



Integrated Mosquito and Vector Management Program

Napa County
Mosquito Abatement
District

Final Programmatic EIR
Responses to Comments /
Revisions to Draft PEIR

October 2015

State Clearinghouse No.
2012052042



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Acronyms

°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
µg/m ³	microgram(s) per cubic meter
2,4-D	2,4-dichlorophenoxyacetic acid
AB	Assembly Bill
AMM	Avoidance and minimization measure
APAP	Aquatic Pesticide Application Plan
APEs	alkylphenol ethoxylates
ATCM	Airborne Toxics Control Measure
ATSB	Attractive Toxic Sugar Bait
ATV	all-terrain vehicle
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan
BASMAA	Bay Area Stormwater Management Agencies Association
BCDC	San Francisco Bay Conservation and Development Commission
BDCP	Bay Delta Conservation Plan
BMP	best management practice
BP	boiling point
Bs	Bacillus sphaericus
BTEX	benzene, toluene, ethylbenzene, and xylenes
Bti	Bacillus thuringiensis israelensis
CAA	Clean Air Act of 1970
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal-EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCD	colony collapse disorder
CCR	California Code of Regulations
CDC	Centers for Disease Control and Prevention
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife (formerly Fish and Game [CDFG])
CDPH	California Department of Public Health (formerly Health Services [CDHS])

CDPR	California Department of Pesticide Regulation
CDR	Chemical Data Reporting
CEC	California Energy Commission
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH ₄	methane
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent(s)
CTS	California tiger salamander
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted sound level/decibel(s)
Delta	Sacramento-San Joaquin River Delta
District/NCMAD	Napa County Mosquito Abatement District
DPM	diesel particulate matter
DPS	Distinct Population Segment
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FHSZ	Fire Hazard Severity Zone
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
GHG	greenhouse gas
GPS	global positioning system
GWP	global warming potential
HCP	Habitat Conservation Plan
HPS	Hantavirus Pulmonary Syndrome
IGR	Insect growth regulator
IMVMP	Integrated Mosquito and Vector Management Program
Program/IMVMP	Integrated Mosquito and Vector Management Program
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
IVM	Integrated Vector Management
IVMP	Integrated Vector Management Program

LC50	50 percent lethal concentration
LCAQMD	Lake County Air Quality Management District
LD50	50 percent lethal dose
L _{dn}	day/night average sound level
L _{eq}	energy-equivalent sound/noise descriptor
LOAEL	lowest observed adverse effect level
LS	less than significant
MBTA	Migratory Bird Treaty Act
MCLs	Maximum Contaminant Levels
MEI	Maximally Exposed Individual
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
MMT	million metric tonne(s)
MSDS	material safety data sheet
MT	metric tonne(s)
N	no impact
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCMAD	Napa County Mosquito Abatement District
NCPP	Natural Community Conservation Plan
ng/L	nanogram(s) per liter
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO ₂	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOAEL	no observed adverse effect level
NOP	Notice of Preparation
NO _x	nitrogen oxides
NPCD	Napa County Planning Division
NPDES	National Pollutant Discharge Elimination System
NSCAPCD	Northern Sonoma County Air Pollution Control District
NWR	National Wildlife Refuge
O ₃	ozone
OP	organophosphate
PAHs	polycyclic aromatic hydrocarbons
PAP	Pesticide Application Plan (NPDES)

Pb	lead
PBO	piperonyl butoxide
PCBs	polychlorinated biphenyls
PEIR	Programmatic Environmental Impact Report
PERP	Portable Equipment Registration Program
PHG	Public Health Goal
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
POD	pelagic organism decline
POM	particulate organic matter
ppb	part(s) per billion
ppm	part(s) per million
ppmv	part(s) per million by volume
ppt	part(s) per trillion
RHA	Rivers and Harbors Act
ROC	reactive organic compound
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCP	Scientific Collecting Permit
SCWA	Solano County Water Agency
SF ₆	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SLE	Saint Louis encephalitis
SM	potentially significant but mitigable
SO ₂	sulfur dioxide
SU	significant and unavoidable
SVOC	semivolatile organic compound
SWRCB	California State Water Resources Control Board
TMDL	total maximum daily load
ULV	ultralow volume
USACE	US Army Corps of Engineers
USC	United States Code
USEPA	US Environmental Protection Agency
USFS	US Forest Service
USFWS	US Fish and Wildlife Service

VCAPCD	Ventura County Air Pollution Control District
VOC	volatile organic compound
VVOC	very volatile organic compound
WEE	western equine encephalomyelitis
WNV	West Nile virus
YNHP	Yolo Natural Heritage Program
YSAQMD	Yolo-Solano Air Quality Management District

1 Introduction

This Responses to Comments/Revisions to Draft PEIR document has been prepared subsequent to the Draft Programmatic Environmental Impact Report (Draft PEIR) dated November 2014 for the proposed Integrated Mosquito and Vector Management Program (IMVMP or Program) by the Napa County Mosquito Abatement District (District or NCMAD). The Draft PEIR (State Clearinghouse No. 2012052042) identified the environmental consequences associated with a range of chemical and nonchemical treatment alternative methods/tools for its ongoing program of surveillance and control of mosquitoes and other vectors of human and animal disease and discomfort. It included discussion of best management practices (BMPs) to avoid and/or minimize potential impacts and additional proposed mitigation measures to reduce a potentially significant impact to less than significant. The Responses to Comments/Revisions to Draft PEIR document presents responses to public comments received on the Draft PEIR, and it explains revisions to the Draft PEIR text and appendices, as necessary, in response to the comments or for clarification of technical information. The revisions to the Draft PEIR have been incorporated into a revised Final PEIR. **Together with the Final PEIR (October 2015), this Response to Comments/Revisions to Draft PEIR document constitutes the entire Final PEIR for the District's proposed IMVMP.**

The District is the lead agency under the California Environmental Quality Act (CEQA) with responsibility for preparing responses to public comments and the Final PEIR. The Final PEIR is an informational document that must be considered by the District's Board of Trustees before approving or denying the proposed Program. CEQA Guidelines (§15132) require the following contents for the Final PEIR:

- a. Draft PEIR or a revision of the draft
- b. Comments and recommendations received on the Draft PEIR, either verbatim or in summary
- c. A list of persons, organizations, and public agencies commenting on the Draft PEIR
- d. Responses of the lead agency (CDFA) to significant environmental points raised in the review and consultation process
- e. Any other information added by the lead agency

1.1 Environmental Review Process

The District released its Notice of Availability (NOA) of a Draft PEIR on November 14, 2014, to 87 agencies and organizations. The Draft PEIR was posted on the District's website. The public review and comment period began on November 14, 2014 and concluded on January 2, 2015. During this time, the District held a public hearing on December 16, 2014, from 6:30 pm to 8:30 pm, at the Town of Yountville Community Center, Heritage Room, 6516 Washington Street, Yountville, CA 94599. No one appeared to provide oral comments.

The State of California Governor's Office of Planning and Research State Clearinghouse and Planning Unit provided a letter dated January 2, 2015 that the District has complied with the State Clearinghouse review requirements for draft environmental documents pursuant to the California Environmental Quality Act. This letter is provided herein at the end of this chapter. The Clearinghouse's agency review period concluded on December 31, 2014. The State Clearinghouse reported that no state agencies submitted comments to them.

Written comments were received directly from the California Department of Fish and Wildlife, Bay Delta Region. Responses to written comments from CDFW are contained in this document (see Chapter 2). The responses to comments from CDFW were distributed to the agency on September 28, 2015. Section

21092.5 of the Public Resources Code requires that the lead agency provide the "written proposed response" to a public agency on comments made by that public agency on the EIR at least 10 days before the lead agency certifies the document. See also State CEQA Guidelines §15088(b). The written response describes the disposition of significant environmental issues raised.

Following this review and receipt of any further comments, the District Board of Trustees will consider all comments and any additional responses from staff prior to certification of the Final PEIR. Certification is a finding that the PEIR complies with the requirements of CEQA. Following PEIR certification and prior to approval of the proposed IMVMP, the Board shall make findings for each significant environmental impact that are supported by substantial evidence in the record and shall adopt the Mitigation Monitoring Program (MMP).

Based upon material contained in the responses to comments from CDFW and minor revisions of the Draft PEIR provided in the Final PEIR, recirculation of the PEIR is not required under the CEQA Guidelines §15088.5 because no new significant information is added to the PEIR, and under subsection (b) recirculation is not required where the new information added merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

1.2 Report Organization

This Responses to Comments/Revisions to Draft PEIR document contains the following chapters with a brief explanation of chapter contents.

- > **Chapter 1. Introduction:** Introductory material on the CEQA process and public review of the Draft PEIR is provided along with a description of document contents. The State Clearinghouse letter is located at the end of this chapter.
- > **Chapter 2. Public Agency Comments and Responses:** Comments received from one state agency (S), the California Department of Fish and Wildlife (CDFW), Bay Delta Region, are provided with District responses following each numbered comment.
- > **Chapter 3. Revisions to Draft PEIR:** This chapter presents minor revisions to text and appendices based on comments received, clarifications to technical material, or errors/errata discovered by the Draft PEIR preparers. None of these text changes results in substantial changes to the conclusions and determinations of significant impact. In other words, no "less than significant" impacts were changed to "potentially significant" or "significant and unavoidable" impacts.



Edmund G. Brown Jr.
Governor

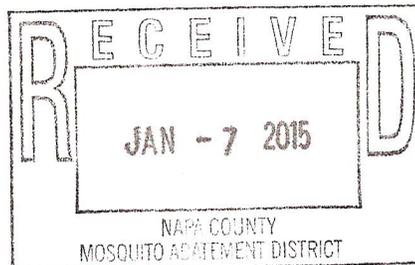
STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

January 2, 2015

Wes Maffei
Napa County Mosquito Abatement District
PO Box 10053
American Canyon, CA 94503



Subject: Integrated Mosquito and Vector Management Program PEIR
SCH#: 2012052042

Dear Wes Maffei:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on December 31, 2014, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

**Document Details Report
State Clearinghouse Data Base**

SCH# 2012052042
Project Title Integrated Mosquito and Vector Management Program PEIR
Lead Agency Napa County Mosquito Abatement District

Type EIR Draft EIR
Description The Napa County Mosquito Abatement District undertakes activities through its Integrated Vector Management Program to manage the following vectors of disease and/or discomfort in the Service Area: mosquitoes, rats, yellowjackets, ticks, and invasive or noxious weeds. The District is preparing a PEIR to evaluate the effects of the continued implementation of the control strategies and methods prescribed in its Integrated Mosquito and Vector Management Program (Control Program/Project).

Lead Agency Contact

Name Wes Maffei
Agency Napa County Mosquito Abatement District
Phone 707 553 9610 **Fax**
email
Address PO Box 10053
City American Canyon **State** CA **Zip** 94503

Project Location

County Napa
City
Region
Lat / Long
Cross Streets
Parcel No.
Township

Range **Section** **Base**

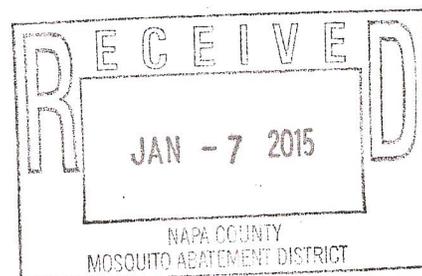
Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues Air Quality; Biological Resources; Noise; Public Services; Recreation/Parks; Toxic/Hazardous; Vegetation; Water Quality; Wetland/Riparian; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 3; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Office of Emergency Services, California; Caltrans, District 4; Air Resources Board; Regional Water Quality Control Board, Region 2; Department of Toxic Substances Control; Native American Heritage Commission

Date Received 11/17/2014 **Start of Review** 11/17/2014 **End of Review** 12/31/2014



2 Public Agency Comments and Responses

Comments received from one state agency (S), the California Department of Fish and Wildlife (CDFW), Bay Delta Region, are provided with District responses following each numbered comment.



State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
7329 Silverado Trail
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S-CDFW
EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



December 31, 2014



Mr. Wes Maffei, Manager
Napa County Mosquito Abatement District
Post Office Box 10053
American Canyon, CA 94503

Dear Mr. Maffei:

Subject: Napa County Mosquito Abatement District Integrated Mosquito and Vector Management Program, Draft Programmatic Environmental Impact Report, SCH #2012052042, Napa County

The California Department of Fish and Wildlife (CDFW) has reviewed the draft Program Environmental Impact Report (PEIR) for the Napa County Mosquito Abatement District (District) Integrated Mosquito and Vector Management Program (IMVMP; Project). CDFW is providing comments on the draft PEIR as a Trustee Agency and Responsible Agency. As Trustee for the State’s fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of the fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species for the benefit and use by the people of California.

Project Location and Description

The proposed Project area for the PEIR consists of the District’s Service Area boundaries, and includes all lands located within the County of Napa, and the four adjacent counties of Sonoma, Lake, Yolo, and Solano where service may be provided upon request. The proposed Project area includes watersheds such as the Napa River, Suisun Bay, San Pablo Bay, Grizzly Bay, Carquinez Strait, and others. Mosquito and/or vector control activities are conducted at a wide variety of locations or sites throughout the District’s Service Area, including tidal marshes, duck clubs, other diked marshes, lakes and ponds, rivers and streams, vernal pools and other seasonal wetlands, stormwater detention basins, flood control channels, spreading grounds, street drains and gutters, wash drains, irrigated pastures, and agricultural ditches, as well as animal troughs, artificial containers, tire piles, fountains, ornamental fishponds, swimming pools, liquid waste detention ponds, and non-natural harborage (such as covered wood piles, residential and commercial landscape, trash receptacles).

The District’s Program is an ongoing series of related actions for the management of mosquito, yellow jacket, rodent, and other vector populations to minimize human/vector interactions and the associated risks of disease and discomfort. The District’s activities involve the identification of vector problems; responsive actions to control existing populations of vectors, prevent new sources of vectors from developing, and manage



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S-CDFW

Mr. Wes Maffei
 December 31, 2014
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habitat to minimize vector production; education of landowners and others on measures to minimize vector production or interaction with vectors; and provision and administration of funding and institutional support necessary to accomplish District objectives. The District conducts these mosquito control activities in Napa County through the IMVMP. The PEIR evaluates the continued implementation of existing mosquito control strategies and methods prescribed in the IMVMP. The Project proposes to implement the following general types of activities: surveillance, physical control, vegetation management, biological control, chemical control, and other nonchemical/trapping control.

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Surveillance Alternative

The PEIR states that activities associated with the Surveillance Alternative would have a less-than-significant impact (page S-11). This Surveillance Alternative includes activities such as maintaining paths and long term clearing of vegetation to allow access, which may have a significant impact to Biological Resources. Within the Project area, direct and indirect impacts on special-status species may be significant due to habitat loss or consistent disturbance. For example, regular vegetation maintenance in tidal marsh habitats may be a significant impact on salt-marsh harvest mouse and California Clapper Rail, both identified in Fish and Game Code §4700 as fully protected species. To reduce potentially significant impacts, CDFW recommends the District only remove salt marsh vegetation using hand tools outside of breeding season. CDFW recommends that vehicle mounted mowers not be used for vegetation removal and that the District avoid off-road incursions into salt marsh using vehicles as they do not allow time for salt marsh species to move into adjacent areas.

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Private Landowner Coordination

Page 2-12 states: "The District may request landowners and stewards to maintain and clear debris from drainage channels and waterways; excavate built-up spoil material; remove water from tires and other urban containers; cut, trim, mow, and harvest aquatic and riparian plants (but not including any mature trees, threatened or endangered plant species, or sensitive habitat areas); and perform minor trenching and ditching." The District is requesting landowners to conduct activities within a number of habitats where the PEIR has identified these actions as potentially significant but mitigable. The PEIR does not disclose the extent of impacts associated with the District's requests for landowners and stewards to undertake activities nor are these impacts analyzed under the cumulative impacts section of the PEIR. CDFW recommends the PEIR analyze the potential for significance of the Physical Control Alternative and Vegetation Management Alternative activities that are being conducted by landowners at the request of the District to implement the IVMP.

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 3

Protocol Level Surveys and Surveillance Procedures

The PEIR relies on a Qualified Biologist to conduct surveys and analysis to determine if sensitive species are present but does not provide qualifications for what is considered a Qualified Biologist. CDFW recommends including as qualifications that a Qualified Biologist be knowledgeable and experienced in the biology and natural history of native fish and wildlife resources present in Napa County.

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The PEIR should assume presence of special-status species where suitable habitat occurs unless protocol level surveys are conducted. Additionally, the PEIR should include the specific survey protocols that will be used in each habitat type and associated special-status species. *Survey and Monitoring Protocols and Guidelines* are available at CDFW's website: https://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html. Additional species-specific guidance may be obtained through CDFW's Bay Delta Regional office.

5

Section F (page 2-63) of the PEIR currently identifies the nesting season between February 1 and April 30. CDFW considers the nesting season in Napa County to be between February 1 and August 31. During this timeframe surveys should be conducted in all suitable habitat associated with Project activities. Nest surveys should follow standard biological survey methods, and survey effort should be tailored to detect specific species, with visits planned at appropriate timeframes/intervals to detect nesting activity. If an active nest is found, the PEIR should identify appropriate mitigation measures such as buffer to ensure compliance with Fish and Game Code sections 3503, 3503.5, 3511 and 3513; the California Endangered Species Act (CESA) if applicable, and the federal Migratory Bird Treaty Act of 1918.

6

Exclusion and Buffer Areas

General Best Management Practices (BMP) listed on page 2-58 of the PEIR require “a buffer of reasonable distance, when feasible, from known special status species locations. Nonchemical methods are acceptable within the buffer zones when designed to avoid damage to any identified and documented rare flora and fauna.” Because buffer areas will only be practiced when feasible, the PEIR should be revised to identify potentially significant impacts to special-status species if the buffers are not implemented. Additional mitigation measures should be developed in consultation with CDFW when buffers cannot be implemented.

7

Analysis of Special-Status Species Occurrence

Tables 4.3 and 4.4 provide a list of special-status species, relative locations and associated habitat types. Proposed BMPs rely on databases such as the California Natural Diversity Database (CNDDDB) to assess special-status species presence. Reliance on this approach will likely underrepresent the scope of impacts and their significance on special-status species. The CNDDDB contains only records of species and natural communities which have been observed and documented. Absence of data in such sources does not confirm that the species is absent from the Project area.

8

California Endangered Species Act

CDFW has regulatory authority over projects that could result in the “take” of any species listed by the State as threatened, endangered or candidate, pursuant to Fish and Game Code §2050 et seq. Table 2.9 (page 2-64) requires written authorization from resource agencies prior to vegetation maintenance activities in locations where California freshwater shrimp may occur. Please be advised that a CESA Permit, pursuant to Fish and Game Code §§2050 et seq., must be obtained if the Project has the potential to result in take of species of plants or animals listed under CESA, either during Project activities or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation;

9

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therefore, the PEIR must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the proposed Project will impact CESA-listed species, early consultation with CDFW is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. More information about the CESA permit process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>.

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 9 cont'd

Lake and Streambed Alteration Agreement

CDFW may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Fish and Game Code §1600 et seq. Notification is required for any activity that will divert or obstruct the natural flow, change the bed, channel, or bank including associated riparian or wetland/marsh resources, use material from the stream/channel bed, or substantially adversely affect fish and wildlife resources. Issuance of an LSAA is subject to CEQA. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document for the Project. Therefore, the CEQA document must specify impacts, mitigation measures, and include a mitigation monitoring and reporting program. More information about the LSAA process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/LSA>.

