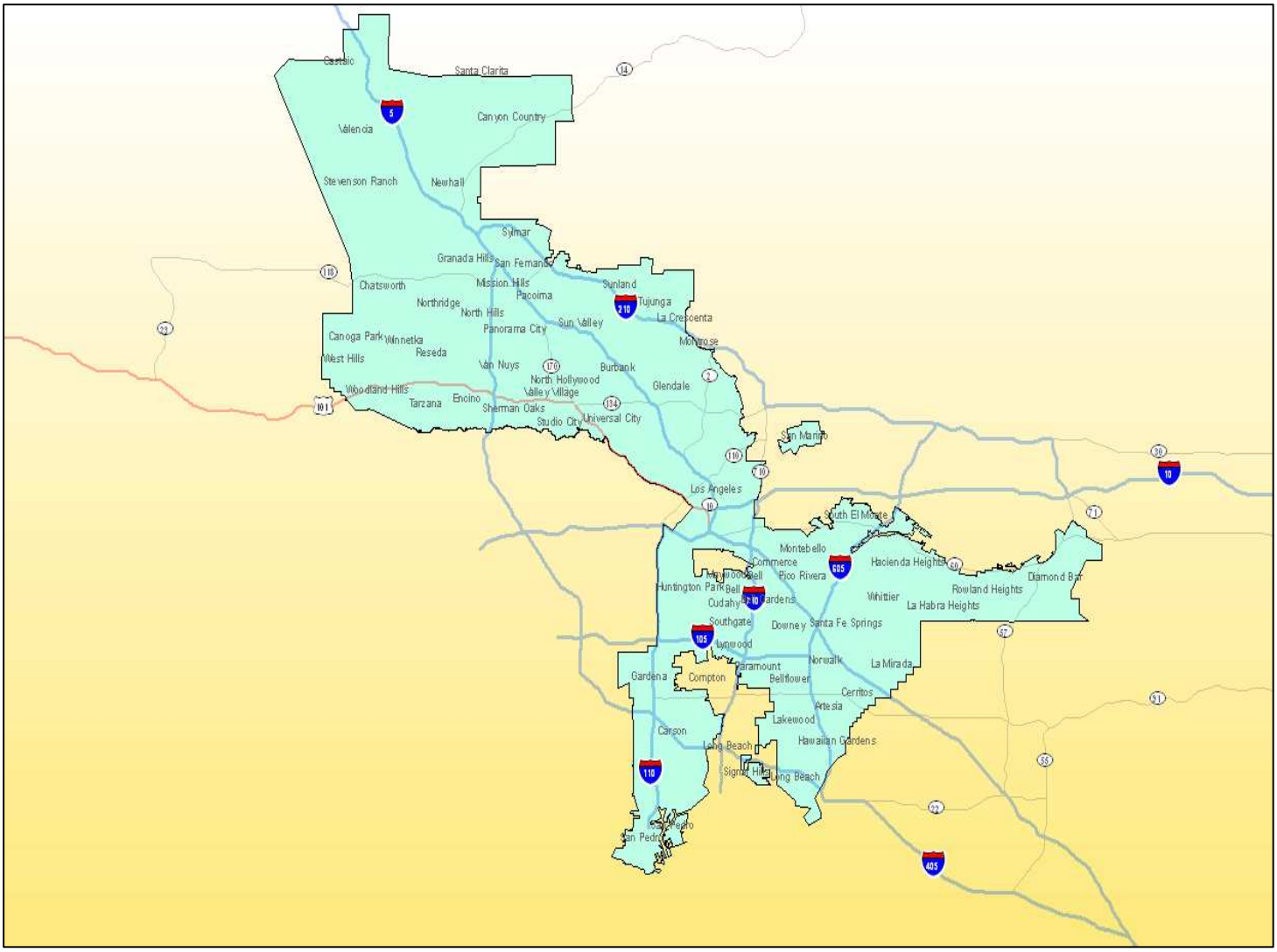
Greater Los Angeles County Vector Control District Pesticides Application Plan (PAP)

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**;

   - The incorporated cities of Artesia, Bell, Bellflower, Bell Gardens, Burbank, Carson, Cerritos, Commerce, Cudahy, Diamond Bar, Downey, Gardena, Glendale, Hawaiian Gardens, Huntington Park, Lakewood, La Habra Heights, La Mirada, Long Beach, Los Angeles, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, San Fernando, San Marino, Santa Clarita, Santa Fe Springs, Signal Hill, South Gate, South El Monte and Whittier
   - Certain unincorporated areas of Los Angeles County
   - Contracting city La Canada-Flintridge
   - Receiving waters: Santa Clara River and its tributaries, San Gabriel River and its tributaries, Los Angeles River and its tributaries, Rio Hondo, Arroyo Seco, Dominguez Channel, LA/LB Harbor, Los Cerritos Channel, Alamitos Bay and the Pacific Ocean



