

**ATTACHMENT E – NOTICE OF INTENT**

**WATER QUALITY ORDER 2016-0039-DWQ  
GENERAL PERMIT CAG990004**

**STATEWIDE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT  
FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES  
TO WATERS OF THE UNITED STATES  
FROM VECTOR CONTROL APPLICATIONS**

**I. NOTICE OF INTENT STATUS (see Instructions)**

Mark only one item	<input type="checkbox"/> A. New Applicator	<input checked="" type="checkbox"/> B. Change of Information: WDID# <u>5D10AP00005</u>
	<input type="checkbox"/> C. Change of ownership or responsibility: WDID# _____	
	<input type="checkbox"/> D. Enrolled under Order 2011-0002-DWQ: WDID# _____	

**II. DISCHARGER INFORMATION**

A. Name Kern Mosquito and Vector Control District			
B. Mailing Address 4705 Allen Road			
C. City Bakersfield	D. County Kern	E. State CA	F. Zip Code 93314
G. Contact Person La Thao	H. Email address lathao@kernmosquito.com	I. Title District Manager	J. Phone 661-589-2744

**III. BILLING ADDRESS (Enter Information only if different from Section II above)**

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip Code
G. Email address	H. Title	I. Phone	

**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: Various - see Attachment A, Map A-1, and Maps B-1-4  
Name of the conveyance system: Applications may be made to various conveyances systems

3. Directly to river, lake, creek, stream, bay, ocean, etc.  
Name of water body: Various - see Attachment A, Map A-1, Maps B-1-4

\* 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 5  
(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

C. Period of Application: Start Date January 1      End Date December 31

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 Pesticides Application Plan shall be included with the NOI.

B. Is the applicator familiar with its contents?

Yes       No

**VII. NOTIFICATION**

Have potentially affected governmental agencies been notified?

Yes       No

\* If yes, a copy of the notifications shall be attached to the NOI.

**VIII. FEE**

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?

Yes       NO       NA

**IX. CERTIFICATION**

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the Order, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: La Thao

B. Signature: *La K. Zhao*

Date: April 25, 2023

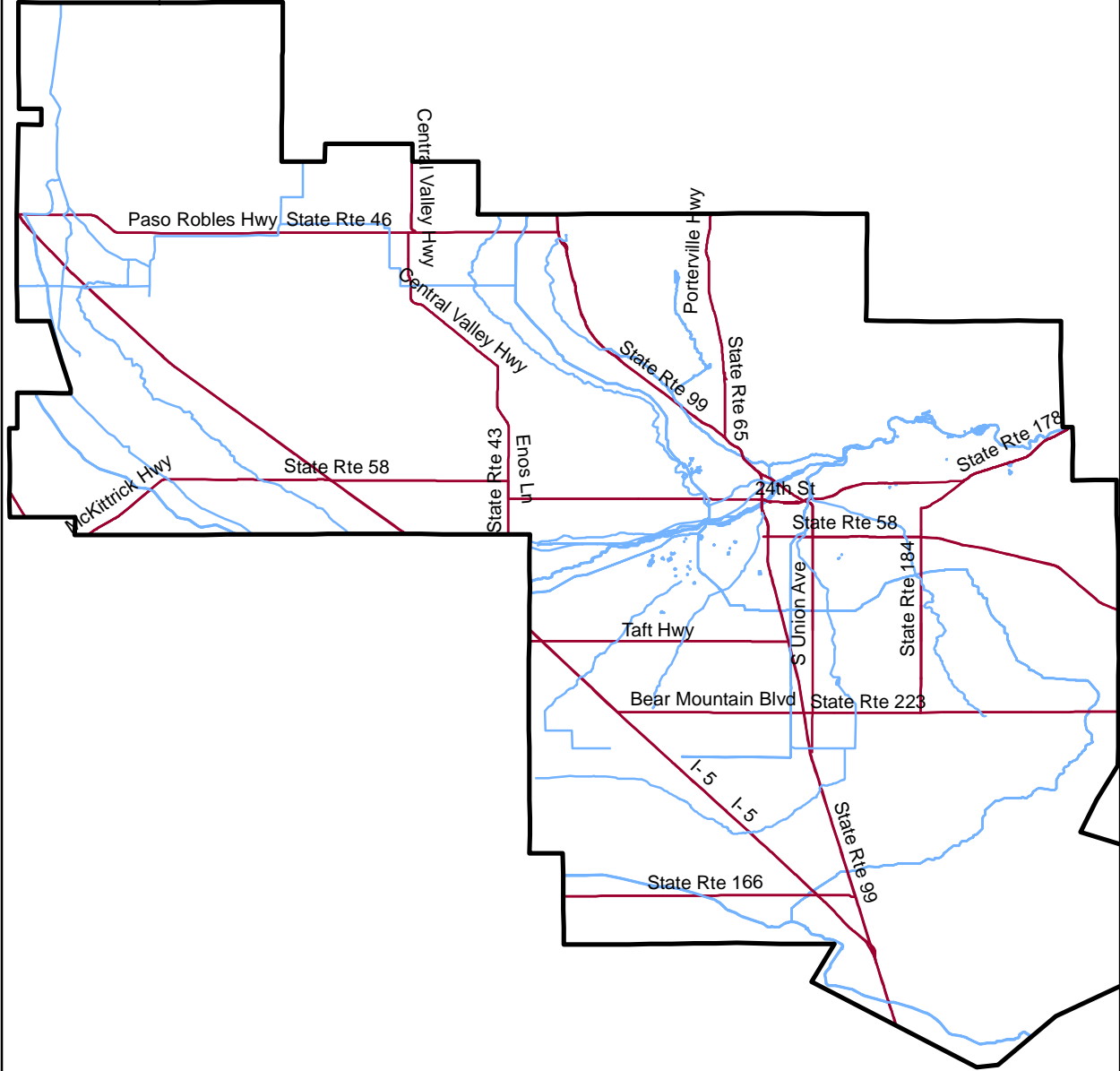
C. Title: District Manager

**X. FOR STATE WATER BOARD USE ONLY**

WDID:	Date NOI Received:	Date NOI Processed:
Case Handler's Initial:	Fee Amount Received: \$	Check #:

