of the target area;

The Northwest Mosquito and Vector Control District is located in the Western portion of the County of Riverside bounded as follows:

- On the North by the Riverside County Line;
- On the West by the Riverside County line and the Westerly boundary of the Cities of Corona, Eastvale, and Lake Elsinore;
- On the South by the Southerly border of the City of Lake Elsinore, Canyon Lake, portions of the County of Riverside consisting of Home Gardens, Woodcrest;
- On the East by the Easterly boundary of the City of Jurupa Valley, Lake Elsinore, portions of the City of Riverside consisting of: Arlington/Arlanza, Canyon Crest, La Sierra, Woodcrest, portions of the County of Riverside consisting of Highgrove, El Cerrito;
- Sphere of influence adjacent to District boundaries shown in green (Map A).
- The potential target area includes all areas within the Northwest Mosquito and Vector Control District's boundaries (Map B). Areas targeted in the prior years include: Santa Ana River and its tributaries, including Prado Basin and Hidden Valley Wildlife Area; Lake Norconian, Temescal Wash and its tributaries including Gunnerson Pond; Lake Elsinore and Canyon Lake.

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.

On a regular basis the District educates public and owners of mosquito breeding sources regarding source reduction and vegetation management. The District also communicates regularly with property owners and land managers for the purpose of preventing mosquito breeding. Control measures become necessary when source reduction has failed or have not been implemented and mosquito populations rise above acceptable levels. The judicious use of pesticides is considered after reviewing surveillance data to determine if the vector problem threatens the public's health or quality of life.

3. Type(s) of pesticides used, the method in which they are applied, and if applicable, the adjuvants and surfactants used;

- a. The following list of products may be used by the District to control mosquito larval breeding. This list is contained in **Attachments E and F** of the NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. for Vector Control Applications. All of these products are used according to their labels and may be applied by ground (hand, truck, ATV, backpack, etc) or by air (helicopter or fixed wing aircraft).

List of Permitted Larvicides

Larvicide Product Name	Registration Number
Vectolex CG Biological Larvicide	73049-20
Vectolex WDG Biological Larvicide	73049-57
Vectolex WSP Biological Larvicide	73049-20
Vectobac Technical Powder	73049-13
Vectobac-12 AS	73049-38
Aquabac 200G	62637-3
Teknar HP-D	73049-404
Vectobac-G Biological Mosquito Larvicide Granules	73049-10
Vectomax CG Biological Larvicide	73049-429
Vectomax WSP Biological Larvicide	73049-429
Vectomax G Biological Larvicide/Granules	73949-429
Zoecon Altosid Pellets	2724-448
Zoecon Altosid Briquets	2724-375
Zoecon Altosid Liquid Larvicide Mosquito Growth Regulator	2724-392
Zoecon Altosid XR Entended Residual Briquets	2724-421
Zoecon Altosid Liquid Larvicide Concentrate	2724-446
Zoecon Altosid XR-G	2724-451
Zoecon Altosid SBG Single Brood Granule	2724-489
Altosid WSP	2724-448
Mosquito Larvicide GB-1111	8329-72
BVA 2 Mosquito Larvicide Oil	70589-1
BVA Spray 13	55206-2
Agnique MMF Mosquito Larvicide & Pupicide	53263-28
Agnique MMF G	53263-30
Abate 2-BG	8329-71
5% Skeeter Abate	8329-70
Natular 2EC	8329-82
Natular G	8329-80
Natular XRG	8329-83
Natular XRT	8329-84
FourStar Briquets	83362-3
FourStar SBG	85685-1
Aquabac xt	62637-1
Spheratax SPH (50 G) WSP	84268-2
Spheratax SPH (50 G)	84268-2

- b. The following list of products may be used by the District to control adult mosquitoes and other vectors. This list is contained in **Attachments E and F** of the NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. for Vector Control Applications. All of these products are used according to their labels and may be applied by ground (hand, truck, ATV, backpack, etc) or by air (helicopter or fixed wing aircraft).