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CDFW appreciates the opportunity to provide comments on the PEIR for the proposed Project and is available to meet with you to further discuss our concerns. If you have any questions, please contact Ms. Suzanne Gilmore, Environmental Scientist, at (707) 944-5536; or Ms. Karen Weiss, Senior Environmental Scientist (Supervisory), at (707) 944-5525.

Sincerely,



Scott Wilson
 Regional Manager
 Bay Delta Region

cc: State Clearinghouse

Mr. Ryan Olah
 U.S. Fish and Wildlife Service
Ryan_Olah@fws.gov

Mr. Douglas Hampton
 National Marine Fisheries Service
douglas.hampton@noaa.gov

RESPONSE**S-CDFW****Department of Fish and Wildlife
December 31, 2014****Scott Wilson, Regional Manager****1**

CDFW's summary understanding of the District's (NCMAD's) ongoing IMVMP is substantially correct. However, it should be noted that sites requiring vector control in Napa County include winery waste ponds and the expanding tidal marsh areas including the San Pablo Bay National Wildlife Refuge (NWR). The District has and continues to maintain cooperative relationships with public and private landowners and managers for regular surveillance and source control activities at these waste ponds and other "problem sites" such as Cabral's Dairy, Keller and Zeller property, Huichica Creek Unit, West End Land Club, South Stanly Ranch, American Canyon Unit, Fagan Marsh, American Canyon Mitigation Ponds, South Wetlands Opportunity Area, Deetjen's Duck Club, City of Napa Sanitation ponds and spray field, City of St. Helena wastewater ponds and spray field, City of Calistoga wastewater ponds, and multiple Napa County Flood Control channels. Furthermore, the proposed activities are an ongoing series of related actions that represent a continuation of the existing mosquito and vector control program based on integrated vector management strategies that the District has been implementing since its inception. The District was formed in 1925 and has been operating from its facility in American Canyon since 2002.

The District obtains a regional 5-year permit from USACE, the SWRCB, and BCDC for minor physical control activities in tidal marshes. Several of the best management practices (BMPs) for physical control include previous permit requirements. Projects that are proposed annually under this permit are submitted to CDFW and other resource agencies for review and comment prior to commencement of work. This PEIR will be used for renewal of the existing regional permit which expired February 1, 2013 (and the BCDC permit expired April 1, 2014). In short, much of the work done by the District to maintain circulation in ditches and drainage channels is ongoing work using BMPs listed in Table 2-9 and is performed in strict accordance with permit requirements.

2

In comments on NCMAD activities under the Surveillance Alternative, CDFW should note that:

- > Most of the access ways are preexisting, and few new access pathways are created in any year
- > Access ways are only 3 to 6 feet wide (p. 4-61 of the Draft PEIR). Vegetation is only trimmed when necessary to allow access for vector management activities.
- > The majority of surveillance activities occur within developed areas, such as vineyards, water treatment plants, and residential areas (p. 2-9 of the Draft PEIR).

We disagree that impacts to special status species may be significant due to habitat loss or consistent disturbance. The CEQA definition of substantial adverse change/significant impact vs less-than-significant impact (minor, short term, limited effects) is based on the physical change to the environment over the existing condition (May 2012 when the NOP was issued). Habitat loss is extremely limited because few new access ways would be created in natural areas and because of the small size of these access ways (see above). The District averages less than 300 yards per year of pathway maintenance in riparian corridors, of which less than 15 percent is new; and in most years new paths are not created. The area of disturbance is extremely small in relation to the total potential sensitive species habitat area. Moreover, to offset this access disturbance, District staff perform beneficial cleanup activities. Staff find and remove tires, trash, buckets, old appliances, pieces of metal, etc., and properly dispose of them at landfills and/or recycling centers. To remove the trash sometimes requires access be made to get the "garbage" out. No access has been wider than 6 feet and, as stated in the Draft PEIR (p.4-61) is usually about 3 feet wide and only what is the minimum needed.

Surveillance is a monitoring activity that focuses on sampling, not habitat alteration. Vegetation trimming to facilitate surveillance by itself would have a less-than-significant impact on habitat and the species depending on that habitat, especially since vegetation is being trimmed/maintained and not completely removed or cleared (with the exception of cleaning ditches in tidal marsh habitat). The District also disagrees that Program activities would result in consistent disturbance or that any such activities would result in significant impacts. As explained on page 4-61 of the Draft PEIR: “These disturbances would be very minor and of short duration, so would likely not cause these animals to abandon the area.” Surveillance is also an infrequent activity. In any given area, District staff would typically be on site to conduct surveillance activities less than once every ten days during periods favorable to mosquito breeding. Quantifying number of breeding periods annually is problematic as weather patterns and site conditions (temperature, rainfall, tidal regimes, hydroperiod, etc.), species of vector, time of year, and ease of access all play an important role in determining surveillance patterns, frequency of site visits, and time spent on the site. Frequency and duration of visits will vary and must in order to properly and effectively implement IPM principles and integrated vector management practices. Vector control is by its very nature an adaptive integrated ecosystem management process.

CDFW cites a concern regarding the potential for disturbance in tidal marshes. NCMAD engages in the following BMPs to avoid or minimize disturbance:

- > When working in state or federally managed wildlife refuges, the District informs and/or coordinates its surveillance (and treatment) activities with the appropriate resource agency staff to minimize impacts (BMPs A1 and A2).
- > District staff receives training from USFWS and CDFW biologists regarding special status species (BMP A4) and uses existing access routes whenever available (BMP A3).
- > Most of the other BMPs cited in Table 2-9 and included as part of the project minimize impacts to special status species or their habitats in areas where they are likely to occur. These BMPs are implemented in all areas where special status species have the potential to occur, not just the wildlife refuges/management areas.
- > BMPs B1 through B6, C1 through C8, D1 through D8, and E1 through E4 were specifically developed to avoid impacts to tidal marshes and associated special status species including Ridgway’s Rail and salt marsh harvest mouse. These measures were developed in cooperation with regulatory agency staff and based on the latest USACE permit requirements.

CDFW recommends the District only remove salt marsh vegetation using hand tools outside of the breeding season (note, this activity is part of the Vegetation Management Alternative, not Surveillance).

- > The District already implements this recommendation (see BMPs C5, D3, E4, F2).
- > Pickleweed is removed from small order channels and ditches to facilitate access for sampling, improve water circulation, and reduce use of pesticides. All work is done with hand tools.
- > In addition, vegetation removal within tidal marshes is carried out to remove nonnative species, and this, only at the request of the refuge manager and under his/her supervision and guidance. Again, this work is only done with hand tools.
- > It is the District’s understanding that CDFW staff use vehicles to travel out near to a desired site and then walk in from where the vehicle was parked. District staff essentially do the same thing, whenever possible and reasonable. Thus the District’s occasional use of vehicles is consistent with ongoing wildlife area management activities and would not represent a substantial adverse change that is reasonably likely to have a significant effect on protected species or their habitat.

- > When it is necessary to move through salt marsh habitat using vehicles (e.g., it is not always practical to avoid use of motorized equipment for access given the large size of some sites), vehicles are kept on pre-existing access ways as much as practicable (BMPs A3, B2) and are operated in a manner to minimize impacts (A8, B2).

There are times when many large areas are flooded at the same time, and the limitation of time and staff may require that they access known historical breeding sites with ATVs to facilitate timely monitoring and effective least toxic treatment if breeding is found. There is a narrow time window for many of the materials the District uses to effectively manage vectors (i.e., Bti and Bs works on immatures, typically first through early fourth instar; methoprene works on larvae only, etc.). Other factors such as weather conditions, temperature (ambient and water), access issues, and limited staffing necessitate the occasional use of less favorable access methods than walking for monitoring and treatment. Without this approach, the District is relegated to adulticiding large areas (to a much greater extent than at present), a method that is least desired by the District and the public that it serves.

The impact analysis in the Draft PEIR relied on these measures to reach the preparers' determination that surveillance activities would have a less-than-significant impact on special status species and their habitats.

3

Regarding CDFW's comment to analyze physical control and vegetation management activities conducted by landowners at the District's request, the following clarifications regarding coordination with private landowners is provided.

- > Virtually none of the work that ends up being done by landowners is done in sensitive habitat areas. Landowners are most often focused on other conditions that clearly have no natural habitat value or large scale effect, such as cleaning up swimming pools, removing water from urban containers, etc.
- > For problem stock ponds, possible vernal pools on private lands or areas that look like they could be sensitive habitats or harbor special status species, the District notifies regulatory agencies while also providing landowners/managers guidance about how vector control work may be accomplished within the framework of contacting and working with resource agencies and acquiring required permits. It is District policy to advise landowners that contact with and coordinating with resource agencies is required prior to commencing any work within wetlands, sensitive habitats, and areas where there is a potential for the presence of special status species.
- > Work by third parties at District request is rare and limited. In the last five years the District has not requested work be done by private landowners. If such a request were made it is District policy to make available and inform the landowner that contact with regulatory agencies is required to address required permits and to identify potential sensitive habitats and special status species concerns and protection measures prior to implementation of any work. Requests have been made of public agencies (e.g., Napa County Flood Control and Water Resources, City of American Canyon, City of Napa, Napa Valley Community College, and CDFW). The requests made were to improve water flows in channels, improve water management, improve access to a breeding site, and repair a flood gate.

The District's public education program for landowners involves mostly small scale, back yard or commercial/industrial building site maintenance activities that would most often be exempt from CEQA as part of the landowner's landscaping, or as minor alterations in land, water, and vegetation on existing officially designated wildlife management areas or fish production facilities which result in improvement of habitat for fish and wildlife resources or greater fish production (CEQA Guidelines Section 15304). Some birds would benefit from mosquito control to protect them from WNV. Presence of special status species is not an unusual circumstance in an officially designated wildlife management area, since those areas were specifically established for such species (among others). Where larger scale actions are needed at sewage treatment ponds or flood control facilities or for some aquatic habitat restoration projects, it is the property

owner's responsibility to obtain the necessary permits and conduct CEQA compliance if required for the overall project. The District provides guidance on what should be done to minimize mosquito breeding and improve vector control onsite. In short, the District has the authority to require physical modifications but the landowner has the responsibility to implement the recommendations, which include complying with all regulatory requirements (permits, habitat and special status species protection measures, etc.). In some cases, maintenance responsibility for mosquito control projects has been taken over by city and county public works agencies. Information on authority and implementation responsibilities is provided in the PEIR Section 1.1.3 and clarified here and in text changes for the Final PEIR.

Concerning what happens if the landowner/land manager fails to control the mosquito and/or vector population posing a threat to human and animal health, the District may undertake abatement proceedings and obtain financial reimbursement from the property owner pursuant to Health and Safety Code Sections 2060 - 2067. Abatement proceedings are highly unusual, a least preferred approach, and have only been implemented once in the last 30 years. District policy is to work cooperatively with landowners and land managers to remedy vector breeding issues. Protection of sensitive habitats and special status species, careful site access, and use of least toxic methods are effectively implemented using sound IPM practices and techniques. The District recognizes that collaboration and cooperation is essential for timely, least hazardous, and most effective vector management that also includes protection of natural resources as a long term strategy for vector control.

The full scope of the District's potential activities under the Physical Control and Vegetation Management Alternatives are described sufficiently in the PEIR and in these responses. The District will not perform work that has the potential to result in significant impacts not analyzed in the PEIR. The District also has very good relationships with landowners and stewards/managers which in the past has made requesting small-scale vegetation management, ditch clearing, fixing malfunctioning septic tanks and associated drain fields, and changes in water management practices a valuable component of the District's mosquito management program. The District has been cognizant of existing permits (PEIR Section 2.8), sensitive habitats, and special status species in any areas where it is requesting landowners/managers to assist the District. Where the District and/or landowners do not possess required permits for physical control or vegetation management activities, the District does not and will not perform work, nor have the landowner perform work.

In summary, the extent of any disturbance to habitat by landowners at District request is very small and temporary/not permanent, so it would not likely result in a permanent loss of habitat or other substantial adverse changes that are reasonably likely to harm sensitive species.

4

NCMAD has been performing vector management at the same or similar sites since 1925, and current staff are very experienced with the access points, habitats affected, and potential for special status species occurrence in the District's more sensitive habitat areas. After almost a century of work in and around sensitive habitat areas the District has no evidence to suggest that its activities are having adverse effects on the species or their habitats. The District attributes its success in providing effective public health protection while also safeguarding sensitive species and their habitats to the high level of training, education, adherence to scientifically sound BMPs and ongoing coordination and consultation with resource agencies with specialized expertise.

The District values education and emphasizes and provides for specialized training of staff relevant to its mission and duties. Not only does the District make available and require that all its staff receive and successfully complete annual health and safety training, but it also requires all staff receive continuing education concerning Napa County ecological systems, sensitive habitats, and special status species. This training comes in the form of: (1) formal sit down and out in the field sessions with biologists, ecologists, and recognized experts in the field (including resource agencies); (2) required reading

(professional and refereed journals and other literature); (3) continuing education classes; (4) seminars and webinars; and (5) sessions with management and the District scientist.

The term “qualified or professional biologist” lends itself to subjective interpretation and evaluation. Different institutions, and for that matter individuals, will have different requirements for course work, training, experience, and even specialization in order to meet their definition of “qualified or professional biologist.” Although most District staff do not hold a degree in biology, they have had and continue to receive District sponsored and funded education that allows them to understand the environments within which they perform their work. Emphasis is placed on identification and recognition of special status species and sensitive habitats, and on how to perform their work in such a manner as to preserve natural resources while also effectively managing vector populations. The District also maintains a large library of specialized journals and books concerning birds, insects, plants, mammals, aquatic organisms, and vector identification and management that is readily available to all staff for their use. Research and curiosity is encouraged and supported. For example, District staff has recently begun development of a database of organisms found, known to have been found, and/or suspected of being present in the sites where they perform vector management activities. It is their belief, and that of the District, that this information will prove useful not only to themselves and the District, but also to anyone interested in knowing more about the different organisms found within the many habitats that exist within Napa County.

District staff could also be trained to not only identify special status plants throughout the season but also to carefully mark locations for avoidance.

The District believes that its ongoing program and standards for staff education and training are adequately protective of sensitive species and their habitats. However, to address the concerns raised in the comment, the District reiterates and clarifies its commitment to the following policies and currently implemented practices.

- > District staff members holding the position of Biologist, Scientist, or higher, who must also have a degree in the biological/ecological sciences from an accredited institution, will utilize the CNNDD as a baseline (starting point) to begin the assessment of sites for presence and potential presence of special status species. Use of HCP and NCCP documents (including adjacent counties), reports (published and unpublished) by consultants and research scientists, and consultations with biologists and resource agency personnel will also be utilized to verify data, observations and update the District’s information concerning special status species and sensitive habitat areas. This information will then be used to determine whether additional assessment(s) may be needed to support the District’s goal of protecting sensitive biological resources while also providing effective integrated vector management for a given site. If in the professional judgment of the District’s biologist/scientist, additional assessment and/or protective measures are necessary to assure identification and protection of special status species, the District will implement such assessment and/or protective measures. The District biologist/scientist must also undergo specific special status species-related training by resource agency staff (e.g., avoidance and recognition training), be able to effectively communicate District operations to resource agency staff and biologists, as well as convey information obtained to the District’s field staff. Staff members at NCMAD who do not have this specialized knowledge and experience will work under the direction of the District’s biologist/scientist that has knowledge and training concerning special status species and sensitive habitats and will receive the appropriate accredited training and coursework concerning special status species and sensitive habitats. Consistent with its current operations, District staff members will implement the BMPs stated in the PEIR in habitats where special status species may be present (whether confirmed or suspected). The District biologist/scientist(s) will regularly communicate with District staff regarding confirmed and potential locations of special status species as well as the precautionary measures to be implemented. The District has performed its IMVMP at sites currently known to support vector production (e.g., tidal marsh, seasonal wetlands, riparian corridors) for many years and has ongoing communications with resource agency staff. If vector activity is discovered or suspected at new sites

relevant to the District's operations and interagency communications, the District will contact the appropriate resource agency staff to coordinate its activities and minimize impacts to sensitive habitats and species.

- > District will regularly communicate with resource agency staff regarding vector management operations, and flora and fauna in sensitive habitats (BMPs A1 and A2) which will also assist in determining the likelihood that special status species occur in a given area.

5

Given the size of the District's service area and the hundreds of individual surveillance and control sites that the District covers, the District cannot commit to performing "protocol" surveys at all locations for surveillance and for every treatment. Moreover, protocol level surveys at all treatment locations are not necessary to ensure that impacts to sensitive species and their habitats will be less than significant. Implementation of the protective measures included through the BMPs and additional measures described in Response 4, above, are sufficient to ensure that the District's ongoing program activities will not have a substantial adverse effect on sensitive species or their habitats.

The PEIR analysis assumes that presence will be determined before physical or vegetation management "treatment" is conducted based on the BMPs. For selected Physical Control or Vegetation Management treatments, i.e., those which may require permits from CDFW, USFWS, USACE, or RWQCB, surveys will be conducted using the latest databases (CNDDDB and District), published reports, and consultation with resource agency staff. NCMAD will assume presence for surveillance activities.

NCMAD understands that CDFW wants assurance that the biological surveys will be able to adequately determine presence of a special status species if potentially present. Surveys would be species-specific (i.e., fish, frogs, salamanders, various birds, plants, etc.) and somewhat habitat-specific and could be generalized for many groups of organisms (i.e., floristic surveys for plants in the appropriate seasons; possible protocol surveys for those species for which they are available such as CRLF, CTS, etc.; visual surveys for birds; etc.). However, it is known and understood that protocol surveys can be quite intensive, time-consuming (over multiple seasons or years), and costly, and the District does not have the financial resources to do them for its ongoing vector management activities (in contrast to the permanent, construction-related activities of land development or utility pipeline projects where protocol surveys are most often performed). For some species, a survey may require capture of the species, which would require special permits (i.e., fish in waters with low visibility), which would be infeasible in light of the time sensitive nature of the District's vector management activities when preparing for mosquito control outside of the wildlife refuges/management areas. See Response 4 above. Inside the refuges, District staff contact and work with the appropriate refuge staff to review control activities to be performed and rely on the refuges' surveys and data for special status species.

Specific survey protocols for special status species and their habitats can be developed for those specific sites determined to require such surveys and in consultation with CDFW. A District staff biologist with approved training for a particular species (or other approved biologist) would conduct the initial evaluation for sites that may require protocol surveys. Protocol surveys would need to be done by an approved biologist. Criteria for the initial evaluation would be developed in consultation with CDFW (and USFWS and NMFS as needed) and could be incorporated into the MMRP. District staff will meet with CDFW to review sites most often requiring physical/vegetation control measures and develop a plan for determining presence of special status species or presuming presence of such species and what additional protection measures (if any) are needed.

6

Concerning the CDFW comments on nesting season and nest surveys:

The PEIR and BMP F6 will be revised to indicate that the nesting season in Napa County is between February 1 and August 31 (rather than ending April 30) ; therefore, vegetation management work will be restricted to the period between September 1 and January 31 (revision to BMP F6), or as indicated in a project permit. If such work is required outside of this period, this work shall not commence until appropriate resource agencies consultations have occurred and measures to avoid or substantially lessen significant adverse effects to potentially affected sensitive species are identified and implemented.