# Attachment A: Kern Mosquito & Vector Control District Boundary

Kern Mosquito and Vector Control District  
4705 Allen Road  
Bakersfield, CA 93314



**Attachment B**

**Notice of Intent**

**V. PESTICIDE APPLICATION INFORMATION**

**List of active ingredients that may be used under NPDES Permit**

**A. Larvicides**

<b>Pesticide</b>	<b>Active Ingredient</b>	<b>EPA Reg. No.</b>
Agnique MMF Liquid	Poly (oxy-1,2-ethanediyl), $\alpha$ -(C16-20 branched and linear alkyl)- $\omega$ -hydroxy-	7969-333
Altosid ALL Concentrate	(S)-Methoprene	2724-446
Altosid Liquid Larvicide	(S)-Methoprene	2724-392
Altosid Pellets	(S)-Methoprene	2724-448
Altosid Pellets WSP (pouches)	(S)-Methoprene	2724-448
BVA 2 Mosquito Larvicide Oil	Mineral Oil	70589-1
CocoBear	Mineral Oil	8329-93
FourStar Briquets	<i>Bacillus sphaericus</i> , <i>Bacillus thuringiensis israelensis</i>	83362-3
FourStar CRG (granules)	<i>Bacillus sphaericus</i> <i>Bacillus thuringiensis israelensis</i>	85685-2
MetaLarv S-PT (granules)	(S)-Methoprene	73049-475
Natular 2EC / 20EC	Spinosad (A&D)	8329-82
Natular DT (tablets)	Spinosad (A&D)	8329-602
Natular G30 WSP (pouches)	Spinosad (A&D)	8329-91
Natular XRT (briquet)	Spinosad (A&D)	8329-84
Nyguard IGR Concentrate	Pyriproxyfen	1021-1603
SumiLarv WSP (pouches)	Pyriproxyfen	1021-2818
VectoBac 12AS	<i>Bacillus thuringiensis israelensis</i>	73049-38
VectoBac WDG (granules)	<i>Bacillus thuringiensis israelensis</i>	73049-56
VectoLex WDG (granules)	<i>Bacillus sphaericus</i>	73049-57
VectoMax WSP (pouches)	<i>Bacillus sphaericus</i> , <i>Bacillus thuringiensis israelensis</i>	43049-429

**B. Adulticides**

<b>Pesticide</b>	<b>Active Ingredient</b>	<b>EPA Reg. No.</b>
Anvil 10+10	3-Phenoxybenzyl-(1RS, 3RS; 1RS, 3SR)-2,2-dimethyl-3-(2-methylprop-1-enyl) cyclopropanecarboxylate, Piperonyl Butoxide	1021-1688-8329
AquaHalt	Pyrethrins, Piperonyl Butoxide	1021-1803-8329
Duet	Prallethrin, Sumithrin, Piperonyl Butoxide	1021-1795-8329
Mosquito Mist Ultra	Permethrin, Piperonyl Butoxide	53883-274

Any “minimum risk category” pesticides that are FIFRA exempt and registered for use in California and used in a manner specified in 40 C.F.R. section 152.25.

**Attachment C**

**Notice of Intent**

**VII. NOTIFICATION**

Listing of governmental agencies that might be potentially affected by this NPDES permit and were therefore notified:

Kern County Administrative Officer  
Kern County Board of Supervisors  
115 Truxtun Avenue, 5<sup>th</sup> Floor  
Bakersfield, CA 93301

Manager  
Cawelo Water District  
17207 Industrial Farm Road  
Bakersfield, CA 93308

City Manager  
City of Arvin  
200 Campus Drive  
Arvin, CA 93203

Manager  
Kern Delta Water District  
501 Taft Highway  
Bakersfield, CA 93307

City Manager  
City of Bakersfield  
City Hall North  
1600 Truxtun Avenue, 5<sup>th</sup> Floor  
Bakersfield, CA 93301

Manager  
Kern Water Bank Authority  
1620 Mill Rock Way, Suite 500  
Bakersfield, CA 93311

City Manager  
City of Shafter  
336 Pacific Avenue  
Shafter, CA 93263

Manager  
North Kern Water Storage District  
P.O. Box 81345  
Bakersfield, CA 93380

City Manager  
City of Wasco  
746 8<sup>th</sup> Street  
Wasco, CA 93280

Engineer-Manager  
Rosedale-Rio Bravo Water Storage District  
849 Allen Road  
Bakersfield, CA 93314

Deputy Project Leader  
Kern National Wildlife Refuge  
P.O. Box 670  
Delano, CA 93216

Manager  
Semitropic Water Storage District  
1101 Central Avenue  
Wasco, CA 93280

Engineer-Manager  
Arvin-Edison Water Storage District  
P.O. Box 175  
Arvin, CA 93203-0175

Manager  
Shafter-Wasco Irrigation District  
P.O. Box 1168  
Wasco, CA 93280

Engineer-Manager  
Buena Vista Water Storage District  
P.O. Box 756  
Buttonwillow, CA 93206

TRUSTEES  
DANNY BROWN  
LARRY CARROLL  
FLORN CORE  
STEVE DUKE  
JESS ORTIZ  
DAVID POLM  
ROBERT QUIRING  
TIM UNRUH

CELEBRATING 100+ YEARS OF SERVICE TO THE COMMUNITY

1917



2023

MANAGER  
LA THAO

SUPERINTENDENT  
JOHN KROLNIK

PUBLIC INFORMATION  
OFFICER  
TERRY KNIGHT

## KERN MOSQUITO AND VECTOR CONTROL DISTRICT

DISTRICT OFFICE

4705 ALLEN ROAD BAKERSFIELD, CALIFORNIA 93314

PH: (661) 589-2744 FAX: (661) 589-4913 E MAIL: kmvcd@kernmosquito.com

April 25, 2023

### NOTICE OF INTENT TO APPLY PUBLIC HEALTH PESTICIDES FOR VECTOR CONTROL PURPOSES TO SURFACE WATERS AND WATERS OF THE USA WITHIN THE KERN MOSQUITO AND VECTOR CONTROL DISTRICT

The Kern Mosquito and Vector Control District is a public health agency that protects Kern County residents and visitors within its borders from mosquitoes and mosquito-borne diseases. Kern MVCD is an independent special district that operates under the California Health and Safety Code §§2000-2093. We conduct ongoing surveillance of mosquitoes in order to determine the threat of disease transmission and to direct our control activities. Kern MVCD practices a program of Integrated Vector Management (IVM) which includes surveillance for mosquitoes, source reduction, biological control, larviciding and adulticiding as indicated by surveillance, resistance monitoring, disease surveillance in vectors and reservoirs of mosquito-borne pathogens, and public education.

