IV. RECEIVING WATER INFORMATION

A. Biological and residual pesticides discharge to (check all that apply)*:

1. Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
☐ Name of the conveyance system: _____

2. Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
☒ Owner's name: Imperial Irrigation District (IID)
Name of the conveyance system: IID's drainage and irrigation systems

3. Directly to river, lake, creek, stream, bay, ocean, etc.
☒ Name of water body: New River, Alamo River, Sunbeam Lake, Weist Lake, Finney Ramer Lake Oxbow Lake, Palo Verde Lagoon, Salton Sea and Colorado River.

* A map showing the affected areas for items 1 to 3 above may be included.

B. Regional Water Quality Control Board(s) where application areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region 7
(List all regions where pesticide application is proposed.)

A map showing the locations of A1-A3 in each Regional Water Board shall be included.

V. PESTICIDE APPLICATION INFORMATION

A. Target Organisms: ☒ Vector Larvae ☒ Adult Vector

B. Pesticides Used: List name, active ingredients and, if known, degradation by-products

Kontrol 4-4 - Permethrin, Pyronil 525 - Pyrethren, Kontrol Mosquito Larvicide - Refined Patroleum Distillate, Vectobac - Bacillus Thuringiensis, Vectolex - Bacillus Sphaericus, BTI - Bacillus Thuringiensis, Altosid - Methoprene

C. Period of Application: Start Date May 17, 2013 End Date When Permit Expires

D. Types of Adjuvants Added by the Discharger:

VI. PESTICIDES APPLICATION PLAN

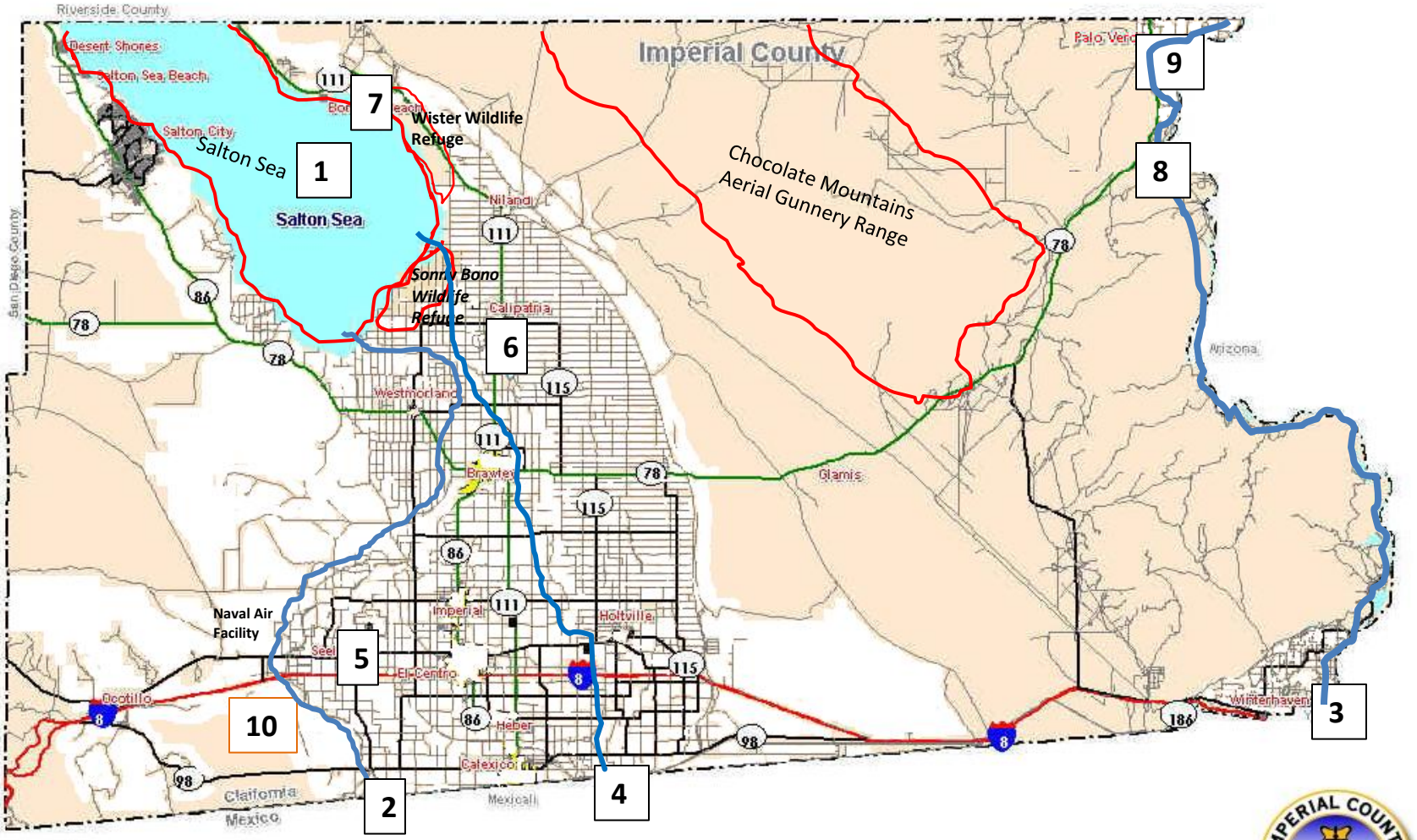
A. Has a Pesticides Application Plan been prepared?*
☒ Yes ☐ No