List of Permitted Adulticide Products

Adulticide Product Name	Registration Number
Pyrocide Mosquito Adulticiding Concentrate for ULV Fogging 7395	1021-1570
Evergreen Crop Protection EC 60-6	1021-1770
Pyrenone Crop Spray	432-1033
Prentox Pyronyl Crop Spray	655-489
Pyrocide Mosquito Adulticiding Concentrate for ULV Fogging 7396	1021-1569
Aquahalt Water-Based Adulticide	1021-1803
Pyrocide Mosquito Adulticide 7453	1021-1803
Pyrenone 25-5 Public Health Insecticide	432-1050
Prentox Pyronyl Oil Concentrate #525	655-471
Prentox Pyronyl Oil Concentrate or 3610A	655-501
Permanone 31-66	432-1250
Kontrol 30-30 Concentrate	73748-5
Aqualuer 20-20	769-985
Aqua-Reslin	432-796
Aqua-Kontrol Concentrate	73748-1
Kontrol 4-4	73748-4
Biomist 4+12 ULV	8329-34
Permanone RTU 4%	432-1277
Prentox Perm-X UL 4-4	655-898
Allpro Evoluer 4-4 ULV	769-982
Biomist 4+4	8329-35
Kontrol 2-2	73748-3
Scourge Insecticide with Resmethrin/Piperonyl Butoxide 18%+54% MF Formula II	432-667
Scourge Insecticide with Resmethrin/Piperonyl Butoxide 4%+12% MF Formula II	432-716
Anvil 10+10 ULV	1021-1688
AquaANVIL Water-based Adulticide	1021-1807
Duet Dual-Action Adulticide	1021-1795
Anvil 2+2 ULV	1021-1687
Zenivex E20	2724-791
Valueline	279-3206-73748
Suspend SC	432-763
Wasp - Freeze	499-362
M-Pede	62719-515

Adulticide Product Name	Registration Number
Drione	432-992
Cynoff WP	279-3070
Cynoff EC	279-3081
Trumpet EC Insecticide	5481-481
Fyfanon ULV Mosquito	67760-34

4. Description of the types and locations of the anticipated application area* and the target area to be treated by the Discharger, recognizing that, with vector control, the precise locations may not be known until after surveillance;

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 pesticide applications as described in Best Management Practices for Mosquito Control in California. In situations where Best Management Practices for Mosquito Control in California does not provide clear direction, the District technicians in consultation with supervisory staff may use their judgment to implement control measure. The typical sources treated by this District include:

- neglected swimming pools and backyard sources
- dairy waste water lagoons
- pastures
- irrigated agricultural fields
- unmaintained above and underground stormwater BMP devices
- natural and manmade riparian habitats
- manmade wetlands
- persistently clogged street drains
- flood control channels
- miscellaneous standing water sources

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

With all mosquito or other vector sources, the NWMVCD's first goal is to look for ways to eliminate the sources, or, if that is not practical, look for ways to reduce the vectors thru land and water management, public education, and biological control. The most commonly used methods and their limitations are included in the Best Management Practices for Mosquito Control in California.

The NWMVCD's best management practices are based on integrated vector management (IVM). The District emphasizes in promoting public awareness of removing standing water to curtail mosquito breeding. Neglected swimming pools must be restored to normal operational conditions or drained. Above-ground BMPS, e.g. Swales must be kept weed and debris free and must not allow standing water more than 96 hours. Underground BMPS, e.g. different types of vaults, must be cleaned out regularly of all debris. Wherever applicable, mosquitofish are planted in neglected

swimming pools in vacant properties, fish ponds, water troughs or ponds in defunct dairies, or other permanent water sources that are not connected to any of the water ways. Use of pesticides to control or prevent mosquito breeding is always the last resort.

6. Approximately how much product is anticipated to be used and how this amount was determined

The need to apply product is determined by surveillance. Products are applied according to the label specifications which have already been determined by EPA under FIFRA. Actual use varies annually depending on environmental factors, mosquito abundance and the presence of potential breeding sources. The pesticide amounts presented below were taken from the NWMVCD's 2010 PUR as an estimate of pesticide use in 2010. Other public health pesticides in addition to those listed below may be used as part of the agency's best management practices.

Pesticides Applied by NWMVCD for Mosquito Control in 2010.