7

Regarding comments on exclusion and buffer areas for chemical control, the District will provide a specific/equivalent measure that would be implemented when buffers are not feasible as determined by a District biologist/scientist based on sound science, peer reviewed journals, and consultation with resource agencies. Such a measure could involve the application method to achieve greater precision including highly specific, targeted application by handheld equipment. Defining what is a reasonable or necessary buffer (or an alternative measure) probably could be based on either a site specific consultation with resource agency staff and/or a reference to/reliance on guidelines such as those previously suggested. Note that BMP (A7) already specified further agency consultation when chemical treatments cannot be avoided within a reasonable buffer, and reasonable in this case is suggested to be 25 feet. However, a range of buffers for chemical and nonchemical activities can be developed in consultation with resource agencies

Even if special status species were present for a chemical treatment, it is unlikely they would be impacted by vector chemical treatment alternatives given the specificity of vector control chemicals and the restricted use and manner in which they are/would be deployed. For herbicides, this is more difficult, as some special status plants can only be distinguished at certain times of year, so vegetation management using herbicides would require a relatively long planning horizon (months to years), unless that area being treated would not support any special status plant species. Vegetation management for vector control is highly localized.

8

Regarding comments on the District's approach to the evaluation of special status species occurrence, the District acknowledges that lack of identification in CNDBB or other databases is not conclusive evidence that no sensitive species are present in potential treatment areas, or that they necessarily would not be in the future. However, the District presumes presence where suitable habitat occurs based on biological investigations, which may include some protocol surveys at selected locations where District activity is of greatest concern. Moreover, visual observations by staff in the field can assist in minimizing impacts and in developing the District's own database of species observations.

Given the large size of the Program Area and the number and diversity of sites treated, it is not feasible for the District to conduct detailed surveys at every location. The District is doing everything feasible short of this to determine the potential presence of special status species through advance research and onsite visual observations by trained staff at the time of surveillance and control/treatment. The District also is implementing every feasible precaution and BMP to avoid or minimize impacts to special status species.

Information from databases is just one tool to assess potential impacts (see Response 4 above). Because the PEIR covers a long-term, ongoing program over a vast area (504,320 acres or 788 square miles), it is not feasible to know now whether a protected species will be present in a potential treatment area at the time treatment is proposed. For this reason the Draft PEIR identifies the types of species that may be

present in the Program Area and their habitat (Tables 4-3 and 4-4), and impacts are evaluated by habitat type and type of activity, based on the potential species that could occur in those habitat types.

District policy is that its IMVMP be an adaptive management program protecting sensitive species and habitats while also providing effective vector management that utilizes IPM principles. BMPs, which are an integral part of the Program, are designed to ensure that the potential for special status species to occur is assessed on an ongoing basis throughout the life of the IMVMP, relying on a combination of tools including database searches, individualized habitat assessment and, where indicated based on habitat type, site-specific inspection and/or surveys, as warranted, as well as ongoing discussion of the District's activities with resource agencies. BMPs are regularly reviewed and updated to reflect the best available information and science. Furthermore, it is District policy that new BMPs be developed and added as needed to address new species and habitats of concern.

See also Responses 4 and 5 above.

9

Concerning the comments that a CESA Permit is required for projects that could result in the "take" of any listed species, and CESA Permit being subject to CEQA documentation, the following response is provided.

This Programmatic EIR was not written with the intent of meeting detailed data/site-specific requirements for a CESA permit. The District acknowledges that additional environmental documentation and area specific impact assessments may be required in obtaining permits if necessary, including CESA, ESA, LSAA, and Clean Water Act section 401 and 404 permits. Rather, this PEIR meets CEQA requirements for a Program covering a large area with impact determinations based on thresholds of significance and professional judgment that reflect CEQA's definition of a significant impact – a substantial adverse effect.

Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Under the federal ESA, the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Under the federal ESA, "harm" includes any act which actually kills or injures fish or wildlife. This definition emphasizes that such acts may include significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Based on the BMPs and additional mitigation measures included in the Draft PEIR, with modifications based on agency consultations and public comments for this responses to comments component of NCMAD's Final PEIR, and based on its long history and extensive experience implementing the Program activities, the District does not anticipate that its actions will result in take of any species.

Vector control actions could result in some organism potentially being unintentionally harassed (i.e., prompted or forced to temporarily leave its specific location). There is the potential for such inadvertent disturbance any time humans come into proximity of protected species, including through visits to or management of wildlife refuges. However, it is not reasonably foreseeable that such disturbance would constitute harm that actually kills or injures fish or wildlife. If physical surveillance or treatment of areas occupied by special status species were avoided, then there would be no potential for take. It also is not expected that any District IMVMP activities would cause "significant habitat modification or degradation" that would significantly impair essential behavioral patterns of fish or wildlife. Potential impacts associated with maintenance of drainage ditches and limited vegetation management can be avoided or minimized using the BMPs and mitigation measures identified in the PEIR. It should also be noted that there is the option of using chemical treatment if physical control methods were to be avoided. Furthermore, all activity at the San Pablo Bay National Wildlife Refuge to control mosquitoes is coordinated with the refuge manager/staff, and the need to address mosquito populations and breeding habitat at state/county /city parks and lands is also coordinated with the staff of these areas, which further minimizes the potential for any direct or indirect take of species.

Obtaining a CESA permit is not required but would provide the District with immunity from take liability under CESA if take were reasonably foreseeable. The need for any project-level CEQA review at a particular source control/treatment site would be considered at the time the District applied for a CESA permit if required. If it is determined that a CESA permit is required for any Program activities, the PEIR will be revisited as indicated in Section 1.8. To date, none of the vector control districts involved in the SF Bay Area and Salinas Valley has been required to obtain a CESA permit for ongoing vector management activities.

In 2015, CDFW determined that CDPH, and the districts operating under a valid Cooperative Agreement with CDPH to conduct surveillance, prevention, or control of vectors and vector-borne diseases, are not required to obtain a scientific collecting permit (SCP) under Fish and Game Codes Sections 1002, 4005(e), and 4011. A SCP is required for any scientific study conducted by or in collaboration with CDPH or local agencies that is not routine surveillance and control activities and includes take of animals or plants (CDFW 2015, attached). NCMAD has a Cooperative Agreement with CDPH that is described in Section 1.1.3 of the Draft PEIR.

10

Under the California Fish and Game Code, Lake and Streambed Alteration Agreement requirements apply to any activity that will:

- > substantially divert or obstruct the natural flow of any river, stream or lake; or
- > substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- > deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake; and
- > substantially adversely affect fish or wildlife.

The District does not engage in large-scale operations affecting lakes and streams (e.g., soil movement, removal of vegetation with branches and stems that exceed 4 inches in diameter, removal of large amounts of vegetation), nor does the District request that landowners to engage in such activities.

Based on its history of implementing the Program alternatives, the District does not anticipate that its physical control and vegetation management activities will result in diversion or alteration of natural flow or modify the bed, channel, or bank except to improve circulation of water and remove vegetation that creates mosquito breeding habitat, and in no event would any such activities be likely to be “substantial” within the meaning of the Fish and Game Code. For example, under surveillance, taking a water sample to check for mosquito larvae would not modify flows or material from the bed, channel, or bank. BMPs G1 through G17 address maintenance activities in channels/water facilities in waters of the U.S., including management of sidecast spoils in G16. However, the District will confer with CDFW to provide clarifications on Program activities and review CDFW concerns to determine if a LSAA is required for any particular activity. The need for any subsequent project-level CEQA review at a particular source control/treatment site would be considered at the time the District applied for a required LSAA permit.

Reference (attached)

California Department of Fish and Wildlife (CDFW). 2015. Letter to Karen Smith, MD, MPH, Director and State Health Officer, CDPH, from Charlton H. Bonham, Director, CDFW. April 14.



State of California – Natural Resources Agency
 DEPARTMENT OF FISH AND WILDLIFE
 Director's Office
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EDMUND G. BROWN JR., Governor
 CHARLTON H. BONHAM, Director



April 14, 2015

Karen L. Smith, MD, MPH
 Director and State Health Officer
 California Department of Public Health
 P.O. Box 997377
 Mail Stop 0500
 Sacramento, CA 95899-7377

Attn: Vicki Kramer, Chief
 Vector Borne Disease Section
 P.O. Box 997377, MS 7307
 Sacramento, CA 95899-7377

Dear Dr. Smith:

Re: Department of Fish and Wildlife (CDFW) scientific collecting permits (SCPs) and other authorities pertaining to vector and vector-borne disease surveillance and control

Recently representatives of California Department of Public Health (CDPH) and entities responsible for monitoring and protecting the public from human health risks posed by mosquitoes, ticks, fleas and other vectors met with Senior Policy Advisor Mark Stopher to discuss various sections of the Fish and Game Code (FGC) and their relationship to your work. It is our understanding that recently, when (CDPH) attempted to renew a state park permit for tick collecting, California Department of Parks & Recreation staff stated they now require permit applicants to provide evidence of SCP for terrestrial invertebrates or alternatively, documentation indicating that such a CDFW permit or approval is not needed for the collections/methods in question. This letter is to clarify CDFW's understanding of statutory authorities for vector surveillance and control, as well as interpretation of the Fish and Game Code, including any requirement for a SCP, in the vector surveillance and control context.

The Health and Safety Code (HSC) evidences clear legislative intent to provide broad authority to entities conducting surveillance, prevention and control of mosquitos and other vectors (e.g., HSC §§ 2001 (c), 2040, 2041, 2047 and 2055). Surveillance and control activities typically involve animals described as "vectors" in the HSC § 2002(k). Mammals that are vectors or reservoirs of vector-borne diseases that are commonly subject to surveillance or control activities are typically "non-game mammals" (F&GC § 4150).

The recent increase in West Nile virus activity, and expanding distribution of invasive mosquito species such as *Aedes aegypti*, emphasize the necessity of on-going surveillance to monitor vectors and disease trends to protect public health. These

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California Department of Public Health
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activities are usually, though not always, located in proximity to human populations or developments.

We have also reviewed several examples of Cooperative Agreements developed by CDPH, in partnership with the Department of Pesticide Regulation and Agricultural Commissioners, and signed by local vector control agencies. These demonstrate that CDPH maintains a close relationship with local vector control agencies throughout California for the purpose of maintaining a statewide surveillance and control program (HSC § 116110). This relationship includes consultation, technical assistance, and the certification of vector control technicians. The training and certification requirements are enforced through the Cooperative Agreements that CDPH and local agencies renew annually, under the terms and conditions prescribed by CDPH (HSC § 116180(a)). CDPH conducts regular on-site reviews at local agencies for adherence to the terms of the agreements.

FGC § 1002 sets forth CDFW's authority to issue SCPs. In doing so, the section provides that CDFW may issue permits for the take of animals and plants, for scientific, educational or propagation purposes. FGC § 4005(e) and § 4011 exempt the taking of mammals in certain circumstances relating to control of vectors from the prohibition of FGC § 2000.

In consideration of the above, CDFW has determined that CDPH, and entities which are operating under a valid current Cooperative Agreement with CDPH to conduct surveillance, prevention or control of vectors and vector borne diseases:

- Are not conducting science, educational or propagation activities within the scope of FGC § 1002, and a SCP is not required.
- Are exempt from the requirement for a license to trap fur-bearing or nongame mammals pursuant to FGC § 4005(e) and § 4011.
- Do not require a SCP when taking blood samples from birds when those birds are collected for other purposes by individuals who already have a SCP or bird banding permit for that work.
- Do not require any permit from CDFW when collecting or examining vectors (e.g., fleas or ticks) taken from wildlife which were lawfully collected by another entity including, but not limited to, U.S.D.A. Wildlife Services.

A SCP is required for any scientific study conducted by or in collaboration with CDPH or local agencies which is not routine surveillance and control activities and includes take of animals or plants.

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None of the above is to infer that coordination by vector control agencies with landowners, including CDFW is not necessary. For CDFW lands, it is important for local vector control agencies to coordinate access and actions closely with CDFW to avoid unnecessary conflicts with our operations.

If you have questions, or further coordination on this issue becomes necessary, please contact Senior Policy Advisor Mark Stopher, at 530.225.2275 or at Mark.Stopher@wildlife.ca.gov.

Sincerely,



Charlton H. Bonham
Director

cc: Lisa Mangat, Acting Director
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3 Revisions to Draft PEIR

3.1 Introduction

This chapter presents revisions to text and appendices based on comments received, minor errors/errata discovered by the Draft PEIR preparers and/or District staff, clarification of technical material, and reorganization of selected biological material for clarification and to enhance readability. Additional information was added to Appendix B, especially to data in Table 6-1. **None of these text changes or additions result in any changes to the conclusions and determinations of significant impact.** In other words, no “less than significant” impacts were changed to “potentially significant” or “significant and unavoidable” impacts.

3.2 Text Revisions in Response to Draft PEIR Comments or District Identified Errors and Omissions/Clarifications

The sections below explain both content clarifications and typographical and transcriptional errors that were identified since the public release of the Integrated Mosquito and Vector Management Program, Draft Programmatic EIR on November 14, 2014. All page numbers refer to the PDF submittal in November 2014. Material to added is underlined; material deleted is shown with ~~strikethrough font~~.

3.2.1 Summary

Revisions are made as indicated below.

First paragraph page S-1 the last sentence is modified to read as follows:

The District, as Lead Agency under the California Environmental Quality Act (CEQA), has prepared this PEIR for their ongoing program of surveillance and control of mosquitoes and other vectors of human and animal disease and discomfort.

In Section S.1 Background, page S-1, the paragraph is modified to read as follows:

The District was established in 1925 to reduce the risk of vector-borne disease and discomfort to the residents of its Service Area. The District engages in activities and management practices to control mosquitoes and other vectors and to address specific situations within its Service Area (i.e., Napa County). These management practices emphasize the fundamentals of integrated pest management (IPM), specifically integrated vector management (IVM) wherein source reduction, habitat modification, and biological control are used when appropriate before using pesticides. When pesticides are used, they are applied in a manner that minimizes risk to human ~~health~~ and ecological health. To avoid or manage the risk to human and animal health requires effective, proactive vector-borne disease surveillance and control strategies that may fluctuate temporally and regionally. Factors that influence the selected strategies include mosquito and pathogen biology, environmental factors, land use patterns, and resource availability to support production of the vectors in quantities that threaten human and animal health.

In Section S.1.1 Vector-Borne Diseases in Program Area, page S-1 language is added to the third bullet which now reads as follows:

- > Rodent/rat-transmitted illnesses: leptospirosis, hantavirus pulmonary syndrome (HPS), tularemia, plague

In Section S.3 Public Involvement Summary on page S-3, the last bullet is modified to read as follows:

- > San Francisco Bay Regional Water Quality Control Board, Region 5

In Section S.3 Public Involvement Summary on page S-3, a bullet is added to the end and reads as follows:

- > San Francisco Bay Conservation and Development Commission

In Section S.3 Public Involvement Summary, on page S-3, the following language was added as the last paragraph to update the Summary for the Final PEIR and not as a correction to the Draft PEIR:

The District released its Notice of Availability (NOA) of a Draft PEIR on November 14, 2014, to 87 agencies and organizations. A public hearing was held to receive agency and public oral comments on the Draft PEIR content on December 16, 2014, from 6:30 pm to 8:30 pm, at the Town of Yountville Community Center, Heritage Room, 6516 Washington Street, Yountville, CA 94599. No one appeared to provide oral comments. The public comment period closed on December 31, 2014. Written comments were received directly from the California Department of Fish and Wildlife: Bay Delta Region. The State Clearinghouse reported that no state agencies submitted comments to them. Responses to written comments from CDFW are contained in a separate Responses to Comments document.

In Section S.4 on page S-3, the header of this section is modified to read as follows:

Areas of Known Public ~~Environmental~~ Concerns

In Section S.5 Proposed Program Alternatives, on page S-4, the following paragraphs are modified to read as follows:

The District's Program is an ongoing series of related actions for the proactive management of mosquito, yellow jacket, rodent, and other vector populations to minimize human/vector interactions and the associated risks of disease and discomfort. The District's activities involve the identification of vector problems; responsive actions to control existing populations of vectors, prevent new sources of vectors from developing, and manage habitat to minimize vector production; education of landowners and others on measures to minimize vector production or interaction with vectors; and provision and administration of funding and institutional support necessary to accomplish District objectives.

The District has, since its inception, taken an proactive integrated systems approach to mosquito and vector control, utilizing a suite of tools that consist of public education, surveillance, and physical (e.g., source reduction, vegetation management, water management), biological, and chemical control. These Program "tools" or components are described in the subsequent subsection as "Program alternatives" for the CEQA process (except for public education, which is exempt from CEQA). Program implementation is weighted heavily towards physical and biological control, in part, to reduce the need for chemical control. To realize effective and environmentally sound vector management, vector control must be proactive and based on several factors:

In Section S.5 Proposed Program Alternatives on page S-4, the following bullet is modified to read as follows:

- > Carefully monitoring and surveying for vector-borne diseases and their antecedent factors that initiate and/or amplify disease

In Section S.5 Proposed Program Alternatives on page S-5, the following paragraph is modified to read as follows:

The District has implemented a number of procedures and practices under current Program activities that would continue into the future for the Proposed Program. These BMPs represent measures to avoid, minimize, eliminate, rectify, or compensate for potential adverse effects on the human, biological, and physical environments and District Staff. Additional BMPs are part of the District's public education program and outreach to landowners and land managers; these represent measures to control mosquito and vector control used by public and private property owners within the District's Service Area. When the District recommends control measures to landowners and land managers, they are directed to contact and coordinate with resource agencies to address potential special status species concerns, sensitive habitats and potential permits prior to implementation of recommended vector control work. While similar to mitigation measures under CEQA, these District BMPs are already in use and would continue as part of the Proposed Program. Subsequent environmental impact assessments in this PEIR reflect the continued use of these measures, which are organized under the following categories:

In Section S.5 Proposed Program Alternatives on page S-5, the fourth bullet is modified to replace California Clapper Rail with its new name as follows:

- > Ridgway's Rail (RIRA)

In Section S.5 Proposed Program Alternatives on page S-5, the following paragraph is modified to read as follows:

The District will observe all state and federal regulations. The Districts will follow all appropriate laws and regulations pertaining to the use of pesticides and herbicides and safety standards for employees and the public, as governed by the USEPA, CDPH, and local jurisdictions (with some exceptions and where applicable). Although the products the District uses are all tested, registered, and approved for use by the USEPA and/or CDPH, the District provides additional margins of safety with the adherence to additional internal guidance based on their BMPs and the principles embodied in District IMVMP policies, where applicable.

In Section S.5.1.1 Surveillance on page S-6, the language is modified to read as follows:

Vector surveillance, which is an integral part of the District's responsibility to protect public health and welfare, involves monitoring vector populations and habitat, their disease pathogens, and human/vector interactions. Vector surveillance provides the District with valuable information on what vector species are present or likely to occur, when they occur, where they occur, how many they are, and if they are carrying disease or otherwise affecting humans. Vector surveillance is critical to the IMVMP because the information it provides is evaluated against treatment criteria to decide when and where to institute vector control measures. Information gained is used to help form action plans that can also assist in reducing the risk of contracting vector-borne disease. Equally important is the use of vector surveillance in evaluating the efficacy, cost effectiveness, and environmental impacts of specific vector control actions. Examples include field counting/sampling and trapping, arbovirus surveillance, field inspection of known or suspected habitats, maintenance of paths and clearings for access, and documenting public service requests, and surveys.

In Section S.5.1.3 Vegetation Management on pages S-6 to S-7, the language is modified to read as follows:

The species composition and density of vegetation are basic elements of the habitat value of any area for mosquitoes and other vectors, for predators of these vectors, and for protected flora and fauna. District staff periodically undertake vegetation management activities as a tool to reduce the habitat value of sites for mosquitoes and other vectors or to aid production or dispersal of vector predators, as well as to allow District staff's access to vector habitat for surveillance and other control activities. District staff's direct vegetation management generally consists of activities to reduce the vector habitat value of sites by improving water circulation or access by fish and other predators, reduce harborage, or to allow District staff's access for inspections and treatment.