Certified vector control technicians may control mosquitoes by using public health pesticides that are registered for use by the California Environmental Protection Agency (Cal EPA) and the United States Environmental Protection Agency (EPA).

Kern MVCD is required and has obtained a Statewide General National Pollutant Discharge Elimination System (NPDES) permit to apply public health pesticides in, over and near waters of the USA. The NPDES permit requires that we notify potentially affected government agencies about the application of aquatic pesticides each calendar year. This is the notification letter advising you that public health pesticides will be used to control mosquitoes within the Kern MVCD boundaries this year.

These pesticides are used to protect public health by controlling the development and population of mosquitoes. Applications will be made within Kern MVCD boundaries from January 1<sup>st</sup> through December 31, 2023. There is no known water use restrictions or precautions during treatment.

The following includes the names of pesticides that Kern MVCD may apply: Altosid ALL Concentrate, Altosid Liquid Larvicide, Altosid Pellets, Altosid Pellets WSP, BVA2 Mosquito Larvicide Oil, CocoBear, FourStar Briquets, FourStar CRG, MetaLarv S-PT, Natular 2EC, Natular 20EC, Natular DT, Natular G30 WSP, Natular XRT, Nyguard IGR Concentrate, SumiLarv WSP, VectoBac 12AS, VectoBac WDG, VectoLex WDG, VectoMax WSP, Anvil 10+10, AquaHalt, Duet, and Mosquito Mist Ultra.

Interested persons may contact La Thao at (661) 589-2744 for additional information. This notification shall be posted on the Kern MVCD website: [www.kernmosquito.com](http://www.kernmosquito.com)

Sincerely,

A handwritten signature in cursive script that reads "La K. Thao".

La Thao, District Manager  
Kern Mosquito and Vector Control District

**Kern Mosquito and Vector Control District**

4705 Allen Road  
Bakersfield, CA 93314

Phone (661) 589-2744  
Fax (661) 589-4913  
[www.kernmosquito.com](http://www.kernmosquito.com)

Pesticides Application Plan  
(PAP)

April 2023



## PESTICIDE ACTION PLAN

- Description of ALL target areas, if different from the water body of the target area, into 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 area.**

The Kern Mosquito and Vector Control District (District) service 1,657 square miles of Kern County. A map of the District's boundaries is included with this permit (Attachment A), along with several maps of waters bodies the District may discharge to. Surface waters and waters of the U.S. within the boundaries of the Kern Mosquito & Vector Control District are listed below.

In prior years, the District has applied larvicides and/or adulticides directly to or in the vicinity of the following water bodies:

<u>Name of Water Body:</u>	<u>Map No.</u>
Kern River	Map B-1
Kern River Flood Control Channel	Map B-2
City of Bakersfield's "2800" acre ground water recharge area	Map B-3
Kern County Water Agency's ground water recharge area	Map B-3
Kern Water Bank Authority's ground water recharge area	Map B-3
Kern National Wildlife Refuge	Map B-4
Poso Creek	Map B-4

In prior years, the District has applied larvicides and/or adulticides directly to or in the vicinity of canals, ditches or other conveyance facilities owned or controlled by:

<u>Name of Conveyance</u>	<u>Name of Owner/Operator</u>	<u>Map No.</u>
Arvin/Edison Canal	Arvin-Edison Water Storage District	A-1
Beardsley Canal	North Kern Water Storage District	A-1
Buena Vista Canal	Kern Delta Water Storage District	A-1
Calloway Canal	North Kern Water Storage District	A-1
Carrier Canal	City of Bakersfield	A-1
East Side Canal	Kern Delta Water Storage District	A-1
Farmer's Canal	Kern Delta Water Storage District	A-1
Goose Lake Slough	Buena Vista Water Storage District	A-1
Kern Island Canal	Kern Delta Water Storage District	A-1
Lerdo Canal	North Kern Water Storage District	A-1
Stine Canal	Kern Delta Water Storage District	A-1

During some years, no applications are made to these areas due to the lack of water.

## 2. 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* specifically pages 26 through 34. In regards to mosquito control, each property is unique whether it is located in a residential or a rural area and therefore, each area can have its own unique mosquito-breeding situations. As with any source of mosquito breeding, the Kern Mosquito & Vector Control District's primary goal is to eliminate the breeding sources and or reduce the potential for mosquito emergence. If other control methods are not feasible, pesticides will then be used to control mosquitoes in the larval or adult stage. When pesticides must be used, the District relies upon larvicides for the vast majority of its application.

While the District does consider and evaluate the use of other methods to control mosquitoes rather than apply pesticides, some methods have distinct limitations in their effectiveness. For example, mosquitofish (*Gambusia affinis*) cannot control mosquitoes in locations where thick vegetation or shallow water prevents them from preying upon mosquito larvae. Mosquitofish cannot survive in polluted water so they cannot be used in types of situations such as some sewage treatment facilities. Mosquitofish are useful in permanent or semi-permanent water bodies, but in places where the water is only temporary, mosquitofish will have to be continually reintroduced which reduces their effectiveness. In the early spring when the temperatures are cool, *Gambusia* reproduction is at a minimum, so the number of fish available is limited. In seasons of above-normal rainfall or snow pack, there are not sufficient numbers of *Gambusia* available for every situation. The District does not have the financial resource to raise large numbers of mosquitofish, thus the District must harvest *Gambusia* from local sources and transfer them to areas that require attention. In years of below-normal precipitation, *Gambusia* breeding sources are few, so the number of fish available for stocking is limited.

Another method used to control mosquitoes besides the application of pesticides involves physical control. Physical control methods consist of vegetation control and/or removal of soil in order to make an area deeper to impede vegetation growth and enable mosquitofish and other predators of mosquitoes to flourish. Unfortunately, physical control cannot be utilized in some areas because of the presence of threatened and endangered species. In other situations, physical control will not completely control mosquito breeding to a sufficient level, so pesticide applications must be used for effective results.