If not, when will it be prepared? _____

* A copy of the PAP shall be included with the NOI.

B. Is the applicator familiar with its contents?
☒ Yes ☐ No

Imperial County Bodies of Water



Imperial County Bodies of Water	
1 – Salton Sea	7- Finney Ramer Lake
2 – New River	8- Oxbow Lake
3 - Colorado River	9- Palo Verde Lagoon
4 – Alamo River	10-Fig Lagoon
5 – Sunbeam Lake	
6 – Weist Lake	

N

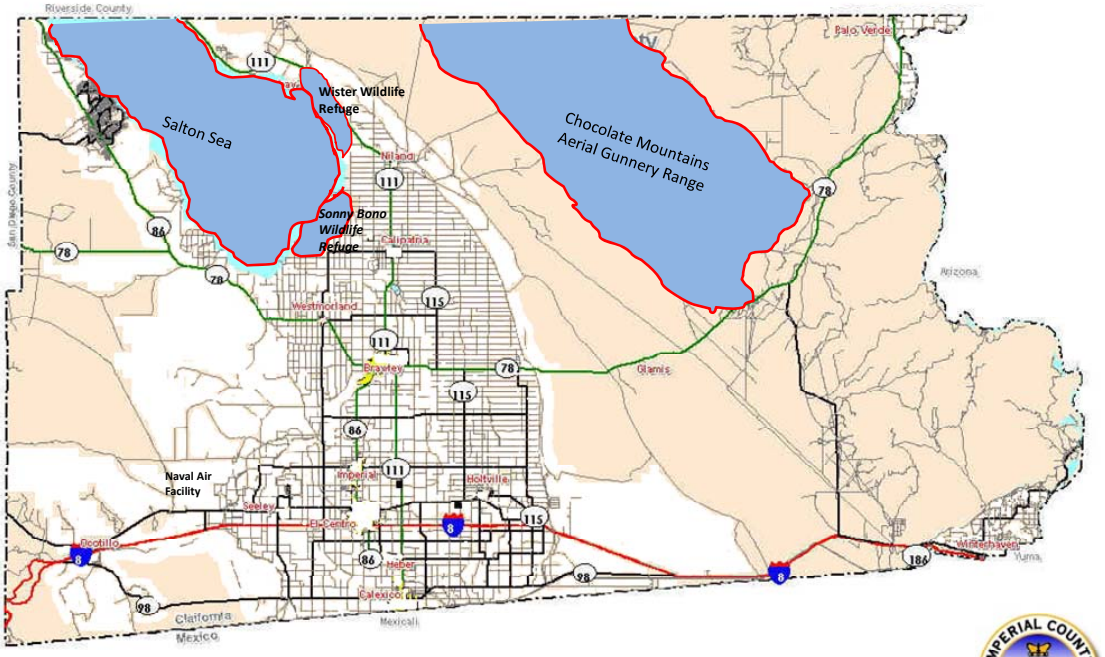
Imperial County
Public Health Department