For vegetation management, the District uses hand tools or may potentially use other mechanical means (i.e., heavy equipment) for vegetation removal or thinning and could apply herbicides (chemical pesticides with specific toxicity to plants) to improve surveillance or reduce vector habitats. Vegetation removal or thinning primarily occurs in aquatic habitats to assist with the control of mosquitoes and in terrestrial habitats to help with the control of other vectors. Vegetation management, when applicable to vector habitat management, may also be performed to assist other agencies and landowners with the management of invasive/nonnative weeds (e.g., spartina, pepperweed, arundo, tamarix, and ailanthus). These actions are typically performed under the direction of the concerned agency, which also maintains any required permits.

In Section S.5.1.4 Biological Control on page S-7, the following language is added at the beginning of this section:

Biological control of mosquitoes and other vectors involves the intentional use of vector pathogens (diseases), parasites, and/or predators to reduce the population size of target vectors.

In Section S.5.1.4 Biological Control on page S-7, the following section is added after the section on Pathogens to read as follows:

Parasites

The life cycles of mosquito parasites are biologically more complex than those of mosquito pathogens and involve intermediate hosts, organisms other than mosquitoes. Mosquito parasites are ingested by the feeding larva or actively penetrate the larval cuticle to gain access to the host interior. Once inside the host, parasites consume the internal organs and food reserves until the parasite's developmental process is complete. The host is killed when the parasite reaches maturity and leaves the host (*Romanomermis culicivorax*) or reproduces (*Lagenidium giganteum*). Once free of the host, the parasite can remain dormant in the environment until it can begin its developmental cycle in another host. Examples of mosquito parasites are the fungi *Coelomomyces* spp., *Lagenidium giganteum*, *Culicinomyces clavosporus*, and *Metarhizium anisopliae*; the protozoa *Nosema algerae*, *Hazardia milleh*, *Vavraia culicis*, *Helicosporidium* spp., *Amblyospora californica*, *Lambornella clarki*, and *Tetrahymena* spp.; and the nematode *Romanomermis culicivorax*. These parasites are not generally available commercially for mosquito control at present.

In Section S.5.1.4 Biological on page S-7, the language is modified to read as follows:

Predators

Mosquito predators are represented by highly complex organisms, such as insects, fish, birds, and bats that consume larval or adult mosquitoes as prey. Predators are opportunistic in their feeding habits and typically forage on a variety of prey types, which allows them to build and maintain populations at levels sufficient to control mosquitoes, even when mosquitoes are scarce. Examples of mosquito predators include representatives from a wide variety of taxa: coelenterates, *Hydra* spp.; platyhelminths, *Dugesia dorotocephala*, *Mesostoma lingua*, and *Planaria* spp.; insects, *Anisoptera*, *Zygoptera*, *Belostomidae*, *Geridae*, *Notonectidae*, *Veliidae*, *Dytiscidae*, and *Hydrophilidae*; arachnids, *Pardosa* spp.; mosquito-eating fish *Gambusia affinis*, *Gasterosteus aculeatus*; some species of bats; and birds, *anseriformes*, *apodiformes*, *charadriiformes*, and *passeriformes*. Only mosquitofish (*Gambusia affinis*) are commercially available to use at present, while the District supports the presence of the other species as practical. The District's application of mosquitofish in mosquito habitat is the most commonly used biological control agent for mosquitoes in the world. The District limits planting of mosquitofish to artificial man-made water bodies including ornamental fish ponds, water troughs, water gardens, fountains, and unmanned unmaintained swimming pools. Limiting the introduction of the mosquitofish to these sources should prevent their migration into habitats used by threatened, endangered, or rare species.

In Section S.5.1.5 Chemical Control on page S-7, the first paragraph is modified to read as follows:

Chemical control is a Program tool that consists of the application of nonpersistent (i.e., breaking down in less than a few days to a week) insecticides (and potentially herbicides ~~noted in Section 2.3.3 above~~) to directly reduce populations of larval or adult mosquitoes and other invertebrate threats to public health (e.g., yellow jackets) and the use of rodenticides to control rats and mice. If and when inspections reveal that mosquitoes or other vector populations are present at levels that trigger the District's criteria for chemical control – based on the vector's abundance, density, species composition, proximity to human settlements, water temperature, presence of predators and other factors – District staff will apply pesticides to the site in strict accordance with the pesticide label instructions. All of the chemical tools the District uses are evaluated in Appendix B, Ecological and Human Health Risk Assessment Report.

In Section S.5.2. Alternatives Eliminated From Further Consideration on page S-9, the second bullet is modified to read as follows:

- > *Inundative Releases*, of either sterilized or genetically altered vectors, is not considered by the District to be a practical or a currently feasible method of controlling vector populations. Genetically modified vectors are still experimental. They are also not commercially available at this time. The use of any genetically altered organisms, even mosquitoes, may also not be acceptable to the public.

In Section S.5.3. Environmentally Superior Alternative on page S-9, paragraphs 1 and 2 are modified to read as follows:

Table S-1 presents a summary of all the impacts associated with each Program alternative and, therefore, the overall Program of all of the alternatives combined. It is based on Table 15-1 which presents a summary of all the statements of impact with significance determinations. For Surveillance, Physical Control, Vegetation Management, Chemical Control, and Nonchemical Control/Trapping Alternatives, the impacts are either "less than significant" (LS) or "no impact" (N) with one exception.

There is only one potentially significant impact. The Chemical Control Alternative could subject people to objectionable odors. Impacts even with BMPs implemented could be **potentially significant but mitigable**. Certain VOCs, sulfur compounds, and chlorine compounds found in some pesticides emit characteristic odors when they evaporate (volatilize) into air, even at very low concentrations well within safety limits. Pesticides currently used or proposed for future emit phenols (e.g., lambda-cyhalothrin, deltamethrin, etofenprox, permethrin, or resmethrin). Materials such as Bti liquid and the adulticides pyrethrin and permethrin have an odor. Due to limited applicability, small quantities of these types of substances are typically used. The human sense of smell (olfactory system) is sensitive to these types of compounds as a warning mechanism, and some individuals are more sensitive than others. The Chemical Control Alternative would apply certain types of odorous treatments using hydraulic spraying and atomizing (fogging), which could result in drift of small droplets and gaseous vapors. Depending on atmospheric conditions (i.e., wind direction, wind speed, stability class), this drift could temporarily subject people to objectionable odors near a treatment area. The materials have been used in the current Program, and people have not complained about odors. However, it is possible that complaints could occur in the future despite public notification procedures about large-scale treatments.

In Table S-1, Napa County Mosquito Abatement District Summary Comparison of Impacts of Alternatives, the following biological resources impacts for both aquatic and terrestrial are changed from N (no impact) to LS (less-than-significant impact):

- > Movement of native resident or migratory fish or wildlife species for Surveillance, Physical Control, Vegetation Management, Chemical Control and Nonchemical/Trapping Alternatives.
- > Conflict with HCPs or NCCPs for Physical Control and Vegetation Management Alternatives.

In Section S.6. Summary of Environmental Impacts and Mitigation Measures on page S-10, the following language and a new Table S-3 were added to assist in clarification of the CEQA Program Alternatives as follows:

Tables S-2 presents the only ~~the~~ potentially significant impact for the Program alternatives, the mitigation required, and the significance following mitigation implementation. The Program alternative with potentially significant but mitigable impacts is Chemical Control. Mitigation measures represent actions the District will take to reduce ~~all of these~~ the impact to a level of insignificance. If mitigation ~~is~~ were not feasible or practical to implement, or simply not enough to reduce the impact to less than significant, then the impact ~~is~~ would be "significant and unavoidable." ~~All of~~ **The potentially significant impact associated with the Proposed Program's Chemical Control Alternatives can be mitigated to a less-than-significant level.**

Table S-3 presents a comparison of the Reduced Chemical Control Program and the No Chemical Control Program with the Proposed Program.

Table S-3 Comparison of Reduced Program Alternatives to Proposed Program

	Proposed Program	Reduced Chemical Control Program	No Chemical Control Program
<i>Alternative Component</i>			
<u>Surveillance</u>	<u>Included</u>	<u>Included</u>	<u>Included</u>
<u>Physical Control</u>	<u>Included</u>	<u>Included</u>	<u>Included</u>
<u>Vegetation Management</u> > <u>Physical Methods</u> > <u>Herbicides/Adjuvants</u>	<u>All physical methods and chemical options included</u>	<u>All physical methods and chemical options included</u>	<u>Includes physical methods only.</u> > <u>Excludes all herbicides and adjuvants.</u> > <u>Less effective with greater reliance on physical and mosquitofish options</u>
<u>Biological Control</u>	<u>Mosquitofish</u>	<u>Mosquitofish</u>	<u>Mosquitofish</u>
<u>Chemical Control</u>	<u>Use any or all pesticides and adjuvants, surfactants, and synergists listed in Chapter 2</u>	<u>Use less of or eliminate one or more of the following:</u> > <u>Lambda-cyhalothrin</u> > <u>Deltamethrin</u> > <u>Etofenprox</u> > <u>Permethrin</u> > <u>Resmethrin</u> > <u>Pyrethrin</u> > <u>Bti liquid</u>	<u>Use none of the pesticides and adjuvants, surfactants, and synergists listed in Chapter 2</u>
<u>Nonchemical Control/Trapping</u>	<u>Included</u>	<u>Included</u>	<u>Included</u>
<i>Impacts</i>			
<u>Biological Resource Impacts (excluding ecological health)</u>	<u>No Impact or Less-than-Significant Impact</u>	<u>No Impact or Less-than-Significant Impact</u>	<u>No Impact or Less-than-Significant Impact</u>
<u>Physical Resource Impacts (excluding air quality odors)</u>	<u>No Impact or Less-than-Significant Impact</u>	<u>No Impact or Less-than-Significant Impact</u>	<u>No Impact or Less-than-Significant Impact</u>
<u>Air Quality - Odors</u>	<u>Potentially Significant but Mitigable Impact</u> <u>Less-than-Significant after Mitigation</u>	<u>Less-Than-Significant Impact</u>	<u>No Impact</u>
<u>Ecological Health Impacts</u>	<u>Less-than-Significant Impact</u>	<u>Less-than-Significant Impact</u>	<u>Potentially Significant Impacts</u>
<u>Human Health Impacts</u>	<u>No Impact or Less-than-Significant Impact</u>	<u>No Impact or Less-than-Significant Impact</u>	<u>Significant and Unavoidable Impacts</u>

3.2.2 Chapter 1. Introduction

Revisions are made as indicated to the following sections.

1.1.3 Legislative and Regulatory Actions

On page 1-11, the following paragraph is inserted under the Cooperative Agreement between CDPH and local vector control agencies.

In 2015, CDFW determined that CDPH, and the districts operating under a valid Cooperative Agreement with CDPH to conduct surveillance, prevention, or control of vectors and vector-borne diseases, are not required to obtain a scientific collecting permit (SCP) under Fish and Game Codes Sections 1002, 4005(e), and 4011. An SCP is required for any scientific study conducted by or in collaboration with CDPH or local agencies that is not routine surveillance and control activities and includes take of animals or plants. (CDFW 2015)

1.3 Alternatives Considered in this Programmatic Environmental Impact Report

On page 1-14, the following correction is made to the first paragraph.

The District's IMVMP, like any IPM program, seeks by definition to use procedures that will minimize potential environmental impacts. The District's IMVMP employs IPM principles by first identifying the species and abundance of mosquitoes/vectors through evaluation of public service requests and field surveys of immature and adult mosquito/vector populations and, then, if the populations exceed predetermined criteria, using the most efficient, effective, and environmentally sensitive means of control. For all mosquito species, public education is an important control strategy. In some situations, water management or other physical control activities can be instituted to reduce mosquito-breeding sites. The District also uses biological control such as the planting of mosquitofish in some settings: ornamental fish ponds, water troughs, water gardens, fountains, and ~~unmanned~~unmaintained swimming pools. When these approaches are not effective, or are otherwise deemed inappropriate, then pesticides are used to treat specific pest-producing or pest-harboring areas.

3.2.3 Chapter 2. Program Description

2.3.5 Chemical Control Alternative

On page 2-27, Section 2.3.5.1.2 Larviciding Techniques, the second paragraph under Ground Larviciding Techniques is modified as shown.

Additional equipment used in ground applications of liquid formulations includes handheld sprayers (handcans or spray bottles), and backpack sprayers and blowers. Handheld sprayers (handcans) are standard 1- or 2- or 3-gallon garden style pump-up sprayers used to treat very small isolated areas. Backpack sprayers are either hand pump-up for liquid applications and have a 2- to 5-gallon tank or are gas powered with a chemical tank and calibrated proportioning slot. Generally, a pellet or small granular material is applied by hand or with a gas-powered backpack sprayer, blower, ATV-mounted Herd Seeder, or hand crank "belly grinder" machine designed to evenly distribute the pellets or granules. Hand chemical treatment (using methoprene pellets) of treeholes is performed on a limited basis when treeholes are less than 12 feet above ground level and not on steep slopes in terrain difficult for staff to access safely.

On page 2-45, Section 2.3.5.3 ~~Rat~~rodent Abatement, the second sentence is revised.

The District's rodent management program is primarily limited to site inspections and the provision of advice to property owners and concerned citizens. The District's limited use of rodenticides is a result of surveillance or in response to ~~District resident requests where the~~ District resident requests where the

identification of unusually large populations of rodents have been found as a result of citizen complaints.

2.7.3 Other Alternatives

On page 2-52, a sentence is added as indicated.

While no other alternatives are considered feasible or appropriate to achieve the District's Program objectives, including the No Chemical Alternative, and all of the Program alternatives would be combined into the District's Proposed Program, potential options or alternative methods within some of the Program alternatives could be used to modify those alternatives, thus minimizing impacts to the environment or replacing chemical treatments previously used. A Reduced Chemical Control Program was evaluated to reduce the impact to air quality from possible objectionable odors.

2.9.1 District Program BMPs

On page 2-56, California Clapper Rail (CCR) was changed to its new name of Ridgway's Rail (RIRA), and the affected BMPs (category D) were changed.

Table 2-9, BMP C4 is modified as follows.

Each day, ~~within 30 minutes of~~before commencement of vector habitat management (physical control, vegetation management), ~~SMHM will be flushed out of observations will be conducted for the presence of SMHM in the work area by staff trained by USFWS personnel or a biologist trained by USFWS personnel in the safe and effective methods for flushing SMHMs out of the work area~~ observing SMHM.

Table 2-9, BMP F6 is modified as suggested by CDFW in their comment letter of December 31, 2014.

Vegetation management work will be confined to ~~September~~ October 1 to January 31 ~~April 30~~ to minimize potential impacts to sensitive species, especially breeding birds. When work is expected to occur between February 1 and August 31 (nesting season) ~~April 30~~, additional consultations will occur with appropriate resource agencies to help identify locations of active nests of raptors or migratory birds as well as any additional protection measures that will need to be implemented prior to commencement of work.

Table 2-9, BMP H10 is modified as indicated.

Special ~~S~~status Aquatic Wildlife Species:

A CNDDDB search was conducted in 2012, updated in 2014, and the results incorporated into ~~Appendix A~~ for this PEIR. District staff communicates with state, federal, and county agencies regarding sites that have potential to support special status species. Many sites where the District performs surveillance and control work have been visited by staff for many years and staff is highly knowledgeable about the sites and habitat present. If new sites or site features are discovered that have potential to be habitat for special status species, the appropriate agency and/or landowner is contacted and communication initiated.

Table 2-9, BMP J2 was modified as follows.

Train employees on the safe use of pesticides, equipment and machinery, including vehicle operation.

3.2.4 **Chapter 3. Urban and Rural Land Uses**

3.1.2 **Public Lands**

On page 3-2, material is added for clarification.

Although vector control measures can be implemented on lands irrespective of land ownership, large expanses of aquatic and terrestrial habitat are commonly found on public lands, such as National Wildlife Refuges (NWRs) administered at the federal level by the USFWS. Table 3-1 presents the extent of federal land in the Program Area based on US Department of the Interior information. Many lands within the NWR system administered by USFWS are not eligible for payments in lieu of taxes and are not included in the table, which is focused on lands eligible for “payments in lieu of taxes.” Federal lands (e.g., BLM and NWRs) do not pay property taxes to the state, counties or local governments. To address this issue, the federal government has established a program called Payment In Lieu of Taxes (PILT) that makes nominal payments to the state and counties to help defray part of the tax revenues lost due to the establishment of designated federal lands (e.g., NWRs). Local governments are not eligible to receive the funds, as they are not a state or county taxing entity that has lost tax base due to federal action.

3.2.5 **Chapter 4. Biological Resources – Aquatic**

The chapter was reorganized for clarity and readability by moving material within the chapter and by adding environmental setting and evaluation methods and assumptions material from other PEIR chapters. Subheadings were introduced to facilitate this reorganization which included simplifying the impact summary statements by moving rationale for the significance determinations out of the statement and into the text preceding the statement. Also, compound statements covering multiple biological topics were disassembled and restated under the topics which now have a subheading for each. The intent was to make the chapter easier to read and understand while also providing the analysis by habitat type for selected alternatives as appropriate.

4.1 **Environmental Setting**

On page 4-1, the following paragraph is modified to read as follows:

Section 4.1.1 identifies the zoogeographic provinces in the Napa County Mosquito Abatement District’s (District) Program Area, Section 4.1.2 describes the special status aquatic species that have the potential to occur within the Program Area, and Section 4.1.3 provides an overview of federal, state, and local ordinances and regulations pertinent to these resources that are applicable to the Program. Section 4.1.4 identifies the Habitat Conservation Plans (HCCPs) and Natural Community Conservation Plans (NCCPs) in the Program Area. Special status species are those organisms that are listed as endangered, threatened, or candidate species under the federal Endangered Species Act, endangered or threatened under the California Endangered Species Act, or listed as species of special concern by the State of California.

4.1.1 **Aquatic and Wetland Resources within the Program Area**

On page 4-6, Table 4-2 is revised to include the following notes.

1 Mosquitofish would not be applied in water bodies capable of supporting the breeding or aquatic rearing of California red-legged frog or California tiger salamander. CRLF prefer still water, more than 0.7 m deep, bounded by dense shrubby vegetation (willows, cattails and bulrush; Jennings and Haynes 1994). Tiger salamander are a lowland species (<200 ft msl) that breed in rain pools or vernal pools (lasting more than 10 weeks), that lack fish or bullfrog predators. Although historical breeding habitat for California tiger salamanders is natural vernal pools and ponds, they also use modified ephemeral or permanent ponds and manmade features such as constructed ponds or livestock ponds and

have been reported in roadside ditches containing areas of seasonal wetland. (USFWS 2014). Typically, breeding pools have moderate to high levels of turbidity. California tiger salamanders rarely use ponds with clear water. These locations must be within 1.6 km (1 mile) of suitable upland habitat, which consists of small mammal burrows, where juveniles and adults live and grow. If there is doubt whether a specific area would support breeding or aquatic rearing of these species, the District would contact the regulatory agencies.

2. Small mammal trapping is possible as is dead bird salvage for testing (see Section 2.3.6).

On page 4-31, Section 4.1.3.1.1 Endangered Species Act 1973, the definition of “take” is added and the paragraph modified to read as follows:

~~This law~~The Endangered Species Act of 1973 includes provisions for protection and management of species that are federally listed as threatened or endangered and designated critical habitat for these species. This law prohibits “take” of federally listed species except as authorized under an incidental take permit or incidental take statement. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. (<http://www.fws.gov/endangered/laws-policies/section-3.html>). The United States Fish and Wildlife Service (USFWS) is the administering agency for this authority for freshwater species. The National Marine Fisheries Service (NMFS) is the administering agency for anadromous species.