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

Control activities will follow Integrated Vector Management principles as described in the Best Management Practices for Mosquito Control in California and will generally consist of the components listed below:

Immature mosquito management

a. Evaluate site for immature mosquito threshold densities
b. Evaluate environmental and regulatory conditions and requirements
c. If possible, conduct drainage or modification of site
d. If appropriate, introduce biological control measures
e. If appropriate, apply public health pesticide

Adult Mosquito Management

a. Adult management is initiated when threshold criteria in the IVM of adult mosquito application guidelines are met or exceeded
b. Widespread adult control measures in non-urban areas with disease activity
c. Adult control in urban areas in public health emergency situations following CDPH guidelines

Black-fly control

a. Evaluate site for immature black fly threshold densities
b. Evaluate environmental and regulatory conditions and requirements
c. If appropriate, apply public health pesticide
d. Post-treatment efficacy evaluation

Midge control

a. Evaluate site for immature midge threshold densities
b. Evaluate environmental and regulatory conditions and requirements
c. If possible, conduct drainage or modification of site
d. If appropriate, apply public health pesticide

The following is our agency's decision tree:

Abbreviations and Definitions:

1. **The Endangered Species Act -** defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."
2. **Environmentally- sensitive habitats -** wetlands, riparian areas, organic farms, State, Federal, local wildlife areas or other areas posted as such.
3. **Underground Storm Drain System (USDS) –** A network of conveyance systems that includes catch basins and underground pipes designed to transport rain from developed areas and discharged to a receiving body of water.

Site Assessment

Criteria	Evaluation	Decision
Is site an USDS?	Yes ⇒	See technical considerations for **USDS**
No ⇓		
May mosquitoes develop in the habitat?	No ⇒	Consult supervisor about habitat. Consider reducing site surveillance.
Yes ⇓		
Is site a highly urban manmade structure?	Yes ⇒	Consider **preventive physical measures and/or contact owner/agency for clean-up/modification**
No ⇓		
Is it bird nesting season?	Yes ⇒	Do not disturb nesting birds.
No ⇓		
Are endangered species present?	Yes ⇒	Consult supervisor about habitat. Avoid taking endangered species**.** If collected, return endangered species to habitat**.** Sample site. Consider **preventive physical measures**
No ⇓		
Environmentally sensitive habitat?	Yes ⇒	Consult supervisor about habitat. Avoid damage to sensitive areas. Sample site. Consider **preventive physical measures**
No ⇓		
Sample site, then consider **preventive physical measures**		

Preventive Physical Measures

Criteria	Evaluation	Decision
Can the mosquito breeding site be **eliminated**? Can **the water be remove**d/**drained?**	Yes ⇒	Institute necessary preventive **physical measures**
No ⇓		
Can habitat be modified to reduce mosquito production?	Yes ⇒	Inform supervisor. Institute necessary preventive **physical measures**
No ⇓		
Consider **preventive biological measures.**		

Preventive Biological Measures

Criteria	Evaluation	Decision
Does habitat support immature mosquitoes?	No ⇒	Do not apply biologicals. Set a **return inspection date**
Yes ⇓		
Time water will remain in site?	<72 - 96 hrs ⇒	Consider **ecological criteria**
Semi-permanent or permanent (>72 – 96 hrs) ⇓		
Environmentally sensitive habitat?	Yes ⇒	Consult with supervisor before stocking with fish.
No ⇓		
Water Quality?	Highly organic ⇒	Consider **ecological criteria.** Stock with **fish** Set a **return inspection date** and **record data**
Fresh ⇓		
Swimming pool or backyard pond?	Yes ⇒	Add to swimming pool list. Can stock with **fish. Contact homeowner to determine time before source correction (>72hrs add fish, <72hrs consider Treatment Method)** Set a **return inspection date** and **record data**
No ⇓		
Consider ecological criteria. Stock with **fish** Set a **return inspection date** and **record data**		

Ecological Criteria

Criteria	Evaluation	Decision
Mosquito stages present?	eggs ⇒	Do not treat. Set **return inspection date**
1st to pupa ⇓		
Number of immature mosquitoes?	0 immatures/dip ⇒	Do not treat. Set **return inspection date**
≥ 1 immature/dips ⇓		
Mosquitofish present with immature mosquitoes? Yes ⇒ No ⇓	0 immature/dips ⇒	Do not treat. Set **return inspection date**
≥ 1 immature/dips ⇓		
Consider **target population modification**		