Pesticide Application Plan

Pesticides Application Plan (PAP) Elements:

a. 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;

Imperial County Vector Control Response Area



Imperial County Vector Control Response Area	
Vector Response Area	White Color Area
Restricted –Non Response Area	Blue Color Area with Red Outline
Non- Restricted, Non Response Area	Sand Color Area

N

Imperial County extends over 4,597 square miles, bordering on Mexico to the south, Riverside County to the north, San Diego County on the west, and the State of Arizona on the east. Imperial County Public Health Department's Vector Control Progam applies larvacides and adulticides in specified regions of the county and or to bodies of water when deemed necessary by key mosquito and arbovirus surveillance indicators.

b. **Discussion of the factors influencing the decision to select pesticide applications for vector control;**

Please see the Best Management Practices for Mosquito Control in California (page 31).

c. 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 the Best Management Practices for Mosquito Control in California (page 35).

d. 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 Imperial County's preferred solution, and whenever possible the County works with property owners to effect long-term solutions to reduce or eliminate the need for continued applications as described in Best Management Practices for Mosquito Control in California (pages 4-19). The typical sources treated by the County include:

Freshwater marshes:
In Imperial County, some of these marshes (primarily duck clubs or managed wetlands) are drained and re-filled periodically to enhance the primary productivity of the habitat, and under certain circumstances, this can result in large populations of mosquitoes.

Salt marshes:
In the Imperial Valley extensive marshes along the Salton Sea can produce enormous mosquito breeding areas, making human habitation in small communities along the Salton Sea virtually impossible. Natural decrease of the Salton Sea level, greatly reduced the mosquito populations in the area but mosquito populations can still rise to significant numbers during the spring and fall posing a serious public health threat.

Temporary standing water:
There are several species of mosquitoes that can breed in water that stands only 1 to 2 weeks. Such habitats include irrigation tail water as well as standing water in irrigated pastures. Many mosquito species are found in these sources. Pastures and other agricultural lands are enormous mosquito producers, frequently generating huge broods of *Aedes*, *Psorophora*, and *Culex* mosquitoes.

Wastewater treatment facilities/Storm Water Retention Basins:
Aquatic sites in this category include a wide variety of ponds, ditches and other structures designed to handle wastewater of some kind. Included are storm water retention basins, sewage treatment ponds, and wetlands managed for de-nitrification.

Containers:
Containers such as flowerpots, cans, treeholes, fountains and tires are excellent habitats for several species of mosquito. Abandoned or poorly maintained swimming pools also fall into this category. Typically problems with container breeders occur during the wetter parts of the year.

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

With any mosquito or other vector source, the County's first goal is to look for ways to eliminate the source, or, if that is not possible, for ways to reduce the vector potential. The most commonly used methods and their limitations are included in the Best Management Practices for Mosquito Control in California (pages 4-19).

Specific methods used by the County would include physical control, biological control, public education, and working with both government and private property owners to find long-term water management strategies that meet their needs while minimizing the need for public health pesticide applications.

Mosquitofish ,*Gambusia affinis*, is the most commonly used biological control agent for mosquitoes in the world. Correct use of this fish can provide safe, effective, and persistent suppression of a variety of mosquito species in many types of mosquito sources.