On page 4-31, Section 4.1.3.1.3 Clean Water Act of 1977, language is added to the first paragraph and an additional paragraph is provided to read as follows:

These sections of the Clean Water Act of 1977 (CWA) provide for the protection of wetlands. The administering agency for the above authority is the United States Army Corps of Engineers (USACE). Under CWA Sections 301 and 502, any discharge of dredged or fill materials into “waters of the United States,” including wetlands, is forbidden unless authorized by a permit issued by the USACE pursuant to Section 404. These permits are an essential part of protecting streams and wetlands. Wetlands are vital to the ecosystem in filtering streams and rivers and providing habitat for wildlife.

The US Environmental Protection Agency (USEPA) is the federal agency responsible for water quality management and administers the federal Water Pollution Control Act Amendments of 1972 and 1987, collectively known as the Clean Water Act (CWA). The CWA establishes the principal federal statutes for water quality protection. It was established with the intent “to restore and maintain the chemical, physical, and biological integrity of the nation’s water, to achieve a level of water quality which provides for recreation in and on the water, and for the propagation of fish and wildlife.” Also see Section 9.1.2.1 in Chapter 9, Water Resources.

On page 4-33, the Section 4.1.3.2.6 Stipulated Injunction and order, Protection of California Red-Legged Frog from Pesticides is moved from Section 4.1.3.2.8 to Section 4.1.3.1.6 (from state to federal) and additional text is added to read as follows:

On October 20, 2006, the ~~U.S.~~US District Court for the Northern District of California imposed no-use buffer zones around California red-legged frog upland and aquatic habitats for certain pesticides. This injunction and order will remain in effect for each pesticide listed in the injunction until the USEPA goes through formal 7(A)(2) consultation with the USFWS on each of the 66 active ingredients, and the USFWS issues a Biological Opinion including a “not likely to adversely affect” statement for the pesticides. Under the injunction and order, no-use buffer zones of 60 feet for ground applications and 200 feet for aerial applications apply from the edge of the following California red-legged frog habitats as defined by the USFWS and the Center for Biological Diversity: Aquatic Feature, Aquatic Breeding Habitat, Nonbreeding Aquatic Habitat, and

Upland Habitat. These habitats are found in 33 counties of California including Napa, Solano, and Sonoma counties.

Of the 66 pesticides listed in the injunction, the District may employ esfenvalerate, methoprene, and permethrin for vector control. Esfenvalerate may be used for yellow-jacket and wasp control in response to public complaints. Methoprene may be used for larval mosquito control, and permethrin may be used for adult mosquito control. However, vector control programs are exempt. Specifically, for applications of a pesticide for purposes of public health vector control under a program administered by a public entity, the injunction does not apply. The District may use the following herbicides listed in the injunction: glyphosate, imazapyr, and triclopyr. Where used for vegetation management for control of mosquito-breeding habitat, the injunction would not apply. If these herbicides were to be used for invasive species management to assist other agencies or landowners, then the injunction generally applies until such time that the material has been reviewed by USEPA and USFWS determines that it does not apply or the following “exceptions for invasive species and noxious weed programs” can be met:

- f. You are applying a pesticide for purposes of controlling state-designated invasive species and noxious weeds under a program administered by a public entity; and
- g. You do not apply the pesticide within 15 feet of aquatic breeding critical habitat or nonbreeding aquatic critical habitat within critical habitat areas, or within 15 feet of aquatic features within noncritical habitat sections subject to the injunction; and
- h. Application is limited to localized spot treatment using handheld devices; and
- i. Precipitation is not occurring or forecast to occur within 24 hours; and
- j. You are a certified applicator or working under the direct supervision of a certified applicator; and
- k. If using 2,4-D or triclopyr, you are using only the amine formulations. (USEPA 2014e).

4.2.2 Evaluation Methods and Assumptions

This section was reorganized for clarity and readability into two subsections: 4.2.2.1 Evaluation Methods and 4.2.2.2 Assumptions. As a result a large amount of text was moved and is not repeated herein. The focus below is on key revisions to the text no matter where the material was originally located.

On page 4-41, language under item 1 is modified to read as follows:

~~Agency communication – includes~~ Communication – Includes periodic discussion with resource agencies, refuge managers, and other land managers on topics such as planning, specific site issues, special status species occurrence, opportunities for source reduction, observations made by District staff (e.g., wildlife, trespass/unauthorized equipment use), and about activities to be implemented. This category will include ~~an annual work plan that may be part of any permits,~~ obtaining any required permits and reporting regarding existing permits, periodic check-in calls, and calls as needed, when unanticipated circumstances arise.

On page 4-42, after the third paragraph, an additional paragraph is added:

The pesticide application scenarios that result in reasonable efficacy with minimal unwanted estimated risk are preferred and are the basis of IPM approaches and BMPs the District employs. BMPs are contained in Chapter 2, Section 2.9, and associated with habitat types in which they would be applied in Table 4-6. Each of the pesticides and herbicides identified as warranting further evaluation in Appendix B (as a subset of all

pesticides and herbicides in use) is known to exhibit at least one parameter that appears to have a significant role in the resulting potential or perceived risk.

Starting on page 4-42, Section 4.2.2.2 Assumptions, the following language is added as for clarification:

The following assumptions were used in the assessment of potential aquatic resource impacts from the Program alternatives:

- > Site-specific evaluation of aquatic resource impacts is not within the scope of this programmatic evaluation. Rather, the analysis uses habitat types likely to be affected by any of the alternatives as the basis for evaluation.
- > The programmatic evaluation is based on the current proposed control methods and is subject to change based on future needs (see Section 1.8).
- > The BMPs listed in Table 4-6 will be implemented by District staff as appropriate to the type of activity under the Program alternatives.

This aquatic resources evaluation does not incorporate any assumptions about which alternative treatment strategy or strategies (options) would be applied in any given area. Therefore, each Program alternative is considered as a stand-alone option, although the Program may include multiple alternative treatments within a given area, (e.g., physical controls followed by larvicide application). Guidelines used to trigger a particular alternative based on vector abundance and other variables are included in District-specific operating procedures. This evaluation assumes that important parameters such as sediment half-life are dependent on the specific conditions at the time of pesticide application; therefore, the values listed herein serve as reference values.

This evaluation assumes that all chemical treatments would be made in accordance with label instructions and guidance provided by the USEPA and CDPR and in consideration of the local context for that area (i.e., nearby area land uses and habitats). The USEPA requires mandatory statements on pesticide product labels that include directions for use; precautions for avoiding certain dangerous actions; and where, when, and how the pesticide should be applied. This guidance is designed to ensure proper use of the pesticide and prevent unreasonable adverse effects to humans and the environment. All pesticide labels are required to include the name and percentage by weight of each active ingredient in the product/formulation. Toxicity categories for product hazards and appropriate first-aid measures must be properly and prominently displayed. Pesticide labels also outline proper use, storage, and disposal procedures, as well as precautions to protect applicators. The directions for use specify the target organism, appropriate application sites, application rates or dosages, contact times, and required application equipment for the pesticide. Warnings regarding appropriate wind speeds, droplet sizes, or habitats to avoid during application are also prominently displayed.

Concerning the application of multiple chemical treatments in the same area, such as larvicides followed by adulticides (i.e., not likely to occur under normal circumstances), or the application of multiple pesticides at the same time in a specific area (e.g., usually multiple active ingredients in the formulation such as VectoMax which combines Bti and Bs), the following information applies:

Most products sold as herbicides and pesticides are evaluated herein both for the active ingredient and for the adjuvants and surfactants used to make the product more useful. When multiple products are used in a vector control application, the impacts are weighed against the proximity and timing of each application. If products with similar or different active ingredients are applied simultaneously, it is likely that the net effect could be the sum of the total active ingredient that is available for uptake by the vector. However, for vector control applications, materials with the same active ingredient are not applied simultaneously at a given site. The need for reapplication of mosquito larvicides or adulticides is surveillance

driven and performed per the label directions. The District can apply larvicide materials with different active ingredients during a single application. This type of application is necessary if multiple hatches of mosquito larvae occur and results in mosquito populations occurring at different stages of the life cycle. An example is when liquid Bti and methoprene are applied simultaneously. When it occurs the combination of the material is called Duplex and the mixture of the materials and active ingredients is provided for on the product labels. Another example for the District includes the application of a liquid trans allethrin and phenothrin spray product to minimize the hazard of approaching a yellow jacket nest. Situations that would produce a residual exposure adequate to cause harm to humans would not occur unless the application(s) were inappropriate or the timing of applications is inappropriately close. Actual applications do not generally occur that close together unless a problem with treatment effectiveness occurs. A material is applied followed by post treatment inspection to determine effectiveness. Only if the vector population has not been sufficiently suppressed would the District go back into the area and reapply a pesticide.¹

On page 4-47, Table 4-6 Napa County Mosquito Abatement District BMPs to Avoid/Minimize Environmental Impacts by Alternatives, in category C. Salt Marsh Harvest Mouse (SMHM), BMP C4 language is modified to read as follows:

Each day, ~~within 30 minutes of~~before commencement of vector habitat management (physical control, vegetation management) ~~SMHM~~, observations will be flushed out of ~~conducted for the presence of SMHM in the work area by staff trained by USFWS personnel or a biologist trained by USFWS personnel in the safe and effective methods for flushing SMHMs out of the work area observing SMHM.~~

On page 4-50, F. Vegetation Management, BMP F6 language is modified as requested by CDFW:

Vegetation management work will be confined to ~~October~~September 1 to April 30~~January 31~~ to minimize potential impacts to ~~sensitive~~special status species, especially breeding birds. When work is expected to occur between February 1 and ~~April 30~~August 31 (nesting season), additional consultations will occur with appropriate resource agencies to help identify locations of active nests of raptors or migratory birds as well as any additional protection measures that will need to be implemented prior to commencement of work.

On page 4-56, H. Applications of Pesticides, Surfactants, and/or Herbicides, BMP H10 is updated as shown:

Special Sstatus Aquatic Wildlife Species:

A CNDDDB search was conducted in 2012, updated in 2014, and the results incorporated into ~~Appendix A for~~ this PEIR. District staff communicates with state, federal, and county agencies regarding sites that have potential to support special status species. Many sites where the District performs surveillance and control work have been visited by staff for many years and staff is highly knowledgeable about the sites and habitat present. If new sites or site features are discovered that have potential to be habitat for special status species, the appropriate agency and/or landowner is contacted and communication initiated.

Section 4.2.2.1 Hazardous Material has been renumbered and is now Section 4.2.2.3.

¹ When the District determines the need to reapply a material, it is District policy to perform an intensive assessment to determine why the first treatment/application did not work to prevent a similar failure and the need to reapply.

On page 4-59, Section 4.2.2.2 Toxicity and Exposure (was numbered 4.2.2.2 and is now 4.2.2.4), paragraph 3 is modified to read as follows

However, these, and other, coordinated and focused laboratory tests are designed to document the effects of the chemical ~~when using~~ a continuous, controlled laboratory exposure exists and does not realistically reflect the likely patchy exposures or toxicity in typical of the District field application scenarios. As such, the toxicity information generated using laboratory tests (and some limited field tests) is intended as an overview of potential issues that might be associated with maximum direct exposures to develop and recommend guidance for understanding the completely “safe” use that should provide maximum exposure levels of applications that would be protective of ecological health. These guidelines include numerous “safety margins” in the toxicity calculations that are intended to provide adequate efficacy to target organisms while not adversely ~~impact~~ impacting humans or nontarget plant and animal species. In some instances, the regulatory guidance may include additional suggestions for protective application to assure no significant impact on nontarget species and humans.

On page 4-59, an additional paragraph is as added after paragraph 3 and reads as follows:

Although laboratory toxicity testing focuses on tiered concentrations of chemical exposure, the results of these tests produce a series of toxicity estimates of concentrations lower than those that produce mortality. Extrapolation of these data is used to generate estimates of chronic toxicity or possible effects of lower doses that may result in sublethal effects such as reproduction or metabolic changes. In reality, these low-dose exposures need to be sustained over longer periods (and usually at higher concentrations) than are relevant to typical application scenarios for vector control including multiple applications in an area such as a wetland.

On page 4-59, the fourth paragraph is modified to read as follows:

Although the regulatory community uses this basic information to provide a relative comparison of the potential for a chemical to result in unwanted adverse effects and this information is reflected in the approved usage labels and material safety data sheets (MSDSs), in actual practice, the amounts applied in the District’s Program Area are often substantially less than the amounts used in the laboratory toxicity studies. Because of the large safety factors used to develop recommended product label application rates, the amount of chemical resulting in demonstrated toxicity in the laboratory is much higher than the low exposure levels associated with an actual application. The application concentrations consistent with the labels or MSDSs are designed to be protective of the health of humans and other nontarget species (i.e., low enough to not kill them, weaken them, or cause them to fail to reproduce). ~~However, adverse effects may still occur to some non-target organisms.~~ Impacts may occur to some nontarget organisms. Although numerous precautions (BMPs) and use of recommended application guidance are intended to provide efficacy without adverse effects to nontarget organisms, misapplication or unexpected weather conditions may still result in effects on some nontarget organisms in the exposure area. This potential impact is ameliorated/mitigated by careful use of BMPs, advance planning, and intensive staff training by the District.

On page 4-60, Section 4.2.2.3 Ecological Food Web (was numbered 4.2.2.3 and is now 4.2.2.6), the following language is added to the end of this section

Pesticides can kill natural predators of vectors. For example, the District’s activities associated with the Physical Control and Vegetation Management Alternatives would help allow these predators to access habitats where mosquito larvae are present. When chemical control is used to manage mosquitoes, it generally is used at levels that are

below the effects thresholds for other organisms, especially insects and invertebrate predators, as described above. Although mosquito pesticides may also affect invertebrate predators (e.g., dragonflies), recovery of predator populations is usually rapid as the predator populations extend beyond the application areas and will rapidly replace any lost individuals. In general, the pesticides used for mosquito control exhibit low or no toxicity to birds or mammals. Limited information is available regarding toxic effects to reptile or terrestrial amphibian mosquito predators.

Mosquitoes are part of the food web, and their loss may reduce the food base for some predators. Although mosquitoes may serve as one of many types of prey items for some fish, avian insectivores, bats, and small reptiles and amphibians, the reduction of mosquito abundance over a small area will not affect the predator populations overall, as other prey sources are available.

4.2.3 Surveillance Alternative

On page 4-60, the following descriptive language is added to this section as follows:

Surveillance activities involve monitoring the abundance of adult and larval mosquitoes, field inspection of mosquito habitat, testing for the presence of antibodies specific to encephalitis virus in domestic and wild fowl, collection and testing of ticks, small rodent trapping and disease testing, and/or response to public service requests regarding vectors such as mosquitoes and yellow jackets.

Mosquito populations are monitored through the use of traps, inspections, and sampling in mosquito habitats. Known and suspected habitats are anywhere that water can collect, be stored, or remain standing for more than a few days, including, but not limited to, catch basins, stormwater detention systems, residential communities, parks, ornamental ponds, unmaintained swimming pools, seeps, seasonal wetlands, tidal and diked marshes, wastewater ponds, sewer plants, winery waste/agricultural ponds, managed waterfowl ponds, canals, creeks, treeholes, and flooded basements. Ticks are collected along trails and tested for disease. Rodents may be collected for population density assessment, for disease testing, and in response to the identification of unusually large populations of rodents as a result of citizen complaints. If preexisting roads and trails are not available, low ground pressure ATVs may be used to access sites. Offroad access is minimized and used only when roads and trails are not available.

On page 4-62, under Section 4.2.3.1 Impacts to Special Status Species, Impact AR-1 is modified by moving explanatory information into the preceding paragraph, and now it reads as follows:

Surveillance activities might result in some physical damage to habitat or associated vegetation from foot traffic in areas without marked trails to access areas for potential vector inspection. Special status species could be directly impacted by these activities. The District investigates sites for the presence of special status species prior to initiating any further surveillance measures in natural habitat areas, and only small areas would be disrupted temporarily/briefly by access activities.

~~Impact AR-1. The Surveillance Alternative would have a less-than-significant impact either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW, NOAA Fisheries, or USFWS. This alternative would not directly affect these species, as The Surveillance Alternative would have a less-than-significant impact either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW, NOAA Fisheries, or USFWS. as described above. Most, Most~~ surveillance occurs along access routes that are already

established and that would only be cleared periodically to maintain access, as necessary. Where new access routes are required, they would have only a very small effect on habitat in areas where surveillance occurs. No mitigation is required. Therefore, minimal impacts would occur to aquatic species.

Impact AR-1. The Surveillance Alternative would have a **less-than-significant impact**, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

On page 4-63, in a new Section 4.2.3.2 Impacts to Habitat, Impacts AR-2 and AR-3 are modified to move the explanatory material into the relevant preceding text and then to read as follows:

Impact AR-2. The Surveillance Alternative would have a less-than-significant impact on any riparian habitat or other sensitive natural community ~~identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. Most surveillance occurs along access routes that are already established, and would only be cleared periodically, during the fall to minimize impacts, to maintain access, as necessary. Where new access routes are required they would have only a very small effect on habitat in areas where surveillance occurs.~~ No mitigation is required.

Impact AR-3. The Surveillance Alternative would have a less-than-significant impact on federally protected wetlands as defined by ~~Section 404 of the Clean Water Act, (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Most surveillance occurs along access routes that are already established, and would only be cleared periodically, during the fall to minimize impacts, to maintain access, as necessary. Where new access routes are required they would have only a very small effect on habitat in areas where surveillance occurs.~~ CWA Section 404. No mitigation is required.

On page 4-63, in a new Section 4.2.3.3 Impacts to Migration and Movement, Impact AR-4 is modified to reflect minimal rather than no impacts in the preceding text and now reads as follows:

Any disruption of migration patterns would be due to the presence of personnel and machinery in the environment. In all cases this occurrence would be very short term, generally not more than a few hours in any given location. Therefore, this effect would be minimal, would have no substantial adverse effect on the movement of native resident or migratory fish or wildlife, and would not affect wildlife migration corridors or nursery areas, as no physical disturbance would occur.

Impact AR-4. The Surveillance Alternative would have ~~no impact~~ **a less-than-significant impact** on the movement of any native resident or migratory fish or wildlife species. ~~Not~~ would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. No mitigation is required.

On page 4-63, in a new Section 4.2.3.4 Conflict with Local Policies, Impact AR-5 and preceding text are modified to read as follows:

The county and city general plans and their goals and policies pertaining to natural resources are ~~generally consistent with the CEQA criteria regarding impacts on species and habitats~~ protective of aquatic resources and focused on conservation of existing resources including riparian, wetland, marsh, and slough communities and the Napa River watershed in particular. Any impacts identified for these CEQA criteria would also be relevant to the county and city goals. Surveillance activities would not result in the conversion of natural habitats to other land uses or in the long-term or permanent

dislocation of plant and animal species from natural areas except indirectly for mosquitoes and vectors of disease and discomfort. The project Surveillance activities would not affect trees more than 4 inches diameter breast height and, therefore, would not conflict with any tree ordinances.

Impact AR-5. The Surveillance Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

On page 4-63, in a new Section 4.2.3.5 Conflict with Conservation Plans, Impact AR-6 was modified by moving explanatory information into the preceding paragraph:

No HCPs or NCCPs were identified whose action area is within Napa County, the primary Service Area, although a few were identified in adjacent counties, as identified in Table 4-5. District activities are typically not among those covered by these HCPs. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not ~~conflict~~ be inconsistent with the provisions of any adopted HCP, NCCP, or other approved local, regional, or state approved conservation plan.