Target Population Modification

Criteria	Evaluation	Decision
Is site an USDS?	Yes ⇒	See technical considerations for **USDS**
No ⇓		
Mosquito source size?	more than 5 acres ⇒	Consult with supervisor before treatment
less than 5 acre ⇓		
Water quality?	moderate to highly organic *Culex sp*. sources ⇒	Apply appropriate **public health pesticide** and consider **treatment methods**
Fresh ⇓		
Majority of immature stages present?	late 4th to pupae ⇒	Apply appropriate **public health pesticide** and consider **treatment methods**
1st to early 4th ⇓		
Apply appropriate **public health pesticide** and consider **treatment methods**		

Treatment Method

Criteria	Evaluation	Decision
Is site an USDS?	Yes ⇒	See technical considerations for **USDS**
No ⇓		
Distribution of immature?	Isolated locations ⇒	Treat **selectively**
Throughout source ⇓		
Treat **entire** mosquito source	moderate to highly organic *Culex sp*. sources ⇒	Apply appropriate **public health pesticide** and consider **treatment methods**
Fresh ⇓		
Majority of immature stages present?	late 4th to pupae ⇒	Apply appropriate **public health pesticide** and consider **treatment methods**
1st to early 4th ⇓		
Apply appropriate **public health pesticide** and consider **treatment methods**		

USDS/Catch Basin Treatment Criteria

Criteria	Evaluation	Decision
Historical mosquito breeding site?	Yes ⇒	Treat with appropriate larvicides every 30 days during mosquito season
No ⇓		
Standing water present?	Yes ⇒	Treat with appropriate larvicides every 30 days during mosquito season
No ⇓		
Adult mosquitoes observed?	Yes ⇒	Treat with appropriate larvicides every 30 days during mosquito season
No ⇓		
Inspect every 10-14 days during mosquito breeding season and consider **ecologic criteria**.		

Larval Sampling:
Due to the skittish nature of some larval species, such as *Cx. erythrothorax*, visual counts of larva on the water surface, instead of collections, and adult trap counts are considered acceptable to consider target population modification.

Public health pesticide (PHP) use and resistance management
(applications can be over more than one year)
1. Consult PHP's label before treatment
2. Apply PHPs within the same class or mode of activity on a rotational basis.

Factors or conditions that may modify immature mosquito management guidelines

1. Sentinel chicken sero-conversion
2. Human disease occurrence
3. Unforeseen biological/environmental conditions
4. Legal or political legislation
5. Availability of funding, resources or equipment
6. Availability of suitable larvicides
7. Resistance of immature mosquito populations to larvicides
8. Environmental conditions not listed in the program
9. Continued occurrence of immature stages in a breeding site
10. Encephalitis mosquito pool isolation
11. Natural disasters

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 adjuvents and surfactants used;
The following list of products may be used by the District for larval or adult control. This list is directly from Attachment E and F within 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 label directions and may be applied by ground (hand, truck, ATV, backpack, etc) or by air (helicopter or fixed wing aircraft).

List of Permitted Larvicide Products

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

Larvicide Product Name	Registration Number
Zoecon Altosid SBG Single Brood Granule	2724-489
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

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

Adulticide Product Name	Registration Number
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
Trumpet EC Insecticide	5481-481
Fyfanon ULV Mosquito	67760-34

4. **Description of ALL the application areas* and the target areas in the system that are being planned to 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 Greater Los Angeles County Vector Control District'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 Item 2 above. Mosquito breeding sources and areas that require adult mosquito control are difficult to predict from year to year based on the weather and variations in local environmental conditions. However, the typical sources treated by this agency include:
   1. Any and all waters that fall within district boundaries in Los Angeles County that breed mosquitoes, black flies and midges, including but not limited to the Los Angeles, San Gabriel, Rio Hondo and Santa Clara River, Coyote Creek, Hansen Dam Recreational Area, Sepulveda Dam Recreational Area, Harbor Lake Recreational Area, and Whittier Narrows Recreational Area.
   2. Flood control channels, basins, freeway drains, storm drains and any other conveyance for water runoff in an urban/suburban area.
   3. Roadside low-spots, backyard ponds and pools.
5. **Other control methods used (alternatives) and their limitations;**
   With any source of mosquitoes or other vectors, the Greater Los Angeles County Vector Control District'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.