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.**

The NPDES permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications was amended to list the approved active ingredients rather than having specific products named. All pesticide label restrictions and instructions will be followed for pesticides which contain the active ingredients listed below. In addition, pesticides which fall under the “minimum risk” category may be used. The minimum risk pesticides have been exempted from FIFRA requirements. Products may be applied by ground (truck, backpack, hand can, etc.) and or by air (helicopter or fixed wing aircraft).

<b>Active Ingredient</b>
<i>Bacillus thuringiensis var. israelensis</i>
<i>Bacillus sphaericus (Lysinibacillus sphaerius)</i>
Deltamethrin
Etofenprox
Lambda-Cyhalothrin
Malathion
Methoprene
Monomolecular Films
Naled
N-octyl Bicycloheptene Dicarboximide (MGK-264)
Petroleum Distillates
Permethrin
Piperonyl butoxide
Prallethrin
Pyrethrin
Pyriproxyfen
Resmethrin
Spinosad
Sumithrin
Temephos
Any “minimum risk category” pesticides that are FIFRA exempt and registered for use in California and used in a manner specified in 40 C.F.R. section 152.25.

**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 sites that hold 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 Item 2 above and *Best Management Practices for Mosquito Control in California*, especially pages 4 through 19. The typical sources treated by this agency include: duck clubs (seasonal), residential storm drain basins, agricultural sumps and ditches, non-maintained swimming pools, pastures, irrigated crops, livestock watering troughs and "standing" curb water. During years of above-average rainfall (about every four or five years in Kern County), certain water bodies such as the Kern River, Poso Creek, Goose Lake Slough and certain water conveyances will have variable amounts of waterflow. These water bodies are heavily vegetated and can breed mosquitoes in certain areas. Please see the Attachments for the various maps.

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

With any source of mosquitoes or other vectors, the Kern Mosquito and 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 this agency include stocking permanent or semi-permanent water sources with mosquitofish, educating residents that mosquitoes can develop in standing water and encouraging them to remove sources of standing water on their property. The District employs a Source Reduction Specialist whose job is to work with property owners to find long-term water management strategies that meet their needs while minimizing the need for public health pesticide applications. These long-term strategies can involve regular weed management procedures, efficient rotation of irrigation water and the timely drainage of water impoundments before they produce mosquito-breeding.

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

The need to apply material is determined by surveillance. Actual use varies annually depending upon mosquito abundance, encephalitis virus activity, and the amount of rainfall or snowpack received during the winter. The following list represents the type(s) and amounts of pesticides applied to Water of the U.S. during 2022.

Material	Active Ingredient	EPA Reg #	Amount	Units
VectoBac 12AS	<i>Bacillus thuringiensis israelensis</i>	73049-38	64	fl. oz
Altosid Liquid Larvicide	Methoprene	2724-446	3	fl. oz

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

Please see the MVCAC's 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.**

The District does not take the application of pesticides lightly. Besides having potential environmental impacts, pesticide applications are expensive and time consuming. Factors noted in Item 2 help evaluate feasible alternatives to pesticide applications in order to reduce potential water quality impacts. Upon locating a mosquito-breeding source, District technicians evaluate whether the source is substantial enough to require treatment. The evaluation takes into consideration: the number of larvae or adult mosquitoes present; physical size of the breeding source (e.g. bucket or 10 acres basin); the Genus and species of mosquito present (some mosquito types are more efficient vectors of diseases); the amount of virus activity present and the proximity to populated areas.

The District's Source Reduction Specialist evaluates available BMPs in order to determine if there are feasible alternatives to selected pesticide application projects. The removal of vegetation from ditches and impoundments allows for easier inspections and enables natural predators to control mosquito larvae. The removal of vegetation also makes applications more effective when they are required. The regular rotation of irrigation water can minimize the size and number of areas of "ponding" water in crops, orchards, and other locations. (Also see: pages 5 through 20 of the *Best Management Practices for Mosquito Control in California*.)

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

The District's BMPs are described in Item 2 above, 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 pesticides applicators receive annual spill prevention and response training. District employees ensure daily that application equipment is in proper working order. Spill mitigation devices, materials, and products are available in order to respond to spills in storage areas or from vehicles.

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

Application equipment is calibrated at least annually as required by the California Department of Pesticide Regulation (CDPR) and the terms of the Cooperative Agreement with the California Department of Public Health (CDPH). The pesticide label and associated registration by the USEPA and CDPR stipulate how much product can be legally applied to control the targeted pest.

c. **A plan to educate the Coalition's or Discharger's staff and pesticide applicators on any potential adverse effects to Waters of the U.S. from pesticide applications.**

Applicators are required to complete pesticide training on an annual basis. Records are kept of these training sessions for review by the local agricultural commissioner and/or CDPH. District employees certified by CDPH must perform at least 20 hours of Continuing Education units to maintain their certification.

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

The District calibrates truck-mounted and hand-held 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. These airplanes are equipped with advanced guidance and drift management equipment to ensure the best available technology is being used to place the pesticide material within the intended area.

e. **Descriptions of specific BMPs for each pesticide product used.**

Please refer to 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. **Description of specific BMPs for each type of environmental setting (agricultural, urban and wetlands).**

Please refer to the *Best Management Practices for Mosquito Control in California* – especially pages 4-19.

**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 U.S., 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 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 Kern Mosquito & Vector Control District’s staff only apply pesticides to sources of mosquitoes that may 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 development and behavioral considerations for each species.**

Most Common Mosquitoes Present in Kern MVCD

<i>Aedes aegypti</i>	<i>Culiseta incidens</i>
<i>Aedes melanimon</i>	<i>Culiseta inornata</i>
<i>Aedes nigromaculis</i>	<i>Culex erythrothorax</i>
<i>Aedes sierrensis</i>	<i>Culex quinquefasciatus</i>
<i>Anopheles freeborni</i>	<i>Culex tarsalis</i>

The lower elevations of Kern County are endemic to West Nile virus (WNV). The District has had human cases of WNV since 2004 – which includes fatalities. In 2007, Kern County led the State with 141 human cases of WNV with four fatalities. Kern MVCD considers WNV a serious public health threat and will therefore make applications of pesticides in a responsible manner in order to protect residents from this mosquito-borne disease.