Impact AR-6. The Surveillance Alternative would have **no impact** on HCPs or NCCPs ~~as it would not conflict with the provisions of any adopted HCPs or NCCPs, or other approved local, regional, or state habitat conservation plan. No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work done by the District in adjoining counties would be at the request of and under the authority of the adjoining county's mosquito and vector control district and would adhere to the provisions of any applicable conservation plans.~~

4.2.4 Physical Control Alternative

On page 4-65, in Section 4.2.4.1.4 Seasonal Wetlands (includes Vernal Pools), the second paragraph was modified to read as follows:

Vernal pools, a specific type of seasonal wetland, ~~sometimes~~ often support a unique assemblage of endemic plant and animal species, many of which have been identified as special status species by federal and state agencies (see Table 4-1). ~~Because of the sensitive nature of these habitat types, the district generally would not undertake Physical control measures in these areas. In the event that Physical Control in a Tables 4-3 and 4-4).~~ The District receives environmental awareness training from resource agency staff (e.g., CDFW, USFWS) and professional biologists to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to vernal pool habitat. When using ATVs to perform mosquito control in the proximity of vernal pools, District staff stay outside of the margin of the vernal pools (delineated by vegetation change from wetland to upland), and never operate ATVs within wetland vegetation or the actual vernal pool. When possible, District staff performs mosquito control on foot with hand equipment, or by operating ATVs in upland areas away from vernal pools and walking from the ATV to the pools to perform mosquito control. When it is necessary to use an ATV for mosquito control in proximity to vernal pools, the District uses low ground pressure vehicles. District staff operates ATVs at slow speeds on sites containing

vernal pools, and remains observant while operating equipment and walking in and amongst vernal pool habitat.

Because of the sensitive nature of seasonal wetland habitats, the District generally would not undertake physical control measures in these areas. In the event that physical control in a seasonal wetland and/or vernal pool was required, the District would not implement such actions without previously discussing their need them with the relevant regulatory agencies or refuge managers to verify that no other alternative or physical control option existsis preferable to control the mosquito problem at that location, to make sure that any such activity would be done in such a way as to minimize its impacts, and to have in place required permits. As a result, this "consultation prior to implementation" BMP and the practices described above would result in a less-than-significant impact to aquaticseasonal wetland resources.

Section 4.2.4.1.9 has been renamed Impact Determinations for Special Status Species and Habitats and different portions of the original text have been moved to Sections 4.2.4.2, 4.2.4.3 and 4.2.4.5

On page 4-68, Impacts AR-7, AR-8 and AR-9 were modified moving explanatory information into the preceding sections, and the statements now read as follows:

Impact AR-7. The Physical Control Alternative, ~~with the BMPs identified in Table 2-9,~~ would have a **less-than-significant** impact either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species ~~in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Regular coordination with resource agencies, worker environmental awareness training, disturbance minimization measures, and application of habitat and species-specific BMPs as appropriate make it unlikely that this alternative would result in adverse effects to special status species.~~ No mitigation is required.

Impact AR-8. The Physical Control Alternative, ~~with the BMPs identified in Table 2-9,~~ would have a **less-than-significant** impact on any riparian habitat or other sensitive natural community ~~identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. Very little physical control work would be conducted in riparian habitats or other sensitive natural communities.~~ No mitigation is required.

Impact AR-9. The Physical Control Alternative would have a **less-than-significant** impact on federally protected wetlands as defined by Section 404 of the Clean Water Act, ~~(including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. The Physical Control alternative would not reduce the quantity of this habitat, but simply improve circulation within the marsh CWA Section 404. Only inactive channels would be filled to eliminate ponding. All work in wetlands would be subject to additional permitting by the U.S. Army Corps of Engineers, CDFW, BCDC, and the Regional Water Quality Control Board.~~ No mitigation is required.

Section 4.2.4.2 Effects on Movement and Migration was originally part of Section 4.2.4.1.9 on page 4-67.

On page 4-68, Impact AR-10 is modified as follows:

Impact AR-10. The Physical Control Alternative would have **no impact a less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. ~~Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. This alternative would likely benefit the movement of fish and other aquatic species, as it would deepen channels and improve flow. No mitigation is required.~~

Originally part of Section 4.2.4.1.9 on page 4-68, the new Section 4.2.4.3 Conflict with Local Policies, has Impact AR-11 modified to read as follows:

Impact AR-11. The Physical Control Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

Section 4.2.4.4 Conflict with Conservation Plans was originally part of Section 4.2.4.1.9. On pages 4-67 to 4-68, the following language was added to the end of the last paragraph of Section 4.2.4.1.9:

The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District's physical control activities would not be inconsistent with the provisions of any HCP, NCCP, or other approved local, regional, or state approved conservation plan.

On page 4-68, Impact AR-12 is simplified to read as follows:

Impact AR-12. The Physical Control Alternative would have **no impact a less-than-significant** impact on HCPs or NCCPs ~~as it would not conflict with the provisions of any adopted HCPs or NCCPs, or other approved local, regional, or state habitat conservation plan. No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work done by the District in adjoining counties would be at the request of and under the authority of the adjoining county's mosquito and vector control district and would adhere to the provisions of any applicable conservation plans. No mitigation is required.~~

4.2.5 Vegetation Management Alternative

Section 4.2.5.2 Herbicides was originally part of Section 4.2.5, pages 4-69 to 4-70.

On page 4-70, the following language was added after Table 4-7:

See Section 6.2.5 for further analysis of the herbicides and adjuvants that could be used on a limited basis for vegetation management. The herbicides the District would potentially use are discussed in detail in Appendix B and are listed in Chapter 2, Table 2-1 with the active ingredients listed in Chapter 6, Table 6-3. The environmental fate and toxicity of adjuvants the District may use are described in detail in Appendix B and listed in Table 6-1.

The herbicide glyphosate was identified for further evaluation in Appendix B and is discussed further below and in Section 6.2.5.1.1.

On page 4-70, this new Section 4.2.5.2.1 Glyphosate, its analysis and Impact AR-14 are added to read as follows:

The District may use glyphosate on a limited, infrequent basis for vegetation management in vector-producing habitats and for site access. Although some recent concerns have been expressed about possible sublethal effects of glyphosate products (e.g., endocrine disruption in humans, see Chapter 7, Section 7.2.5.1), it is virtually nontoxic to mammals and practically nontoxic to birds, fish, and invertebrates on an acute basis. Claims that glyphosate is destroying bee and butterfly populations have not been substantiated. The use of glyphosate to control milkweed, which is a severe problem for farmers, may be connected to loss of foraging vegetation and, thereby, indirectly impacting butterfly

populations. However, this effect is an indirect effect and not actually toxic to the butterflies. With BMPs and targeted application techniques, glyphosate can be used without environmental impact when an adequate buffer (>15 feet) to water sources is maintained (glyphosate is much more toxic to fish and aquatic invertebrates than to mammals, birds, or terrestrial invertebrates) or when a formulation specifically designed for use in aquatic environments (e.g., Aquamaster) is used.

Impact AR-14: The use of herbicides including glyphosate as a vegetation management technique would result in a **less-than-significant** impact to special status species and their habitats. No mitigation is required.

On page 4-70, following new Section 4.2.5.2.1 Glyphosate, this new Section 4.2.5.2.2 Adjuvants, its analysis and Impact AR-15 are added as follows:

An adjuvant is any compound that is added to an herbicide (or pesticide) formulation or tank mix to facilitate the mixing, application, or effectiveness of that herbicide. Adjuvants can either enhance activity of an herbicide’s active ingredient (activator adjuvant) or offset any problems associated with spray application, such as adverse water quality or wind (special purpose or utility modifiers). Activator adjuvants include surfactants, wetting agents, sticker-spreaders, and penetrants. The environmental fate and toxicity of adjuvants the District may use are described in detail in Appendix B and listed in Table 4-8.

Table 4-8 Adjuvants for Insect Abatement/Weed Control as Discussed in Appendix B

<u>Active Ingredient</u>	<u>Appendix B</u>
<u>APEs</u>	<u>Section 4.7.1</u>
<u>Polydimethylsiloxane Fluids</u>	<u>Section 4.7.2</u>
<u>Modified Plant Oil and Methylated Seed Oil</u>	<u>Section 4.7.3</u>
<u>Lecithin</u>	<u>Section 4.7.4</u>

Alkylphenol ethoxylates (APEs) include a broad range of chemicals that tend to bind strongly to particulates and persist in sediments. Nonylphenol and short-chain nonylphenol ethoxylates are moderately bioaccumulative and extremely toxic to aquatic organisms. Aside from use in agricultural herbicide mixtures, APEs are commonly present in detergents, cleaners, food packaging, and cosmetics. The acute toxicity of APEs to mammals is low. Some think they may be possible estrogen-mimics. Although these chemicals have been used in numerous common household products (generally regulated by the Federal Drug Administration), the USEPA has recently recommended that this suite of chemicals be evaluated further due to their widespread use (past and present). Current information about APEs is based on Federal Drug Administration evaluations; regardless, USEPA has speculated that they may pose risk to nontarget terrestrial organisms (USEPA 2010). However, this speculation has not been substantiated and given the limited use of herbicides by the District, in general, and their application of BMPs when using herbicides, the District’s use of herbicides with APEs would not be expected to cause any substantive harm to the environment.

Polydimethylsiloxanes are insoluble in water and typically sorb (adhere) to particulates. Degradation time varies depending on moisture in soils. These chemicals appear to be relatively nontoxic to most organisms, but information is limited regarding the toxicity and environmental fate of polydimethylsiloxanes.

Plant-derived oils are of two types: triglycerides or methylated oils. Triglycerides are essentially oil-surfactant hybrids, and are generally called seed oils. Modified plant oils and methylated seed oils are essentially nontoxic to most organisms, including plants. Although toxicity and environmental fate information for these oils is limited, using current BMP application techniques to reduce the transfer of oils to nontarget areas post-application (i.e., targeted applications) and based on their other approved uses, these products should not result in unwanted adverse effects to nontarget aquatic organisms.

Little is known about the toxicity or environmental fate of lecithins. Lecithins are naturally occurring phospholipids in biological cell membranes (Bakke 2007). Although toxicity and environmental fate information for these products is limited, using BMPs including application at the lowest effective concentration for a specific set of vectors and environmental conditions, use of lecithins should not result in unwanted adverse effects to nontarget aquatic organisms.

Impact AR-15: The use of adjuvants would result in a **less-than-significant** impact to special status species and habitats. No mitigation is required.

On page 4-70, following new Section 4.2.5.2 Adjuvants, this Section 4.2.5.3 Impacts to Special Status and Habitats and its discussion are added for clarification as follows:

The District would conduct vegetation management work infrequently in or adjacent to creeks, rivers, ponds, lakes, marshes, and other wetlands that may require permits from the USACE, RWQCB, CDFW, USFWS, NOAA Fisheries, and others. Work would not begin until all required permits are obtained. The potential effects of this alternative on these aquatic habitats are described below.

Mosquitoes are part of the food web and their loss may reduce the food base for some predators. Although mosquitoes serve as one of many types of prey items for some fish, avian insectivores, bats, and small reptiles and amphibians, the reduction of mosquito abundance over a small area would not affect the predator populations overall, as other prey sources are available.

On page 4-71, this section 4.2.5.3.4 Seasonal Wetlands (includes Vernal Pools) is modified to read as follows:

Seasonal wetlands, including vernal pools, may also support substantial stands of emergent vegetation, although these areas are typically not inundated for long enough periods to support dense stands of vegetation preferred by mosquitoes. As a result, these areas are unlikely to be subject to vegetation management actions. ~~If vegetation management activities were required, potential effects would be avoided and minimized by the BMPs in Table 2-9 relating to agency communication, environmental training, and pre-treatment screening. Vegetation Management Alternative specific BMPs would be applied. Depending on the species potentially present in an area, species-specific BMPs may also be applied, including seasonal avoidance measures. With these BMPs, the effects of this action would be less-than-significant.~~ While the District would not operate equipment including ATVs within vernal pools, the District may cross hydrological connections (i.e., swales) between vernal pools when necessary and with permission from regulatory agencies. The District regularly communicates with and works collaboratively with representatives from agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives environmental awareness training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species.

The Vegetation Management Alternative would not result in the direct removal, filling, or hydrological interruption of federally protected wetlands as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, coastal, etc.). It may result in the removal of minor amounts of vegetation in these areas. All work in wetlands would be subject to additional permitting by the USACE, USFWS, CDFW, BCDC, and RWQCB.

If vegetation management activities are required, potential effects would be avoided and minimized by the BMPs in Table 4-6 relating to resource agency communication, environmental training, and pretreatment screening. Vegetation management-specific BMPs would be applied. With these BMPs implemented, the effects of this alternative on seasonal wetlands would be less-than-significant.

On page 4-73, in Section 4.2.5.3.9 Impact Determinations for Special Status Species and Habitats, Impacts AR-14, AR-15 and AR-16 are renumbered to AR-16, AR-17, and AR-18 and simplified by moving explanatory material to the preceding text as follows:

Impact AR-16. ~~The Vegetation Management Alternative, with the BMPs identified in Table 2-9, would have a less-than-significant impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW, NOAA Fisheries, or USFWS. This work would be conducted in coordination with land owners or land managers and resource agencies, and all necessary permits would be acquired before work was implemented. BMPs relating to worker environmental awareness training, disturbance minimization measures, and application of habitat and species-specific BMPs, as appropriate, make it unlikely that this alternative would result in adverse effects to special status species. No mitigation is required.~~

Impact AR-17. ~~The Vegetation Management Alternative, with the BMPs identified in Table 2-9, would have a less-than-significant impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. Very little Vegetation Management work would be conducted in riparian habitats or other sensitive natural communities. No mitigation is required.~~

Impact AR-18. The Vegetation Management Alternative would not result in the direct removal, filling, or hydrological interruption of federally protected wetlands as defined by ~~Section 404 of the Clean Water Act, (including but not limited to, marsh, vernal pool, coastal, etc.).~~ CWA Section 404. It may result in the removal of minor amounts of vegetation in these areas. As such, this alternative would have a have a **less-than-significant** impact on these resources. No mitigation is required.

On page 4-73, Section 4.2.5.4 Effects on Movement and Migration, Impact AR-17 is renumbered to AR-19 and simplified to read as follows:

Impact AR-19. The Vegetation Management Alternative would have **no impact a less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. ~~Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. No mitigation is required.~~

On page 4-73, Section 4.2.5.6 Conflict with Local Policies, Impact AR-18 was renumbered to AR-20 and modified to read as follows:

Impact AR-20. The Vegetation Management Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

On page 4-73, Section 4.2.5.5 Conflict with Conservation Plans, Impact AR-19 was renumbered to AR-21 and modified as follows:

Impact AR-21. The Vegetation Management Alternative would have **no impact a less-than-significant** impact on any adopted HCPs and NCCPs as it would not conflict with the provisions of any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work done by the District in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans. No mitigation is required.

4.2.6 Biological Control Alternative

On pages 4-73 to 4-74 the beginning of this section, was modified to read as follows:

Biological control of vectors involves the intentional use of vector pathogens, parasites, and predators to reduce the vector population. Its emphasis, as it currently exists in the District's IMVMP, is on the use of mosquitofish to control immature mosquitoes in waterbodies that are not connected to natural waterbodies such as ornamental ponds and artificial containers. Currently, no commercial biological control agents or products are available for wasp, yellow jacket, tick, and rodent control. The District does not employ predators (e.g., cats) for rodent control.

Mosquito control agents such as Bs (a live bacteria) or Bti, and *Saacharopolyspora spinosa* (bacterial byproducts) may be considered biological control agents, but are regulated by USEPA. Because Bs, Bti and spinosad are EPA registered and regulated pesticides that can also be applied in a manner similar to chemical pesticides, these materials are evaluated under the Chemical Control Alternative (Section 4.2.7.1.1). The environmental fate and toxicity of these control agents is discussed further in Appendix B.

Section 4.2.6.1 Impacts to Special Status Species and Habitats on page 4-74 is renamed (from Effects on Movement and Migration).

On page 4-74, Impacts AR-20, AR-21 and AR-22 are renumbered to AR-22, AR-23 and AR-24 and simplified for the Biological Control Alternative similar to the corresponding statements for the Vegetation Management Alternative as follows:

Impact AR-22. The Biological Control Alternative would have **no impact**, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species.

Impact AR-23. The Biological Control Alternative would have **no impact** on any riparian habitat or other sensitive natural community.

Impact AR-24. The Biological Control Alternative would have **no impact** on federally protected wetlands as defined by CWA Section 404.

This new Section 4.2.6.2 Effects on Movement and Migration was originally part of Section 4.2.6.1 on pages 4-74 to 4-75.

On page 4-75, Impact AR-23 is renumbered to AR-25 and now reads as follows:

Impact AR-25 The Biological Control Alternative would have **no impact** on the movement of any native resident or migratory fish or wildlife species. Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

This new section 4.2.6.3 Conflict with Local Policies was originally part of section 4.2.6.1 on pages 4-74 to 4-75.

On page 4-75, Impact AR-24 is renumbered to AR-26 and simplified to read as follows:

Impact AR-26. The Biological Control Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

This new section 4.2.6.4 Conflict with Conservation Plans, was originally part of Section 4.2.6.1 pages 4-74 to 4-75.

On page 4-75, the following language is added as the third paragraph to new Section 4.2.6.4:

The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be inconsistent with the provisions of any HCP, NCCP, or other approved local, regional, or state approved conservation plan.

On page 4-92, Impact AR-25 is renumbered to AR-27 and simplified to read as follows:

Impact AR-27. The Biological Control Alternative would have **no impact** on HCPs or NCCPs ~~as it would not conflict with the provisions of any adopted HCP, NCCP, or other approved local, regional or state habitat conservation plan. No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work done by the District in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans.~~

4.2.7 Chemical Control Alternative

On page 4-75, the following language was added as the second paragraph to this section:

Chemical control is a Program tool that consists of the application of nonpersistent insecticide products demonstrated to reduce populations of larval or adult mosquitoes and other vectors (e.g., yellow jacket wasps). If and when inspections reveal that mosquitoes or other vector populations are present at levels that trigger the District's guidelines for chemical control – based on the vector's abundance, density, species composition, proximity to human settlements, water temperature, presence of predators, and other factors – staff will apply pesticides to the site in strict accordance with the pesticide label requirements and the BMPs summarized in Section 4.2.2 and listed in Table 4-6. The threshold guidelines for these response triggers are based on previous documentation and monitoring/current surveillance of likely vector outbreaks or population expansions. Additional response triggers are based on verified vector populations, outbreaks, discomfort and irritation issues for humans and animals, and public concern about vectors.

On page 4-77, Section 4.2.7.1.1 Mosquito Larvicides, the first paragraph is modified to read as follows:

Mosquito larvicides are applied to aquatic and wetland environments that Surveillance has identified as having ~~substantial~~ concentrations of mosquito larvae. Larvicides may be applied in any of the aquatic and wetland habitat types previously listed. Special care is used when treating vernal pool habitats because of the number of special status invertebrate species endemic to these habitats. The District ~~only predominantly~~ applies Bti and Bs ~~or liquid methoprene~~ when

mosquito treatment is required in vernal pools. If mosquitoes reach the late stages of development in the larval cycle, methoprene may be applied (e.g., methoprene liquid). Surfactants (i.e., oils or monomolecular films) are typically not applied to vernal pools; however, an application of these materials may be considered if an abundance of mosquitoes in the pupal stage are present and they present a potential threat to public health.

On page 4-78, the Surfactants section is clarified as follows:

Surfactants or water surface films (alcohol ethoxylated surfactants, aliphatic solvents, and plant-derived oils) work by making it difficult for mosquito larvae and pupae to attach to the water's surface, causing them to drown. Surfactants spread across water surfaces and affect only the uppermost layer of the water.