   Specific methods used by the District include stocking mosquito fish (*Gambusia affinis*), educating residents that mosquitoes develop in standing water and encouraging them to remove sources of standing water on their property, and working with property owners to find long-term water management strategies that meet their needs while minimizing the need for public health pesticide applications.
6. **How much product is needed and how this amount 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 Greater Los Angeles County Vector Control District'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 District's best management practices.

Asterisks indicate terms that are defined in Attachment A of the NPDES Permit for Vector Control

	Jan	Feb	Marc	April	May	June	July	Aug	Sept	Oct	Nov	Dec		
Agnique MMF	0.79	2.29	7.10	6.48	8.92	6.07	4.70	4.59	3.49	1.89	2.85	1.54	50.71	Total gallons
	84	177	287	448	446	410	515	451	293	192	296	166	3765	Total Applications
Altosid 30 day Briq	7.09	9.79	9.94	12.07	14.52	18.75	29.18	27.80	14.40	12.31	15.41	8.97	180.23	Total pounds
	94	81	72	114	157	190	243	218	154	135	227	112	1797	Total Applications
Altosid ALL	0.01	0.01	0.25	0.80	4.62	5.13	6.87	8.00	6.13	0.92	0.01	0.00	32.75	Total gallons
	5	1	51	110	472	614	634	668	586	83	2	0	3226	Total Applications
Altosid Pellets	4.06	3.43	18.43	48.33	60.80	53.29	25.88	23.35	16.58	11.20	5.75	3.08	274.18	Total pounds
	29	28	77	182	168	153	141	146	146	107	88	29	1294	Total Applications
Altosid SBG	0.00	0	77.56	435.00	100.13	1561.6	0.84	0.00	0.31	0.00	0.00	0.00	2175.47	Total pounds
	0	0	3	3	4	7	3	0	4	0	0	0	24	Total Applications
Altosid WSP	0.31	0.02	0.12	0.28	0.37	0.37	2.31	1.93	0.86	0.51	0.08	0.18	7.34	Total pounds
	4	1	3	9	5	7	33	22	26	9	4	2	125	Total Applications
Altosid XR Briq	0.14	0.14	0.38	0.56	0.99	0.52	0.42	0.56	0.61	0.14	0.14	0.05	4.65	Total pounds
	2	3	1	10	8	6	9	5	9	2	2	1	58	Total Applications
Anvil 2 + 2	0.00	0.00	0.00	0.00	0.00	2.31	0.00	0.00	0.00	0.00	0.00	0.00	2.31	Total gallons
	0	0	0	0	0	3	0	0	0	0	0	0	3	Total Applications
BVA-2							0.01	0.26	0.21	0.14	0.02	1.03	1.67	Total gallons
							1	26	81	27	52	53	240	Total Applications
Golden Bear 1111	1.76	1.14	1.77	2.36	3.91	4.51	4.50	2.76	4.05	2.03	2.99	0.25	32.03	Total gallons
	154	93	151	214	219	221	193	159	295	207	196	56	2158	Total Applications
Natular 2EC				0.00					0.66	2.72	0.20	0.00	3.58	Total gallons
				0					55	240	29	0	324	Total Applications
Scourge 18/54	0.00	0.00	0.00	0.99	0.00	0.00	0.66	0.48	0.00	0.00	0.00	0.00	2.13	Total gallons
	0	0	0	5	0	0	8	6	0	0	0	0	19	Total Applications
Vectobac 12AS	0.18	0.19	17.04	86.44	116.09	139.22	180.52	191.74	179.65	16.60	3.18	0.57	931.42	Total gallons
	52	38	177	504	1472	2399	2464	2579	2199	632	115	70	12701	Total Applications
Vectobac G	74.60	22.85	421.70	318.16	1128.7	1329.4	1935.0	1315.7	1670.3	770.04	379.97	233.08	9599.61	Total pounds
	17	13	33	78	197	307	447	389	436	184	71	64	2236	Total Applications
Vectobac WDG				0.17	0.00	0.90							1.07	Total pounds
				6	0	7							13	Total Applications
Vectolex CG	14.51	0.40	18.10	70.35	33.31	2103.3	47.53	522.11	194.36	18.42	238.35	20.75	3281.54	Total pounds
	26	3	14	108	67	149	59	117	75	29	131	80	858	Total Applications
Vectolex WDG	2.40	0.50	2.25	3.30	34.95	75.90	79.35	80.50	66.95	23.60	2.85	9.25	381.80	Total pounds
	48	11	44	67	569	1518	1548	1610	1339	472	57	57	7340	Total Applications
Vectomax CG	4.20	10.80	16.51	68.74	267.81	238.31	231.84	829.01	253.72	82.33	223.57	14.86	2241.70	Total pounds
	22	65	83	100	126	249	234	371	354	200	201	53	2058	Total Applications