*Culex tarsalis* and *Culex quinquefasciatus* mosquitoes are the major disease-carrying mosquitoes within District boundaries. *Culex tarsalis* mosquitoes are found mainly in rural, agricultural-related locations while *Cx. quinquefasciatus* are normally associated with urban locations. *Aedes nigromaculis*, *Aedes melanimon* and *Aedes aegypti* are species of mosquitoes that are active day-biters (bite during daylight hours) and can be such a nuisance that residents must seek shelter indoors or apply repellent. Seeking shelter indoors is not a solution for individuals who must work outdoors. *Aedes aegypti* are invasive tropical mosquitoes that can carry dengue, chikungunya, and Zika viruses.

The District uses several criteria to determine when applications of pesticides are necessary. The District sets out and collects adult mosquito abundance traps (approximately 220) on a weekly basis. The District utilizes four different types of traps: carbon-dioxide baited (CO<sub>2</sub>), BioGent Sentinel (BGS), Autocidal Gravid Oviposition (AGO), and Reiter Gravid traps. The decision to make a pesticide application is based upon mosquito abundance numbers, density of mosquito larvae, resident complaints, proximity of breeding sources to residential (populated) areas, size of breeding source and the level of encephalitis virus activity. A trap collection consisting of a high number of *Culex tarsalis* from a remote location 30 miles from the nearest residential area would not receive the attention that a “high” count from a trap site one mile from a residential area would receive.

Since West Nile virus is endemic to Kern County, the District will generally implement adult mosquito control operations when populations of *Culex tarsalis* or *Culex quinquefasciatus* adult mosquitoes exceed ten females per trap night. The District will generally initiate larvicide applications when the larval immature mosquito population reaches one larvae per dip. The District relies upon the application of target-specific larvicides (*Bacillus thuringiensis*, *Bacillus sphaericus*, Methoprene, Spinosad) in its mosquito control program. Applications of material to control adult mosquitoes are only conducted in situations where other control strategies have not been effective or in emergency situations where WNV activity is extremely high.



Please see the *Best Management Practices for Mosquito Control in California*, pages 42 through 49 and the *California Mosquito-borne Virus Surveillance and Response Plan*, pages 3 through 12.

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

Any sites that hold water for more than 96 hours (four days) can produce mosquitoes. Source reduction is an agency's preferred solution, and whenever possible the District works with property owner/operators 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 type of information is included in the *Best Management Practices for Mosquito Control in California* and the *California Mosquito-borne Virus Surveillance and Response Plan* that this agency uses as resources. The Kern Mosquito and Vector Control District continually collects adult and larval surveillance data, dead bird reports and also monitors regional mosquito-borne disease activity detected in humans, horse, birds, and/or other animals and uses this 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 that impact to water quality, impact to non-target organisms, vector resistance, feasibility, and cost effectiveness should be considered:**

- i. No action
- ii. Prevention
- iii. Mechanical or physical methods
- iv. Cultural methods
- v. Biological control agents
- vi. Pesticides

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

The Kern Mosquito and Vector Control District does not apply larvicides that contain temephos. Applying adulticides is not the District's control method of choice. As has been previously stated, the District relies upon the use of target-specific larvicides in its mosquito control program. Controlling mosquitoes in the immature (larval) stages involves treating a smaller area because adult mosquitoes have not dispersed to infest a wider area.

The Kern MVCD uses the principles and practices of Integrated Vector Management (IVM) as described on pages 26 and 30 of the *Best Management Practices for Mosquito Control in California*. IVM combines biological, chemical, legal abatement, natural and physical control methods in a manner that minimizes environmental risks. 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 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. The District has a Source Reduction Specialist on staff whose job duties include providing consultation to property owners on effective land and water management in order to reduce or eliminate mosquito producing sources.

Implementing preferred alternatives depends upon 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 Kern Mosquito and Vector Control District follows an Integrated Vector Management program. A "nuisance" is specifically defined in the 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.

West Nile virus is now “endemic” in Kern County. Kern County has had human cases of West Nile virus since 2004 which includes fatalities. It only takes one bite of a WNV-infected mosquito to transfer the virus to a human. 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 the risk in the context of the District’s IVM program.

- 12. Correct Use of Pesticides: The 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 Kern Mosquito and 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.**

Please visit the KMVCD website at [www.kernmosquito.com](http://www.kernmosquito.com).