The use of this alcohol ethoxylated surface film used historically as a surfactant in California for mosquito control was Agnique. This material is a last resort no longer registered for use in California. This material was used on an assortment of waterbodies including ornamental ponds, pastures, and irrigation and drainage systems.

Aliphatic solvents such as mineral oil are the product of petroleum distillation and are, therefore, complex mixtures of long-chain aliphatic compounds. These materials are nonpersistent, breaking down within 2 to 3 days. They are applied to a variety of waterbodies, including, but not limited to, swamps, marshes, intermittently flooded areas, wastewater ponds, sumps, ditches, and man-made containers.

Plant-derived oils, whether vegetable or fruit, can be used as a surfactant for the management of vectors, especially immature mosquitoes. CocoBear Mosquito Larvicide Oil is the only plant-based oil that is currently available for use in the District's Program. This product consists mostly of a modified coconut oil (75 percent or more by volume) combined with 10 percent by volume mineral oil and a very small amount of nonionic surfactant and other proprietary ingredients. This material can be used in various waterbodies such as ditches, stagnant pools, swamps, marshes, temporary rainwater pools and intermittently flooded areas, ponds, catch basins, and man-made containers. CocoBear is also nonpersistent, becoming ineffective within 1 to 2 days.

The use of surfactants is employed only when absolutely necessary to prevent emergence of adult mosquito populations and is also a least preferred method for mosquito management. They are nontoxic to most organisms at label application rates, but may impact other surface-breathing aquatic insects. The Miles et al. (2002) observed that the numbers of these nontarget surface-breathing insects were temporarily reduced following treatment, but recovered within a few days at Don Edwards Wildlife Area (Miles et al. 2002). These short-term impacts on a small portion of the food chain and in a limited area within a wetland are unlikely to result in substantive impacts to nontarget species in the aquatic environment.

On page 4-81, Impact AR-26 was modified to create new AR-28 for mosquito larvicides (separate from and consistent with the previous overall statement for Chemical Control Alternative's pesticide use) and reads as follows:

Impact AR-28: The Chemical Control Alternative's mosquito larvicides would have a less-than-significant impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

On page 4-81, Impact AR-26 was modified to create new AR-29 for mosquito adulticides and PBO and reads as follows:

Impact AR-29: The Chemical Control Alternative's mosquito adulticides and PBO would have a less-than-significant impact, either directly or through habitat modifications, on

any species identified as a candidate, sensitive, or special status species. No mitigation is required.

On page 4-81, Impact AR-26 was modified to create new AR-30 for pesticides used for yellow jackets and ticks and reads as follows:

Impact AR-30. The Chemical Control Alternative's use of pesticides for control of yellow jackets and ticks would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

On page 4-81, Impact AR-26 is modified to create new AR-31 for rodenticides and reads as follows:

Impact AR-31. The Chemical Control Alternative's use of rodenticides would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

On page 4-81, Section 4.2.7.2 Impact to Habitats, Impact AR-27 is renumbered to AR-32 and simplified to read as follows:

Impact AR-32. The Chemical Control Alternative would have **no impact** on any riparian habitat or other sensitive natural community.

On page 4-82, Impact AR-28 is renumbered to AR-33 and simplified to read as follows:

Impact AR-33. The Chemical Control Alternative would not result in the direct removal, filling, or hydrological interruption of federally protected wetlands as defined by Section 404 of the Clean Water Act, (including but not limited to, marsh, vernal pool, coastal, etc.). This alternative would have CWA Section 404 and would have no impact on these resources.

On page 4-82, Section 4.2.7.3 Effects on Movement and Migration, Impact AR-29 is renumbered to AR-34 and modified to read as follows:

Impact AR-34. The Chemical Control Alternative would have **no impact a less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. No mitigation is required.

On page 4-82, Section 4.2.7.4 Conflict with Local Policies, the original Impact AR-30 is renumbered to AR-35 and modified to read as follows:

Impact AR-35. The Chemical Control Alternative would have **no impact** on local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, as none have been identified.

On page 4-81, the following information was added to the end of the new Section 4.2.7.5 Conflict with Conservation Plans:

The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be inconsistent with the provisions of any HCP, NCCP, or other approved local, regional, or state approved conservation plan.

Impact statement AR-31, page 4-82 is renumbered to AR-36 and simplified to read as follows:

Impact AR-36. The Chemical Control Alternative would have **no impact** on any adopted HCPs or NCCPs, or other approved local, regional, or state habitat conservation plan.

On pages 4-82 to 4-83, Section 4.2.8.1 Impacts to Special Status Species and Habitats, Impacts AR-32, AR-33 and AR-34 are renumbered to AR-37, AR-38 and AR-39 and simplified to read as follows:

Impact AR-37. The Other Nonchemical Control/Trapping Alternative would have **no impact**, either directly or through habitat modifications, on any aquatic species identified as a candidate, sensitive, or special status species.

Impact AR-38. The Other Nonchemical Control/Trapping Alternative would have **no impact** on any riparian habitat or other sensitive natural community.

Impact AR-39. The Other Nonchemical Control/Trapping Alternative would have **no impact** on federally protected wetlands as defined by CWA Section 404.

4.8.3 Other Nonchemical Control/Trapping Alternative

On page 4-83, Section 4.2.8.2 Effects on Movement and Migration, Impact AR-35 is renumbered to AR-40 and modified as follows:

Impact AR-40. The Other Nonchemical Control/Trapping Alternative would have **no impact a less-than-significant impact** on the movement of any native resident or migratory fish or wildlife species. ~~Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. No mitigation is required.~~

Section 4.2.8.3 Conflict with Local Policies is a new section added to Section 4.2.8 page 4-82.

On page 4-83, Impact AR-36 was renumbered to AR-41 and modified to read as follows:

Impact AR-41. The Other Nonchemical Control/Trapping Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

On page 4-82, Section 4.2.8.4 Conflict with Conservation Plans is added to end of Section 4.2.8 with additional clarifying language as follows:

The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be inconsistent with the provisions of any HCP, NCCP, or other approved local, regional, or state approved conservation plan.

On page 4-83, Impact AR-37 was renumbered to AR-42 and modified to read as follows:

Impact AR-42. The Other Nonchemical Control/Trapping Alternative would have **no impact** on HCPs or NCCPs as it would not conflict with the provisions of any any adopted HCPs or NCCPs, or other approved local, regional, or state habitat conservation plan. ~~No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work done by the District in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans.~~

3.2.6 **Chapter 5. Biological Resources - Terrestrial**

Similar to Chapter 4, this chapter was reorganized for clarity by moving material within the chapter and by adding material from other PEIR chapters. Subheadings were introduced to facilitate this reorganization which included simplifying the impact summary statements by moving rationale for the significance determinations out of the statement and into the text preceding the statement. Also, compound statements covering multiple biological topics were disassembled and restated under the topics which now have a subheading for each. The intent was to make the chapter easier to read and understand while still providing the analysis by habitat type as appropriate.

Section 5.1 Environmental Setting

Page 5-1 second paragraph is modified with text deleted and added as follows:

Section 5.1.1 ~~identifies~~describes the ~~ecoregion provinces~~habitat types used in evaluating Program impacts within the District's Program Area, Section 5.1.2 describes the special status terrestrial species that have the potential to occur within the Program Area, Section 5.1.3 provides an overview of federal, state, and local ordinances and regulations pertinent to these resources that are applicable to the Program. Section 5.1.4 ~~identifies~~summarizes the Habitat Conservation Plans (HCPs) and Natural Community Conservation Plans (NCCPs) in the Program Area (from Section 4.1.4). Special status species are those organisms that are listed as endangered, threatened, or candidate species under the federal Endangered Species Act, endangered or threatened under the California Endangered Species Act, or listed as species of special concern by the State of California. Background information on hazards, toxicity, and exposure is provided in Section 5.2.2.2. Pesticide and Herbicide Effects.

In Section 5.1.3.1.4 Clean Water Act of 1977 on page 5-5, language is added to the first paragraph and an additional paragraph added for clarification to read as follows:

These sections of the Clean Water Act of 1977 (CWA) provide for the protection of wetlands. The administering agency for the above authority is the US Army Corps of Engineers (USACE). Under CWA Sections 301 and 502, any discharge of dredged or fill materials into "waters of the United States," including wetlands, is forbidden unless authorized by a permit issued by the USACE pursuant to Section 404. These permits are an essential part of protecting streams and wetlands. Wetlands are vital to the ecosystem in filtering streams and rivers and providing habitat for wildlife.

The US Environmental Protection Agency (USEPA) is the federal agency responsible for water quality management and administers the federal Water Pollution Control Act Amendments of 1972 and 1987, collectively known as the Clean Water Act (CWA). The CWA establishes the principal federal statutes for water quality protection. It was established with the intent "to restore and maintain the chemical, physical, and biological integrity of the nation's water, to achieve a level of water quality which provides for recreation in and on the water, and for the propagation of fish and wildlife." Also see Section 9.1.2.1 in Chapter 9, Water Resources.

Section 5.1.3.2.12 Stipulated Injunction and Order, Protection of California Red-Legged Frog from Pesticides on page 5-7 was moved to Section 5.1.3.1.7 Federal, and modified with additional clarifying text updated from Appendix A to read as follows:

On October 20, 2006, the US District Court for the Northern District of California imposed no-use buffer zones around California red-legged frog upland and aquatic habitats for certain pesticides. This injunction and order will remain in effect for each pesticide listed in the injunction until the USEPA goes through formal 7(A)(2) consultation with the USFWS on each of the 66 active ingredients, and the USFWS issues a Biological Opinion including a "not likely to adversely affect" statement for the pesticides. Under the injunction and order, no-use buffer zones of 60 feet for ground applications and 200 feet for aerial applications apply from the edge of the following

California red-legged frog habitats as defined by the USFWS and the Center for Biological Diversity: Aquatic Feature, Aquatic Breeding Habitat, Nonbreeding Aquatic Habitat, and Upland Habitat. These habitats are found in 33 counties of California including Napa, Solano, and Sonoma counties.

Of the 66 pesticides listed in the injunction, the District may employ esfenvalerate, methoprene, and permethrin for vector control. Esfenvalerate may be used for yellow jacket and wasp control in response to public complaints. Methoprene may be used for larval mosquito control, and permethrin may be used for adult mosquito control. However, vector control programs are exempt. Specifically, for applications of a pesticide for purposes of public health vector control under a program administered by a public entity, the injunction does not apply. The District may use the following herbicides listed in the injunction: glyphosate, imazapyr, and triclopyr. Where used for vegetation management for control of mosquito-breeding habitat, the injunction would not apply. If these herbicides were to be used for invasive species management to assist other agencies or landowners, then the injunction generally applies until such time that the material has been reviewed by USEPA and USFWS determines that it does not apply or the following "exceptions for invasive species and noxious weed programs" can be met:

- a. You are applying a pesticide for purposes of controlling state-designated invasive species and noxious weeds under a program administered by a public entity; and
- b. You do not apply the pesticide within 15 feet of aquatic breeding critical habitat or nonbreeding aquatic critical habitat within critical habitat areas, or within 15 feet of aquatic features within noncritical habitat sections subject to the injunction; and
- c. Application is limited to localized spot treatment using handheld devices; and
- d. Precipitation is not occurring or forecast to occur within 24 hours; and
- e. You are a certified applicator or working under the direct supervision of a certified applicator; and
- f. If using 2,4-D or triclopyr, you are using only the amine formulations. (USEPA 2014e).

Section 5.1.4 Habitat Conservation Plans and Natural Community Plans page 5-10 third paragraph is modified to read as follows:

CEQA requires that an EIR consider whether a project would conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. A number of HCPs and NCCPs are in effect or under development within the Program Area (Table 4-5). These are described in Section 4.1.4. They are described in Chapter 4, Section 4.1.4. Listings of these documents on the USFWS and CDFW websites were reviewed, and four approved plans were identified, along with three plans that are currently in development. None of these plans lie within the District's immediate Service Area (Napa County). All of them cover portions of the adjoining counties (Sonoma, Yolo, and Solano). The District is not signatory to these HCPs or NCCPs, but will comply with the provisions of these documents when their vector control activities occur within the boundaries of an existing HCP or NCCP or those that may be developed during the Program lifetime. The District's activities have little overlap with the activities covered under these HCPs (mostly urban development and infrastructure project ongoing operations and maintenance) except for the Bay Delta Plan's measure for management and control of mosquitoes, as detailed in Chapter 4, Section 4.1.4.

Section 5.2.2.1 General Effects (pages 5-12 to 5-13) title is changed to Evaluation Methods and language of item 1 is modified to read as follows:

Agency Communication includes periodic discussion with resource agencies, refuge managers and other land managers about topics such as planning, specific site issues, special status

species occurrence, opportunities for source reduction, observations made by District staff (e.g., wildlife, trespass/unauthorized equipment use), and activities to be implemented. This category will include an annual work plan that may be part of any permits. It also includes the District obtaining any required permits and reporting regarding existing permits, periodic check-in calls, and other calls as needed, when unanticipated circumstances arise.

Table 5-3 Napa County Mosquito Abatement District BMPs to avoid/minimize environmental impacts by alternative, page 5-19, C. SMHM, BMP C4 language changed to read as follows:

Each day, ~~within 30 minutes of~~before commencement of vector habitat management (physical control, vegetation management), observations will be flushed out of ~~conducted for the presence of SMHM in the work area by staff trained by USFWS personnel or a biologist trained by USFWS personnel in the safe and effective methods for flushing SMHMs out of the work area~~observing SMHM.

Table 5-3 Napa County Mosquito Abatement District BMPs to avoid/minimize environmental impacts by alternative page 5-22, F. Vegetation Management, BMP F6 language changed as requested by CDFW:

Vegetation management work will be confined to ~~October~~September 1 to April 30~~January 31~~ to minimize potential impacts to special status species, especially breeding birds. When work is expected to occur between February 1 and ~~April 30~~August 31 (nesting season), additional consultations will occur with appropriate resource agencies to help identify locations of active nests of raptors or migratory birds as well as any additional protection measures that will need to be implemented prior to commencement of work.

Table 5-3 Napa County Mosquito Abatement District BMPs to avoid/minimize environmental impacts by alternative page 5-29, H. Applications of Pesticides, Surfactants, and/or Herbicides, BMP H10 is updated as shown:

Special Status Aquatic Wildlife Species:

A CNDDDB search was conducted in 2012, updated in 2014, and the results incorporated into ~~Appendix A~~ for this PEIR. District staff communicates with state, federal, and county agencies regarding sites that have potential to support special status species. Many sites where the District performs surveillance and control work have been visited by staff for many years and staff ~~is~~are highly knowledgeable about the sites and habitat present. If new sites or site features are discovered that have potential to be habitat for special status species, the appropriate agency and/or landowner is contacted and communication initiated.

Section 5.2.2.2 Assumptions on page 5-32 is renumbered to 5.2.2.2 and the bulleted language and second and third paragraphs are modified, fourth and fifth paragraphs added and this section now reads as follows:

- > Site-specific evaluation of terrestrial resource impacts is not within the scope of this programmatic evaluation.~~and mitigation measures for Program activities, considering the~~ Rather, the analysis uses habitat types likely to be affected by any of the alternatives as the basis for evaluation.
- > The programmatic evaluation is based on the current proposed control methods and is subject to change based on future needs (see Section 1.8).
- > The BMPs listed in Table 5-3 will be implemented by District staff as appropriate HCPs and NGCPs for the ~~to the type of activity under the Program alternatives.~~

This terrestrial resources evaluation does not incorporate any assumptions about which alternative treatment strategy or strategies (options) would be applied in any given area.

Therefore, each Program alternative is considered as a stand-alone option, although the Program may include multiple alternative treatments within a given area (e.g., physical controls followed by larvicide application). Guidelines used to trigger a particular alternative based on vector abundance and other variables are included in District-specific operating procedures. This evaluation assumes that important parameters such as sediment half-life are dependent on the specific conditions at the time of pesticide application; therefore, the values listed herein serve as reference values.

This evaluation assumes that all chemical treatments would be made in accordance with label instructions and guidance provided by the USEPA and CDPR and in consideration of the local context for that area, (i.e., nearby area land uses and habitats). The USEPA requires mandatory statements on pesticide product labels that include directions for use; precautions for avoiding certain dangerous actions; and where, when, and how the pesticide should be applied. This guidance is designed to ensure proper use of the pesticide and prevent unreasonable adverse effects to humans and the environment. All pesticide labels are required to include the name and percentage by weight of each active ingredient in the product/formulation. Toxicity categories for product hazards and appropriate first-aid measures must be properly and prominently displayed. Pesticide labels also outline proper use, storage, and disposal procedures, as well as precautions to protect applicators. The directions for use specify the target organism, appropriate application sites, application rates or dosages, contact times, and required application equipment for the pesticide. Warnings regarding appropriate wind speeds, droplet sizes, or habitats to avoid during application are also prominently displayed.

Concerning the application of multiple chemical treatments in the same area, such as larvicides followed by adulticides (i.e., not likely to occur under normal circumstances), or the application of multiple pesticides at the same time in a specific area (e.g., usually multiple active ingredients in the formulation such as VectoMax which combines Bti and Bs), the following information applies:

Most products sold as herbicides and pesticides are evaluated herein both for the active ingredient and for the adjuvants and surfactants used to make the product more useful. When multiple products are used in a vector control application, the impacts are weighed against the proximity and timing of each application. If products with similar or different active ingredients are applied simultaneously, it is likely that the net effect could be the sum of the total active ingredient that is available for uptake by the vector. However, for vector control applications, materials with the same active ingredient are not applied simultaneously at a given site. The need for reapplication of mosquito larvicides or adulticides is surveillance driven and performed per the label directions. The District can apply larvicide materials with different active ingredients during a single application. This type of application is necessary if multiple hatches of mosquito larvae occur and results in mosquito populations occurring at different stages of the life cycle. An example of this occurs when liquid Bti and methoprene are applied simultaneously. When this occurs the combination of the material is called Duplex, and the mixture of the materials and active ingredients is provided for on the product labels. Another example for the District includes the application of a liquid trans allethrin and phenothrin spray product to minimize the hazard of approaching a yellow jacket nest. Situations that would produce a residual exposure adequate to cause harm to humans would not occur unless the application(s) were inappropriate or the timing of applications is inappropriately close. Actual applications do not generally occur that close together unless there is a problem with treatment effectiveness. A material is applied followed by post treatment inspection to determine effectiveness. Only if the vector population

has not been sufficiently suppressed would the District go back into the area and reapply a pesticide.²

Assumptions related to the analysis of hazards, toxicity, exposure, chemistry, fate, and transport for chemical treatment methods are explained below, including the definition of key terms. The ecological food-web concept is explained as well, and it is addressed primarily in Section 6.2.2, Evaluation Methods and Assumptions, and in Section 5.2.2.4.

Section 5.2.2.2 Toxicity and Exposure pages 5-32 to 5-33 second and fourth paragraph are modified and third paragraph is added as follows:

However, these, and other, coordinated and focused laboratory tests are designed to document the effects of the chemical ~~when using~~ a continuous, controlled, ~~laboratory exposure exists and do that does~~ not realistically reflect the likely patchy exposures or toxicity in typical of District field application scenarios. As such, the toxicity information ~~is generated using laboratory tests (and some limited field tests)~~ are intended as an overview of potential issues that might be associated with maximum direct exposures to develop and recommend guidance for understanding the ~~completely “safe” use that should provide maximum exposure levels of applications that would are~~ protective of ecological health. These guidelines include numerous ‘safety margins’ in the toxicity calculations that ~~would are~~ intended to provide adequate efficacy to target organisms while not adversely ~~impacting~~ humans or nontarget plant and animal species. In some instances, the regulatory guidance may include additional suggestions for protective application to assure no significant impact on nontarget species and humans.