Trade Name	EPA #	Active Ingredient (AI)	Classification	Usage in 2010
Agnique MMF	53263-28	Isostearyl alcohol	Surface film	57.52 Gals
Agnique MMFG	53263-30	Isostearyl alcohol	Surface film	552.41 Lbs
Altosid Briquet	2724-375	S-methoprene	Biorational - IGR	32.78 Lbs
Altosid Extended Briquet	2724-421	S-methoprene	Biorational - IGR	669.7 Lbs
Altosid LLC	2724-446	S-methoprene	Biorational - IGR	.59 Gals
Altosid Pellets	2727-448	S-methoprene	Biorational - IGR	.15 Oz
Altosid WSP	2724-448	S-methoprene	Biorational - IGR	1.52 Lbs
Altosid XR-G	2724-451	S-methoprene	Biorational - IGR	267.57 Lbs
Aqualuer 20-20	769-985	Permethrin & Piperonyl Butoxide	Adulticide	11.73 Gals
Aqua - Reslin	432-796	Permethrin & Piperonyl Butoxide	Adulticide	1.39 Gals
BVA2 Lavicidal oils	70589-1	Mineral oil	Surface film	184.93 Gals
Cynoff EC	279-3081	Cypermethrin,	Adulticide	106.87 Oz
Cynoff WP	279-3070	Cypermethrin	Adulticide	26.33 Oz
Drione	432-992	Prethrins, Piperonyl Butoxide, & Amorphous Sillica Gel	Adulticide	3 Oz
GB-1111	8329-72	Mineral oil	Surface film	1039.23 Gals
M-Pede	62719-515	Potassium salts of fatty acids	Adulticide	6.11 Gals
Scourge 4%+12%	432-716	Resmethrin & Piperonyl Butoxide	Adulticide	9.72 Gals
Spheratax 50-G	84268-2	Bacillus sphaericus (Bsph)	Biopesticide-Microbial	400.4 Lbs
Suspend SC	432-763	Deltamethrin	Adulticide	.21 Gals
Valuline	279-3206-73748	Bifenthrin	Adulticide	53 Oz
VectoBac G	73049-10	Bti	Biopesticide-Microbial	6040.61 Lbs
VectoBac 12AS	73049-38	Bti	Biopesticide-Microbial	2.51 Gals
VectoMax CG	73049-429	Bti	Biopesticide-Microbial	3 Lbs
VectoLex CG	73049-20	Bsph	Biopesticide-Microbial	8709.28 Lbs
VectoLex WDG	73049-57	Bsph	Biopesticide-Microbial	147.94 Lbs
VectoLex WSP	73049-20	Bsph	Biopesticide-Microbial	48.35 Lbs
Wasp Freeze	499-362	d-trans Allethrin & Phenothrin	Adulticide	191.5

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

Examples of alternatives to pesticide application include:

- Coordinating with other agencies, such as Riverside County Vector Control Program, Riverside County & Orange County Flood Control Districts, the cities and other governmental agencies to maintain flowing water in flood control channels by removing vegetation
- Coordinate with Eastern Municipal Water District to minimize vegetation and maintain access to wetland treatment ponds for vector control personnel and equipment.
- Coordinate with Orange County Water District to minimize vegetation and maintain access to wetland treatment ponds for vector control personnel and equipment.
- Coordinate with Riverside County Parks and Recreation to minimize vegetation and maintain access to wetland treatment ponds for vector control personnel and equipment.
- Coordinate with Conservation Districts to implement guidelines on new and current mitigation projects.
- Coordinating with US Army Corp of Engineers to remove vegetation and debris from riparian habitat to allow for unobstructed water flow.
- Enforcing vegetation control in retention and detention ponds
- Inspecting and enforcing the practice of turning over and spread thinly of cow manure every 3 days to prevent fly breeding
- Enforcing the rule that property owners are responsible for weed abatement
- Inspecting and enforcing regular clean out of underground BMP devices by property owners or property management companies
- Enforcement of California Health and Safety Code section 2060-2067

Also please see the [Best Management Practices for Mosquito Control in California](#)

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

The Northwest Mosquito and Vector Control District'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-g.

a. Measures to prevent pesticide spill:

District staff ensures equipment used to apply pesticides work properly by inspecting before each use and weekly. Devices to contain spills are present in all vehicles that carry pesticides and areas where pesticides are stored. Staff is trained annually and as necessary to prevent and contain spills.