**References:**

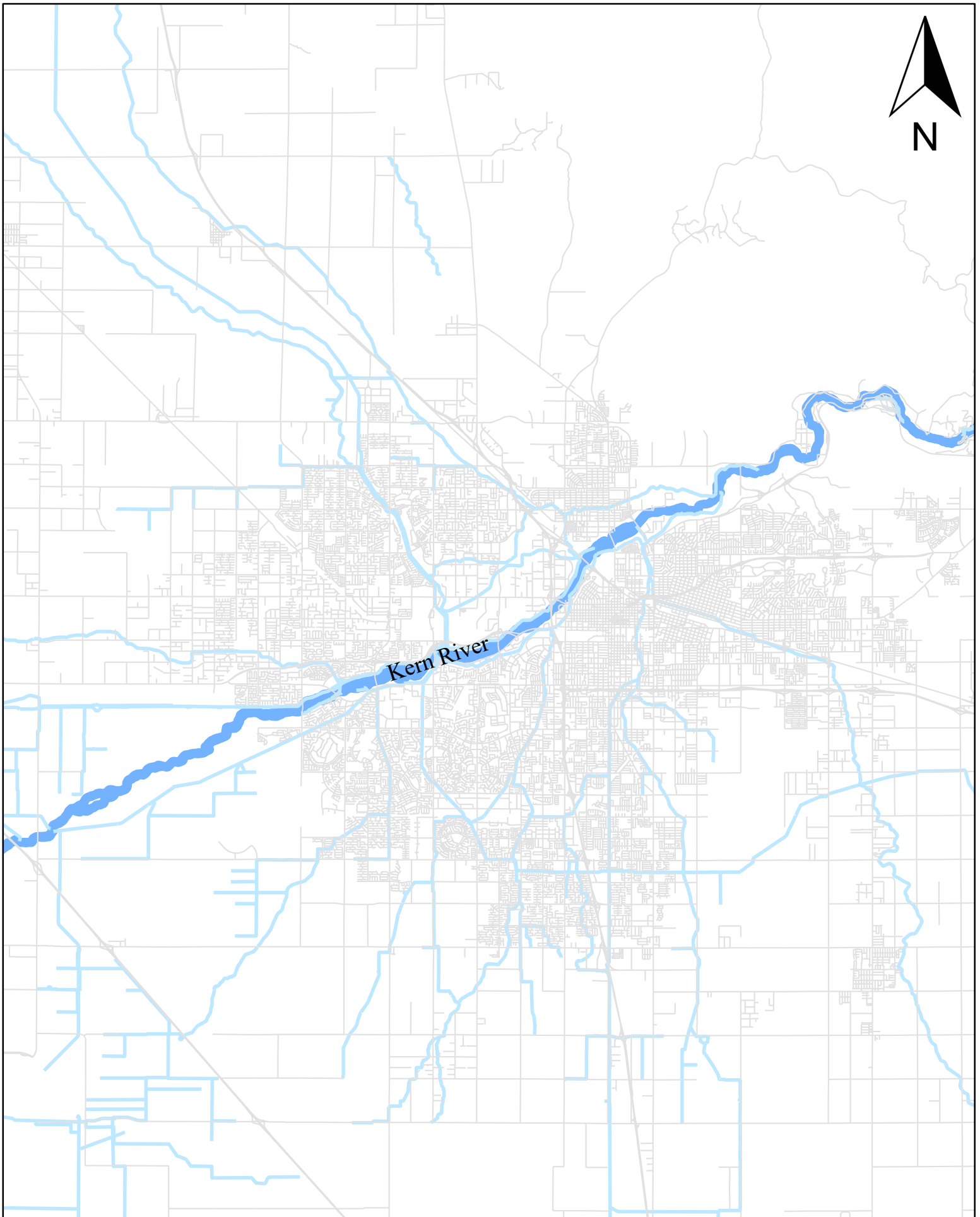
Best Management Practices for Mosquito Control in California. July 2012. Available by download from the California Department of Public Health – Vector-borne Disease Section at <http://www.westnile.ca.gov> under the heading Mosquito Control and Repellent Information. Copies may also be requested by calling the California Department of Public Health – Vector-borne Disease Section at (916) 552-9730 or the Kern Mosquito & Vector Control District at (661) 589-2744.

California Mosquito-borne Virus Surveillance and Response Plan. May 2021. [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> under the heading Response Plans and Guidelines. Copies may also be requested by calling the California Department of Public Health – Vector-borne Disease Section at (916) 552-9730 or the Kern Mosquito & Vector Control District at (661) 589-2744.

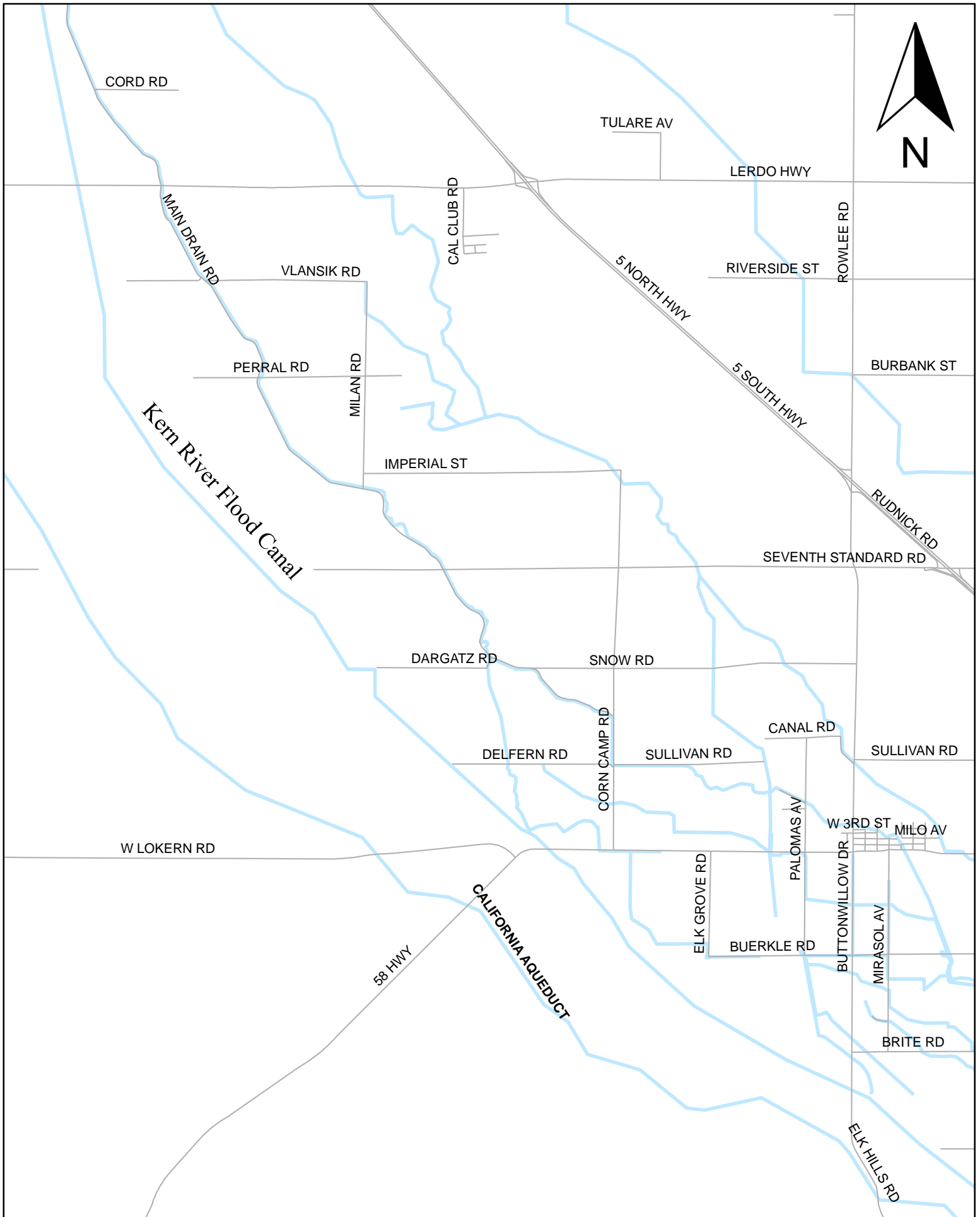
Mosquito & Vector Control Association of California (MVCAC)  
NPDES Coalition Monitoring Plan.