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**
   As described in Item 2 above, water management strategies, vegetation management or the use of fish are the preferred approaches to solving any vector breeding issues. When these methods are not appropriate, feasible or effective, and evidence of breeding continues to exist, larviciding will be considered. Only if all of these methods are not feasible or effective may the agency resort to adult control measures to control vector or nuisance insect populations. For example, if a city is the owner of a recreational lake that is causing significant mosquito problems for nearby residents due to lack of vegetation management, the agency will direct the city to increase vegetation control efforts to allow the existing fish population access to the mosquito larvae. If the city's budgetary restraints do not allow additional resources to be dedicated toward the problem, the agency will assess weather a larviciding approach could be successful. Should vegetation density prevent larvicides from penetrating to the water surface, the only remaining control option is to minimize emerging adult populations through adulticiding efforts. All the while, the agency will continue to work with city officials toward a more permanent, economical and environmentally sound solution to the problem.

9. **Description of the BMPs to be implemented. The BMPs shall include at a minimum:**
   The Greater Los Angeles County Vector Control District's BMPs are described in Item 2 above. 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. District 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 applicator's annual pesticide application and safety training, State-certification 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 Greater Los Angeles County Vector Control District calibrates truck-mounted and handheld larviciding equipment each year to meet application specifications. Supervisors review 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. At this point, the Greater Los Angeles County Vector Control District is not utilizing aerial adulticiding applications. If an aerial adulticiding service would be contracted in the future, equipment will be calibrated regularly and droplet size be monitored by the District to ensure droplets meet label requirements. Airplanes used in urban ULV applications are

equipped with advanced guidance and drift management equipment to ensure the best available technology is being used to place product in the intended area.

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 Item 2 above for a description of general BMPs used by the agency. While the Greater Los Angeles County Vector Control District's service area does not contain sizable agricultural areas, the agency is working with the Department of Water and Power on issues of water management in retention basins and spreading grounds, as well as the maintenance of flood control channels in regards to prevention of sediment and algal mass built-up in highly urbanized areas. The goal is to minimize the need for larvicide or adulticide applications. Close relationships are being maintained with the owners of coastal wetland areas as well as constructed treatment wetlands to ensure preservation of wildlife habitat and achievement of water quality objectives without endangering local residents' health and well-being through excess vector abundance. Vegetation management and the ability to control water levels whenever possible are key to avoiding pesticide applications.

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 Greater Los Angeles County Vector Control District 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 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 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 Item 2 above. Main targets of the Greater Los Angeles County Vector Control District's control program are disease vectoring mosquito species such as *Culex pipiens*

quinquefasciatus, Culex tarsalis or *Culex stigmatosoma*, as well as major nuisance species such as *Culex erythrothorax* or *Aedes taeniorhynchus*. Control efforts may also be directed towards black fly and non-biting midge larvae. The program's main emphasis is on larval control by means of source reduction, limitation of water retention times, as well as the use of biological and chemical control activities. Adulticiding efforts are limited to such instances where larval control has not been possible or is ineffective and disease threat or nuisance levels necessitate intervention.

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 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 Item 2 above.

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 Greater Los Angeles County Vector Control District uses as well as in the specifics provided under Item 2. The District continually collects adult and larval mosquito surveillance data, dead bird reports, as well as sentinel chicken and wild bird sero-sample results and uses these data to guide mosquito control activities. In 2010, operations staff recorded mosquito larval and pupal presence or absence for 217,614 sources, over 100,000 adult mosquitoes were collected and identified to species and 3500 pooled mosquito samples were submitted for virus testing, along with 1500 chicken blood and 3500 wild bird blood samples. Abundance as well as virus occurrence data is utilized to direct additional treatment efforts.

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.

The Greater Los Angeles County Vector Control 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 and discussed in item 2 above. 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 plant growth in ponds, ditches, and shallow wetlands; 4) Design 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.

Implementation of 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.

The Greater Los Angeles County Vector Control District follows an existing IVM program which includes practices described in the California Mosquito-borne Virus Surveillance and Response Plan as well as Best Management Practices for Mosquito Control in California and Item 2 above.

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

This is an existing practice of the Greater Los Angeles County Vector Control 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.glacvcd.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 Greater Los Angeles County Vector Control District, 562-944-9656.

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 Greater Los Angeles County Vector Control District, 562-944-9656.

MVCAC NPDES Coalition Monitoring Plan. 2011.