Factors such as water retention time, soil type, mosquito species, and various agricultural practices limit the usefulness of this opportunistic predator for wide scale use as a biological control agent in the Imperial Valley.

The use of enforcement through the issuance of administrative and criminal citations is another effective alternative the County will utilize in order to achieve compliance.

f. Approximately how much product is anticipated and how this amount was determined;
Note – Estimates based on usage during the 2010 calendar year.

Product	Estimated Annual Usage Calendar Year	Unit of Measure
Larvicides		
Larvicide BVA 2	204	gals
Larvicide WITCO GB 1111	53	gals
Larvicide Vectolex	2	lbs
Larvicide VLB Duplex 2:1	30	lbs
Larvicide Vectobac 12 AS	30	lbs
Adulticides		
Adulticide Pyronil 525	3	gals
Masterline Kontrol 4-4	54	gals

g. Representative monitoring locations* and the justification for selecting these locations;
Please see the MVCAC NPDES Coalition Monitoring Plan

h. 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
Please see the Best Management Practices for Mosquito Control in California (pages 4-6).

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

The Count of Imperial'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. The specific elements have been described in items a-f.

a. Measures to prevent pesticide spills;

- County staff monitors application equipment on a daily basis to ensure it remains in proper working order.
- Spill mitigation kits are placed in all spray vehicles and pesticide storage areas to respond to spills.
- Pesticides are kept in secure locations both on County grounds and while in County vehicles. Only state certified staff handle vector control products.
- Employees are trained on spill prevention and response annually.

b. Measures to ensure that only a minimum and consistent amount is used;

- Spray equipment is calibrated twice each year and is a part of the MOU with California Department of Public Health.
- County recommended rates (within the range of specified label rates) for all vector control products have been determined thru years of applied studies to ensure the proper rates are utilized in each various mosquito breeding habitats found in the Imperial Valley.
- Each Technician utilizes scales and graduated cylinders to measure control products on a daily basis.
- Products are checked out to certified Vector Control Technicians on a daily basis to help ensure accuracy of reporting and limit amount of product on a daily basis.

c. A plan to educate Coalition's or Discharger's staff and pesticide applicator on any potential adverse effects from the pesticides application.

- County applicators (State Cert. Public Health Vector Control Technicians) are required to complete in-house pesticide training yearly and take State certified CEU to maintain their state certification.

d. Descriptions of specific BMPs for each spray mode, e.g. aerial spray, truck spray, hand spray, etc.; cease and desist order

- County staff calibrates truck and hand larviciding equipment each year to meet application specifications.
- Supervisor reviews pesticide application records daily to ensure appropriate amounts of material are being used.
- ULV equipment is calibrated annually for output and droplet size to meet label requirements.
- Aerial larvaciding equipment would be calibrated by the Contractor.
- Aerial adulticide equipment would be calibrated prior to use and droplet size will be monitored by the County to ensure droplets meet label requirements.

If airplanes were used in urban ULV applications and the primary airplane used for rural ULV spraying would be equipped with advanced guidance and drift management equipment to ensure the best available technology is being used to place product in the intended spray area. If a secondary airplane is used in rural ULV applications it will be equipped with an advanced guidance system.

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

Please see the Best Management Practices for Mosquito Control in California (pages 35-39) 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 wetlands)

- *Please see the Best Management Practices for Mosquito Control in California (pages 4-19).*

2. The Discharger shall update the PAP periodically and submit the revised PAP to the State Water Board for approval if there are any changes to the original PAP.

D. Best Management Practices (BMPs)
The Discharger shall develop BMPs that contain the following elements:

The County's BMPs are described in the Best Management Practices for Mosquito Control in California and the California Mosquito-borne Virus Surveillance and Response Plan (pages 4-19).