- b. Measures to ensure that only a minimum and consistent amount is used;**
Equipment used to apply pesticides is calibrated at least once per year or as necessary, as required by the MOU with the CA Dept. of Public Health.
- c. Strict and accurate inventory control of pesticides in storage**
Inventory check and update of quantities of pesticides in storage is done monthly. Records of discharge of pesticides are kept accurately and timely via handheld mobile device and logged into a central computerized database.
- d. A plan to educate Coalition's or Discharger's staff and pesticide applicator on any adverse effects from the pesticide application;**
Applicators receive training at least annually and as necessary.
- e. Descriptions of specific BMPs for each spray mode, e.g. aerial spray, truck spray, hand spray, etc.; cease and desist order;**
District calibrates all equipment used to apply pesticides at least annually. Records of treatments are stored on data base and reviewed daily for accuracy. Ultra Low Volume (ULV) equipment is calibrated to apply pesticides according to label requirements. Aerial equipment used to apply pesticides is calibrated by the contractor. Any aircraft that applies pesticides is requested to use the best available system to correctly apply the pesticide.
- f. Description of specific BMPs for each pesticide product used; and**
Please see attached: [Best Management Practices for Mosquito Control in California](#)
- g. Description of specific BMPs for each type of environmental setting (agriculture, urban, and wetlands).**

Please see attached: [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 Northwest Mosquito and Vector Control District staff only apply pesticides to sources of mosquitoes that represent 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;

Mosquitoes Present in the Northwest Mosquito and Vector Control District	
<i>Culex quinquefasciatus</i>	<i>Culiseta paticeps</i>
<i>Culex restuans</i>	<i>Anopheles hermsi</i>
<i>Culex stigmatosoma</i>	<i>Anopheles fransiscanus</i>
<i>Culex tarsalis</i>	<i>Aedes sierrensis</i>
<i>Culex erythrothorax</i>	<i>Anopheles punctipennis</i>
<i>Culex thriambus</i>	<i>Aedes washinoi</i>
<i>Culiseta incidens</i>	<i>Aedes vexans</i>
<i>Culiseta inornata</i>	<i>Any introduction of new species</i>

Please see the [Best Management Practices for Mosquito Control in California 2011](#) and the [California Mosquito-borne Virus Surveillance and Response Plan 2011](#).

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](#).

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 Northwest Mosquito and Vector Control District continually collects adult and larval mosquito surveillance data, dead bird reports, and sentinel chicken test results, 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.

District uses the principles and practices of Integrated Vector Management (IVM) as described on pages 26 and 27 of the [Best Management Practices for Mosquito Control in California](#). As stated in item #10 above, locations where vectors may exist are assessed, and the potential for using alternatives to pesticides is determined on a case-by-case basis. Commonly considered alternatives include: 1) Eliminate artificial sources of standing water; 2) Ensure temporary sources of surface water drain within four days (96 hours) to prevent adult mosquitoes from developing; 3) Control vegetation growth in ponds, ditches, and wetlands; 4) Make recommendations for design of facilities and water conveyance and/or holding structures to minimize the potential for producing mosquitoes; and 5) Use appropriate biological control methods that are available. Additional alternatives to using pesticides for managing mosquitoes are listed on pages 4-19 of the [Best Management Practices for Mosquito Control in California](#).

Implementing preferred alternatives depends on 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.

This describes the District's existing integrated vector management (IVM) program, as well as the practices described in the California Mosquito-borne Virus Surveillance and Response Plan and Best Management Practices for Mosquito Control in California that are used by this agency.

A "nuisance" is specifically defined in California Health and Safety Code (HSC) §2002(j). This definition allows vector control agencies to address situations where even a low number of vectors may pose a substantial threat to public health and

quality of life. In practice, the definition of a “nuisance” is generally only part of a decision to apply pesticides to areas covered under this permit. As summarized in the California Mosquito-borne Virus Surveillance and Response Plan, the overall risk to the public when vectors and/or vector-borne disease are present is used to select an available and appropriate material, rate, and application method to address that risk in the context of our IVM program.

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 continuing education.

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

www.northwestmvcd.org.

References:

Best Management Practices for Mosquito Control in California. 2011. 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 Northwest Mosquito and Vector Control District at (951) 340-9792.

California Mosquito-borne Virus Surveillance and Response Plan. 2011. [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 Northwest Mosquito and Vector Control District at (951) 340-9792.

MVCAC NPDES Coalition Monitoring Plan. 2011. *Pending. Information will be available from MVCAC Consultant hired to develop Plan and conduct monitoring.*