# Map B-1 : Kern River

\*certain areas in the Kern River sometimes require larvicide treatment

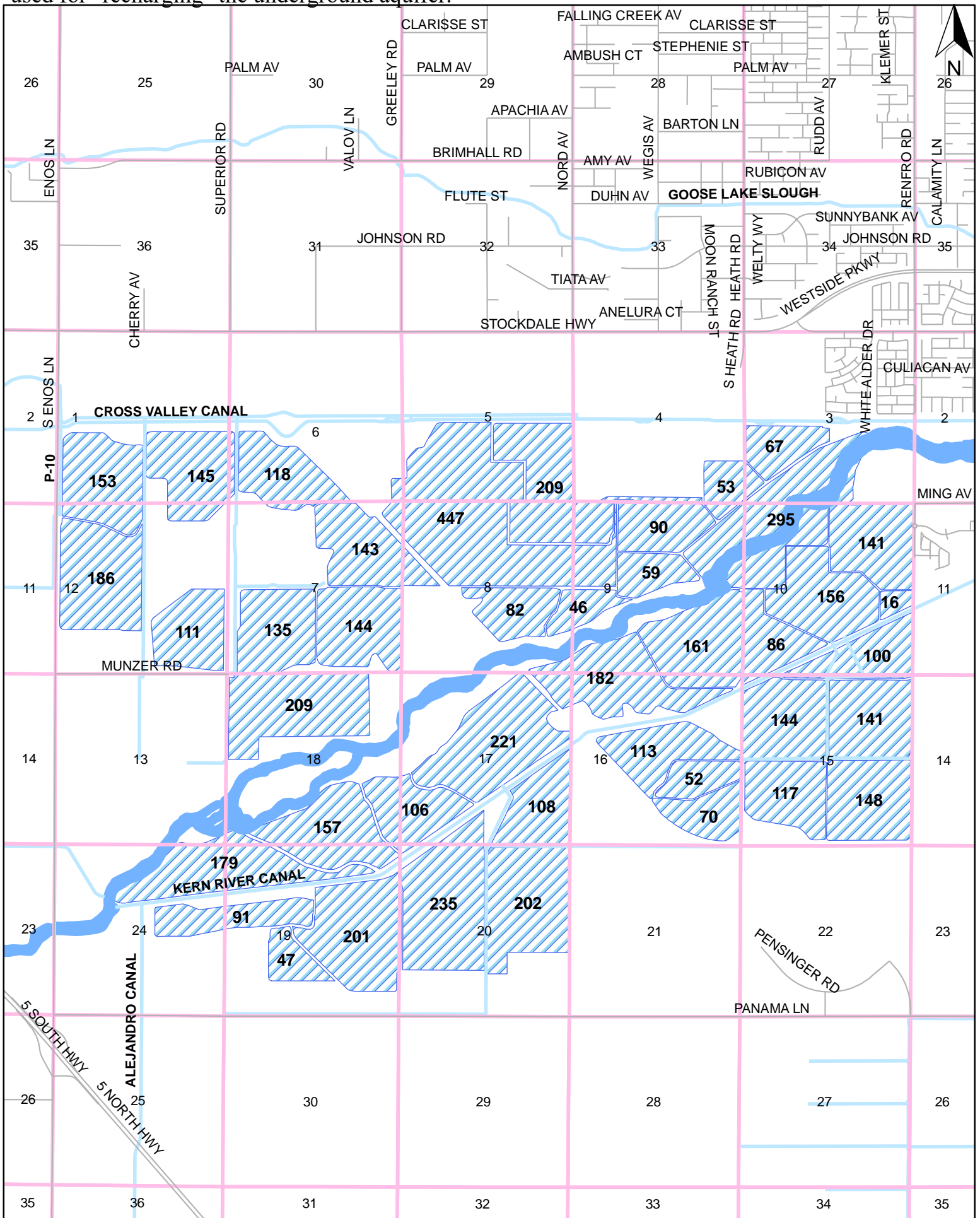


# Map B-2 : Kern River Flood Control Channel



# Map B-3 : Ground Water Recharge Areas

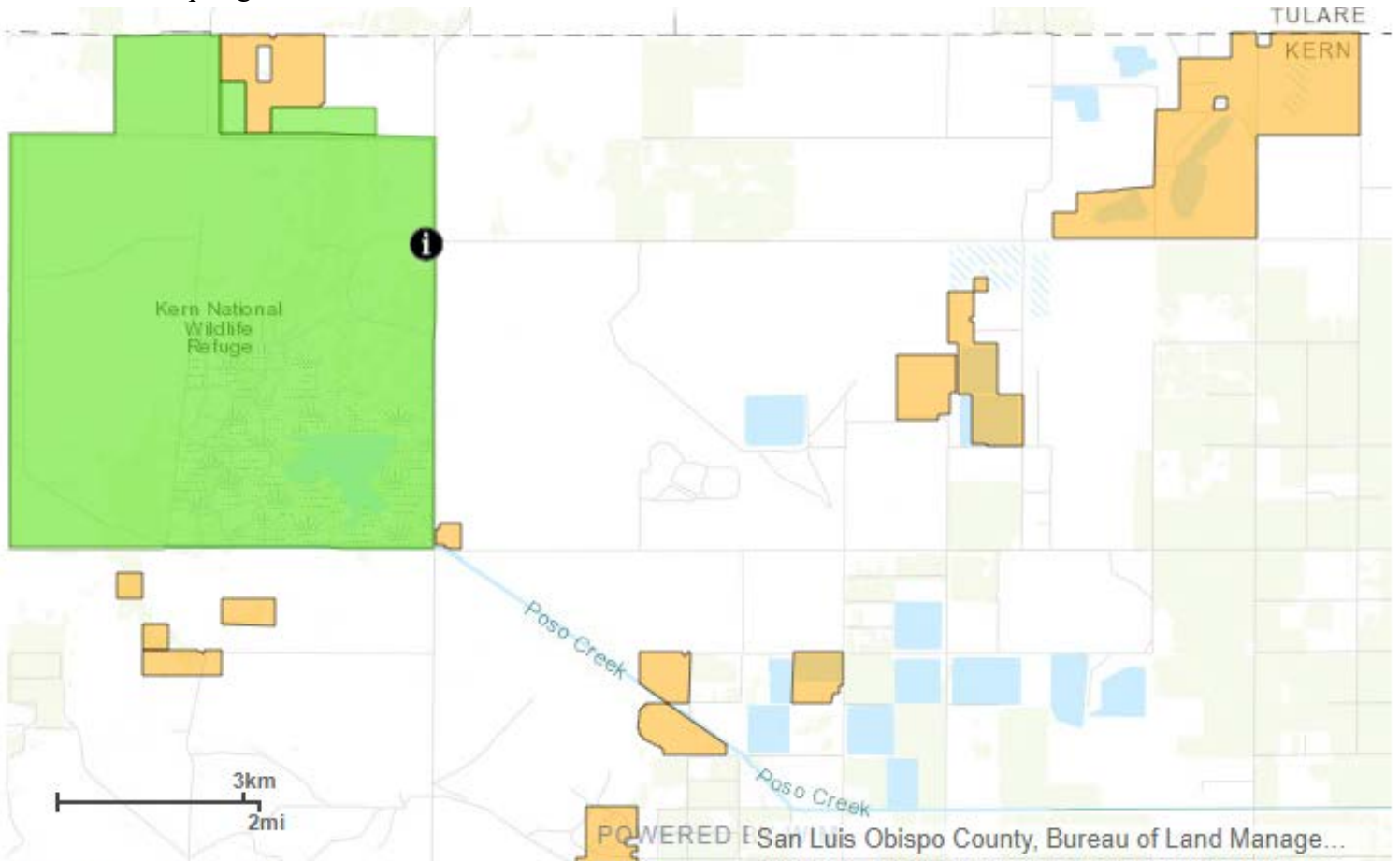
\*certain areas north and south of the Kern River can sometimes be used for "recharging" the underground aquifer.



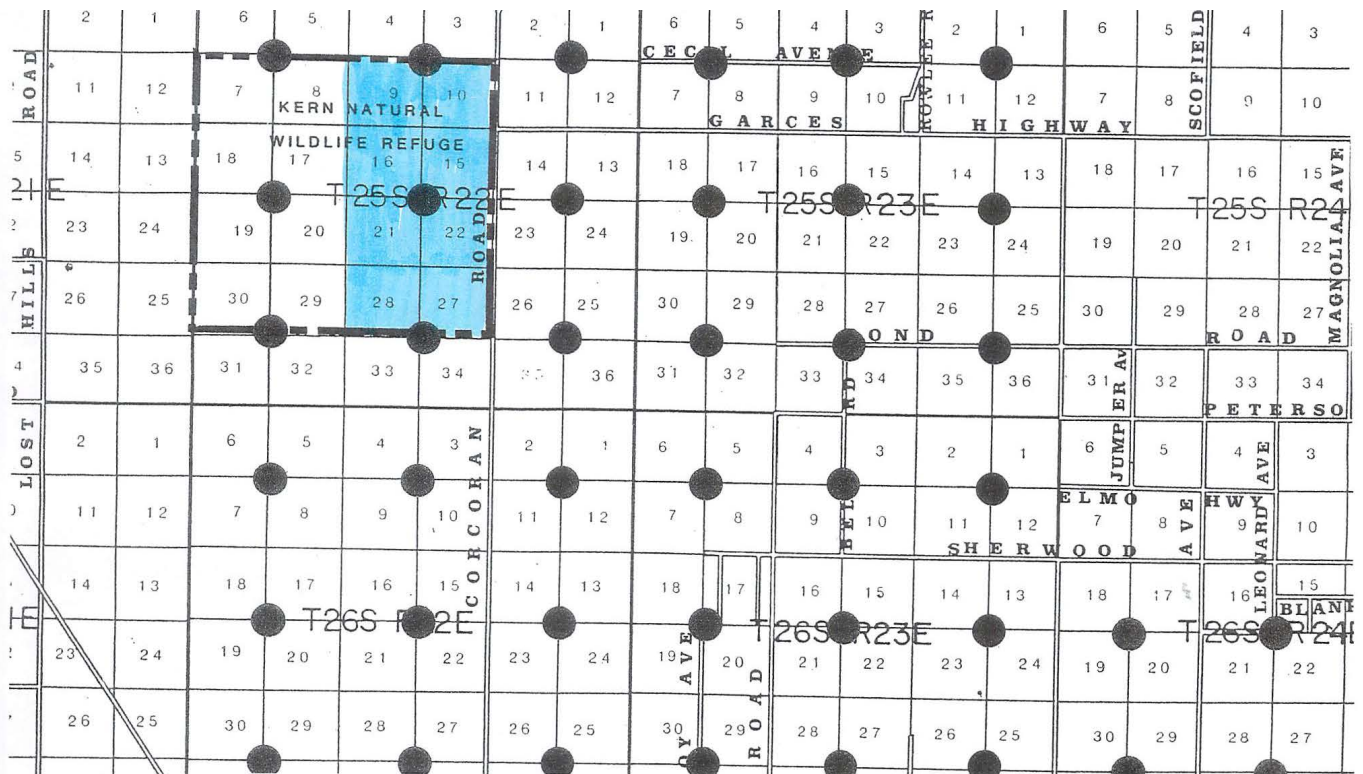


# Map B-4 : Kern National Wildlife Refuge

\*certain areas on the Refuge sometimes require larvicide treatments during the spring and/or fall for waterfowl.



- National Wildlife Refuges
- Waterfowl Production Areas
- National Wildlife Refuges, easement
- National Wildlife Refuges, lease
- Wetland Management Districts
- Agreement
- Secondary to other federal agency
- Partial Interest
- 1** Visitor Contact Locations





Map A-1 : Canals in the Bakersfield Metropolitan area