1. Identify the Problem
Prior to first pesticide application covered under this General Permit that will result in a discharge of 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. Establish densities for larval and adult vector populations to serve as action threshold(s) for implementing pest management strategies

Only those mosquito sources that County staff determine to represent imminent threats to public health or quality of life are treated. The presence of any mosquito may necessitate treatment, however higher thresholds may be applied depending on the County'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 the Best Management Practices for Mosquito Control in California (pages 42-46) and the California Mosquito-borne Virus Surveillance and Response Plan (pages 3-11).

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 County's preferred solution, and whenever possible the County works with property owners to implement long-term solutions to reduce or eliminate the need for continued applications as described in Best Management Practices for Mosquito Control in California (pages 4-19).

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 County's uses. The County continually collects adult and larval mosquito surveillance data, dead bird reports, and sentinel chicken test results and uses them to guide mosquito control activities. The County routinely collects adult mosquitoes using gravid and EVS traps. Samples are submitted to a dedicated Vector Disease and Diagnostic Laboratory which tests them for mosquito-borne viruses such as WNV, SLE and WEE. Test results are used to focus mosquito control efforts and to minimize pesticide applications as part of a BMP plan.

2. Examine the Possibility of Alternatives to Treatments

Dischargers should continue to examine the possibility of alternatives to reduce the need for applying larvicides that contain temephos and for spraying adulticides. Such methods include:

a. Evaluating management and treatment options that may impact water quality, non-target organisms, vector resistance, feasibility, and cost effectiveness, such as:

- **No action**
- **Source prevention**
- **Mechanical or physical source reduction methods**
- **Cultural methods**
- **Biological control agents**
- **Pesticides**

b. Applying pesticides only when vectors are present at a level that will constitute a nuisance or threat to public health

c. Using the least intrusive method of pesticide application.
d. Public education efforts to reduce potential vector breeding habitat.
e. Applying a decision matrix concept to the choice of the most appropriate formulation.

This describes the County's existing integrated vector management (IVM) program, as well as the practices described in the California Mosquito-borne Virus Surveillance and Response Plan (pages 3-17) and Best Management Practices for Mosquito Control in California (Appendix A, pages 26-30) that are used by this agency.

3. **Correct Use of Pesticides**
Users of pesticides must ensure that all reasonable precautions are taken to minimize the impacts caused by pesticide applications. Reasonable precautions include using the properspraying techniques and equipment, taking account of weather conditions and the need to protect the environment.
a. All errors in application and spills are reported to the proper authority.
b. Staff training in the proper application of pesticides and handling of spills.

This is an existing practice of the County, 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.

E. Pesticide Application Log
The Discharger shall maintain a log for each pesticide application. The application log shall contain, at a minimum, the following information, when practical, for larvicide or adulticide applications:

1. Date of application;
2. Location of the application and target areas (e.g., address, crossroads, or map coordinates);
3. Name of applicator;
4. The names of the water bodies treated if known/ named(i.e., canal, creek, lake, etc.);
5. Application details, such as when the application started and stopped, pesticide application rate and concentration, water flow rate of the target area, surface water area, volume of water treated, pesticide(s) and adjuvants used by the Discharger, and volume or mass of each component discharged;

This is an existing practice of the District as required to comply with DPR regulations and our CDPH Cooperative Agreement requirements.

References:

Best Management Practices for Mosquito Control in California. 2010. Available from the California Department of Public Health—Vector-Borne Disease Section, (916) 552-9730 or by download from http://www.westnile.ca.gov/resources.php under the heading Mosquito Control and Repellent Information.

California Mosquito-borne Virus Surveillance and Response Plan. 2010. [Note: this document is updated annually by CDPH]. Available from the California Department of Public Health—Vector-Borne Disease Section, (916) 552-9730 or by download from http://www.westnile.ca.gov/resources.php under the heading Mosquito Control and Repellent Information.

MVCAC NPDES Coalition Monitoring Plan. [In development at the time of this draft]