Although laboratory toxicity testing focuses on tiered concentrations of chemical exposure, the results of these tests produce a series of toxicity estimates of concentrations less than those that produce mortality. Extrapolation of these data is used to generate estimates of chronic toxicity or possible effects of lower doses that may result in sublethal effects such as reproduction or metabolic changes. In reality, these low-dose exposures need to be sustained over longer periods (and usually at higher concentrations) than are relevant to typical application scenarios for vector control including multiple applications in an area such as a wetland.

Although the regulatory community uses this basic information to provide a relative comparison of the potential for a chemical to result in unwanted adverse effects and this information is reflected in the approved usage labels and material safety data sheets (MSDSs), in actual practice, the amounts applied in the District’s Program Area are substantially less than the amounts used in the laboratory toxicity studies. Because of ~~these~~ the large ~~inherent~~ safety factors ~~in~~ used to develop recommended product application rates, the amount of chemical resulting in demonstrated toxicity in the laboratory is ~~nowhere near~~ much higher than the low exposure levels associated with an actual application. The application concentrations consistent with the labels or MSDSs are designed to be protective of the health of humans and other nontarget species (i.e., low enough to not kill them, weaken them, or cause them to fail to reproduce). Impacts may occur to some nontarget organisms. Although numerous precautions (BMPs) and use of recommended application guidance is intended to provide efficacy without adverse effects to nontarget organisms, misapplication or unexpected weather conditions may still result in effects on some nontarget organisms in the exposure area. This potential impact is ameliorated/mitigated by careful use of BMPs, advance planning, and intensive staff training by the District.

² When the District determines the need to reapply a material, it is District policy to perform an intensive assessment to determine why the first treatment/application did not work to prevent a similar failure and the need to reapply.

Section 5.2.2.4 Ecological Food Webs pages 5-33 to 5-34, text was rearranged/modified, moved from here (i.e., paragraph two) to other PEIR sections (Section 5.2.2.3), and language added to first, third and fourth paragraphs to read as follows:

While it is important to evaluate the potential adverse impacts of a pesticide application to potentially affected nontarget species, it is neither feasible nor practical to evaluate those potential impacts to ~~a representative food web~~ all of the food webs present in the ecosystems under consideration. An ecological food web is represented in the illustration representing some of the multitude of possible biotic and food uptake interactions in an ecosystem. ~~Each of the possible connections between species is also associated with other interactions.~~ Figure 5-2 depicts a highly simplified food web. In an ecological system each level in the food web is occupied by dozens or hundreds of species, with consumers using those resources (in this case species from a lower trophic level) in different ways depending on availability and competition for those resources. Their utilization of these resources shifts by time of day and season, and multiple resources being used simultaneously or alternatively. If the availability of one resource decreases, the consumer can generally replace that with another resource. Each of the possible connections between species is also associated with other interactions, such as competitive release, where the abundance of a species increases in response to the decline in a competitor's abundance, or competitive interactions between consumers where one consumer can use a particular resource better than its competitor. These interactions can be the result of higher levels of animal species organization (trophic) or paired interactions between individuals that result in added, positive associations (symbiotic) for both species.

~~Various biological, chemical, and physical parameters affect the behavior of a compound in the environment and its potential toxicity. The chemistry, fate, and transport of a compound must be analyzed to fully estimate potential exposure. The fate and transport of a compound is determined by the physical and chemical properties of the compound itself and the environment in which it is released. Thus, the following characteristics of a compound must be evaluated: its half-life in various environmental media (e.g., sediment, water, air); photolytic half-life; lipid and water solubility; adsorption to sediments and plants; and volatilization. Environmental factors that affect fate and transport processes include temperature, rainfall, wind, sunlight, water turbidity, and water and soil pH. Information pertaining to these parameters allows evaluation of how compounds may be transported between environmental media (e.g., from sediments to biota), how a compound may be degraded into various breakdown products, and how long a compound or its breakdown products may persist in different environmental media. Appendix B provides a discussion of the environmental fate of the pesticide active ingredients and other chemicals associated with specific pesticide formulations used in the Program alternatives.~~

Pesticides can kill natural predators of vectors. For example, the District's activities associated with the Physical Control and Vegetation Management Alternatives would help allow these predators to access habitats where mosquito larvae are present. When chemical control is used to manage mosquitoes, it generally is used at levels that are below the effects thresholds for other organisms especially insects and invertebrate predators, as described above. Although mosquito pesticides may also affect invertebrate predators (e.g., dragonflies), recovery of predator populations is usually rapid as the predator populations extend beyond the application areas and will rapidly replace any lost individuals. In general, the pesticides used for mosquito control exhibit low or no toxicity to birds or mammals. Limited information is available regarding toxic effects to reptile or terrestrial amphibian mosquito predators.

Mosquitoes are part of the food web, and their loss may reduce the food base for some predators. Although mosquitoes may serve as one of many types of prey items for some fish, avian insectivores, bats, and small reptiles and amphibians, the reduction of mosquito abundance

over a small area will not affect the predator populations overall, as other prey sources are available.

5.2.3 Surveillance Alternative

Pages 5-34 to 5-36, impacts discussion was reorganized to the environmental topics as new sections are created: 5.2.3.1 Impacts to Special Status Species, 5.2.3.2 Impacts to Habitat, 5.2.3.3 Impacts to Migration and Movement, 5.2.3.4 Conflict with Local Policies and 5.2.3.5 Conflict with Conservation Plans. For each new section existing text is modified and additional text added as appropriate for clarity:

New Section 5.2.3.1 last paragraph and Impact TR-1 (on page 5-36) are revised as follows:

Surveillance activities might result in some physical damage to habitat or associated vegetation from foot traffic and vehicle use in areas without marked trails to access areas for potential vector inspection. Special status species could be directly impacted by these activities. The District investigates sites for the presence of special status and sensitive species prior to initiating any further surveillance measures in natural habitat areas, and only small areas would be disrupted ~~temporarily~~ briefly by access activities. As described above, most surveillance occurs along access routes that are already established and would only be cleared periodically to maintain access as necessary. Where new access routes are required, they would have only a very small effect on habitat in areas where surveillance occurs. Therefore, ~~few~~ minimal impacts would occur to terrestrial ~~resources~~ species.

Impact TR-1. The Surveillance Alternative would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species ~~in local or regional plans, policies, or regulations, or by the CDFW or USFWS. This alternative would not directly affect these species, as described above. Most surveillance occurs along access routes that are already established, and would only be cleared periodically to maintain access, as necessary. Where new access routes are required they would have only a very small effect on habitat in areas where surveillance occurs. No mitigation is required.~~ No mitigation is required.

New Section 5.2.3.2 on page 5-35, the second and third paragraphs read as follows:

Surveillance activities would not affect the quantity or distribution of habitats, such as riparian areas, marshes, lakes or ponds, seasonal wetlands, or other habitat types identified in local or regional plans or listed by CDFW and USFWS. This alternative would not affect the composition of their vegetative ~~community~~ communities, as very limited numbers of plants would be pruned or removed over a very small area. ~~This alternative~~ Most surveillance occurs along access routes that are already established, which would usually be cleared periodically, during the fall to minimize impacts, to maintain access, as necessary. Surveillance activities might result in some physical damage to habitat or associated vegetation from foot traffic and vehicle use in areas without marked trails to access areas for potential vector inspections. Where new access routes are required, they would have only a very small effect on habitat in areas where surveillance occurs. Surveillance would not result in any removal, filling or hydrologic interruption of federally protected wetlands as defined by CWA Section 404, (including, but not limited to, marsh, vernal pool, and coastal).

The District has long-standing cooperative and collaborative relationships with CDFW, professional biologists, and property owners with regard to access and mosquito surveillance in association with vernal pools and other sensitive habitats. The District receives environmental awareness training from resource agency staff (e.g., CDFW and USFWS) and professional biologists with respect to minimizing the potential for impacts to sensitive habitats (e.g., vernal pools) and associated special status species. For example, when using ATVs to perform mosquito surveillance in the proximity of vernal pools, District staff stay outside of the margin of

the vernal pools (delineated by the change from wetland to upland vegetation types) and do not operate ATVs within the actual vernal pool. The District may cross hydrological connections, i.e., swales between vernal pools, when necessary and with permission from regulatory agencies. When possible, District staff perform mosquito surveillance on foot with handheld equipment or by operating ATVs in upland areas away from vernal pools and walking from the ATV to the pools to perform mosquito surveillance (e.g., using a long hose reel based on the ATV). When it is necessary to use an ATV for mosquito surveillance in proximity to vernal pools, the District uses low ground pressure vehicles. District staff operate ATVs at slow speeds on sites containing vernal pools and remain observant while operating equipment and walking in and amongst vernal pool habitat.

Impacts TR-2 and TR-3 on page 5-36 were simplified and explanatory text moved into preceding discussion so the statements now read as follows:

Impact TR-2. The Surveillance Alternative would have a **less-than-significant** impact on any riparian habitat or other sensitive natural community ~~identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. Most surveillance occurs along access routes that are already established, and would only be cleared periodically, during the fall to minimize impacts, to maintain access, as necessary. Where new access routes are required they would have only a very small effect on habitat in areas where surveillance occurs.~~ No mitigation is required.

Impact TR-3. The Surveillance Alternative would have a **less-than-significant** impact on federally protected wetlands as defined by CWA Section 404, ~~(including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Most surveillance occurs along access routes that are already established, and would only be cleared periodically, during the fall to minimize impacts, to maintain access, as necessary. Where new access routes are required they would have only a very small effect on habitat in areas where surveillance occurs.~~ No mitigation is required.

New Section 5.2.3.3 paragraph is modified, and Impact TR-4 on page 5-36 is simplified as follows:

The Surveillance Alternative would not result in any ground-disturbing activity and, therefore, would not result in any removal, filling or hydrologic interruption of federally protected wetlands. Any disruption of migration patterns would be due to the presence of personnel and machinery in the environment. In all cases this occurrence would be very short term, generally not more than a few hours in any given location and, therefore, ~~Therefore,~~ this effect would be minimal and, would have little ~~no~~ effect on the movement of any native resident or migratory fish or wildlife, and would not affect wildlife migration corridors or nursery areas, as no physical disturbance would occur.

Impact TR-4. The Surveillance Alternative would have ~~no a~~ **less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. ~~Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.~~ No mitigation is required.

New Section 5.2.3.4 paragraph is modified and Impact TR-5 on page 5-36 is simplified as follows:

The county and city general plans and their goals and policies pertaining to open space and natural resources are generally consistent with the CEQA criteria regarding impacts on species and protective of terrestrial resources and focused on conservation of existing resources including land for wildlife and wildlife movement, native vegetation, and natural beauty and on integrated pest management for agricultural lands. Any impacts identified for these CEQA criteria would also be relevant to the county and city goals. Surveillance activities would not result in the conversion of natural habitats. Any impacts identified for these CEQA criteria would also be relevant to the county and city goals. The project would not to other land uses or in the long-term or permanent

dislocation of plant and animal species from natural areas except indirectly for mosquitoes and vectors of disease and discomfort. The Surveillance Alternative would not affect trees of more than a 4 inches-inch diameter breast height and, therefore, would not conflict with any tree ordinances.

Impact TR-5. The Surveillance Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none of these have been identified.~~

New Section 5.2.3.4 was added, the second paragraph modified, and Impact TR-6 on page 5-36 was simplified as follows:

No HCPs or NCCPs were identified whose action area is within Napa County, the primary Service Area, although a few were identified in adjacent counties (see Table 4-5). District activities are typically not among those covered by these HCPs. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. **Impact TR-6.** The Surveillance Alternative would not conflict with the provisions of any adopted HCP, NCCP, or other approved local, regional or state habitat conservation plan. No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work the District does in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans. Therefore, **no impact** would occur.

The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, US Army Corps of Engineers (USACE), CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be inconsistent with the provisions of any adopted HCP, NCCP, or other approved local, regional, or state-approved conservation plan.

Impact TR-6. The Surveillance Alternative would not conflict with the provisions of **have no impact** on any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work the District does in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans. Therefore, no impact would occur.

5.4.2 Physical Control Alternative

Section 5.2.4.1 Impacts to Special Status Species and Habitats was created out of the existing text, and the species and habitat types are explained under this new subheading, followed by Impacts TR-7, TR-8, and TR-9.

Under Section 5.2.4.1.11 Seasonal Wetlands (including Vernal Pools), on page 5-39, the second paragraph is modified and additional text added, and a third paragraph added, such that the paragraphs read as follows:

Vernal pools, a specific type of seasonal wetland, often support a unique assemblage of endemic plant and animal species, many of which have been identified as ~~special-status species by~~

~~federal and state agencies (see Tables 4-3 and 4-4). Because of the sensitive nature of these habitat types, the District generally would not undertake Physical Control measures in these areas. In the event that physical control in seasonal wetlands or vernal pools was required, the District would not implement such actions without previously discussing their need with the relevant regulatory agencies to verify that no other option exists to control the mosquito problem and to make sure that any such activity would be done in such a way as to minimize its impacts. As a result, this “consultation prior to implementation” BMP would result in a less-than-significant impact to aquatic or terrestrial resources status species by federal and state agencies (see Tables 4-3 and 4-4). The District receives environmental awareness training from resource agency staff (e.g., CDFW, USFWS) and professional biologists to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. When using ATVs to perform mosquito control in the proximity of vernal pools, District staff stay outside of the margin of the vernal pools (delineated by vegetation change from wetland to upland) and never operate ATVs within wetland vegetation or the actual vernal pool. When possible, District staff perform mosquito control on foot with handheld equipment, or by operating ATVs in upland areas away from vernal pools and walking from the ATV to the pools to perform mosquito control. When it is necessary to use an ATV for mosquito control in proximity to vernal pools, the District utilizes low ground pressure vehicles. District staff operate ATVs at slow speeds on sites containing vernal pools and remain observant while operating equipment and walking in and amongst vernal pool habitat.~~

Because of the sensitive nature of seasonal wetland habitats, the District generally would not undertake physical control measures in these areas. In the event that physical control in seasonal wetlands or vernal pools was required, the District would not implement water management and vegetation removal actions without previously discussing them with the relevant regulatory agencies or refuge wildlife managers to verify that no other alternative or option is preferable to control the mosquito problem at that location, to make sure that any such activity would be done in such a way as to minimize its impacts, and to have in place required permits. As a result, this “consultation prior to implementation” BMP and practices described above would result in a less-than-significant impact to aquatic or terrestrial resources.

Under Section 5.2.4.1.14 Waste Water Treatment Facilities/Septic Systems, on pages 5-40 to 5-41, first paragraph is modified and additional text added, such that paragraph reads as follows:

Wastewater treatment facilities may provide nesting habitat for special status avian species such as short eared owl and northern harrier hawk since such facilities may lie close to suitable habitats in streams or the San Francisco Bay Delta system. The extent to which these species may enter these facilities is unknown. Because of the limited number of such facilities, the limited use of such facilities by special status species, and the application of the BMPs described in Table 5-3, physical control measures are not anticipated to substantially affect avian species. Maintenance activities could result in the short-term disturbance of special status animals due to human presence and the noise associated with the activity. This disturbance is only anticipated to last a few hours. Animals may move away from the disturbance while it was ongoing, but would likely return to the area shortly after the activity ceases. Such work would be conducted outside of bird nesting season, wherever practical. If work needed to be done during the nesting season, nest surveys would be conducted prior to initiating work, and suitable buffers would be established around any active nests while performing the work.

Under Section 5.2.4.1.16 Effects on Habitat, Movement, Local Policies and Ordinances, and HCP/NCCPs, pages 5-40 to 5-42 are broken up and new sections 5.2.4.2 Effects on Movement and Migration, 5.2.4.3 Conflict with Local Policies, 5.2.4.4 Conflict with Conservation Plans and 5.2.4.5 Other Vectors are created in order to clearly show the physical control impacts discussion for these topics.

In Section 5.2.4.2 Effects on Movement and Migration, the text is modified as follows:

Physical changes in the habitat would result that have the potential to affect wildlife migration. However, these changes would tend to enhance migration, opening routes, not closing them. ~~However~~Furthermore, this effect would occur within restricted areas and would not substantially alter migratory pathways or success. Additional disruption of migration patterns may occur due to the presence of personnel and machinery in the environment. In all cases this occurrence would be short term, generally not more than a few days in any given location and, therefore, this effect would be minimal and would have little or no effect on the movement of wildlife. Nor would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

New Section 5.2.4.3 Conflict with Local Policies, the paragraph is modified as follows:

The county and city general plans and their goals pertaining to natural resources are generally ~~consistent with the CEQA criteria regarding impacts on species~~protective of terrestrial resources and focused on conservation of existing resources. Physical control activities would not result in the conversion of natural habitats. Any impacts identified to other land uses or in the long-term or permanent dislocation of terrestrial species from natural areas except for these CEQA criteria would also be relevant to the county mosquitoes and city goals. The project~~vectors of disease and discomfort.~~ The Physical Control Alternative would not affect trees of a more than 4 inches-inch diameter breast height and, therefore, would not conflict with any tree ordinances.

New Section 5.2.4.4 Conflict with Conservation Plans, the paragraph is modified with text added as follows:

No HCPs or NCCPs were identified whose action area is within Napa County, the District's primary Service Area, although a few were identified in adjacent counties (Table 4-5). District activities are typically not among those covered by these HCPs. The BDCP's AMM 33 Mosquito Management calls for management and control of mosquitoes during construction of project facilities. The HCP Implementation Office will accomplish this goal through consultation with appropriate mosquito and vector control districts, and the HCP Implementation Office is to carry out mosquito control activities as necessary and applicable. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be inconsistent with the provisions of any adopted HCP, NCCP or other adopted local, regional, or state approved conservation plan.

New Section 5.2.4.5 Other Vectors text added, paragraph reads as follows:

Physical control measures for other vectors (yellow jackets, ticks, and rodents) focus on measures to exclude the provisions of any applicable conservation plans. Therefore, ~~no~~ **impact** vector from the area, and reduce harborage and food resources. Activities would ~~occur~~not

alter terrestrial habitats and, thus, would have no effect on terrestrial resources including special status species.

Impact TR-7 on page 5-42 is modified and explanatory text moved into preceding discussion so that TR-7 now reads as follows:

Impact TR-7. The Physical Control Alternative would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

Impact TR-8 on page 5-42 is modified and explanatory text moved into preceding discussion so that TR-8 now reads as follows:

Impact TR-8. The Physical Control Alternative would have a **less-than-significant** impact on any riparian habitat or other sensitive natural community. No mitigation is required.

Impact TR-9 on page 5-42 is modified and explanatory text moved into preceding discussion so that TR-9 now reads as follows:

Impact TR-9. The Physical Control Alternative would have a **less-than-significant** impact on federally protected wetlands as defined by CWA Section 404. No mitigation is required.

Impact TR-10 on page 5-42 is modified and explanatory text moved into preceding discussion so that TR-10 now reads as follows:

Impact TR-10. The Physical Control Alternative would have ~~no~~ a **less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. No mitigation is required.

Impact TR-11 is modified to read as follows:

Impact TR-11. The Physical Control Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

Impact TR-12 page 5-42 modified and explanatory text moved into preceding discussion so that TR-12 now reads as follows:

Impact TR-12. The Physical Control Alternative would ~~not conflict with the provisions of~~ have a **less-than-significant impact** on any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. ~~Therefore no impact would occur.~~ No mitigation is required.

New Section 5.2.4.5 Other Vectors, an impact statement is added as TR-13, and reads as follows:

Impact TR-13. Physical control measures for other vectors would have **no impact** on terrestrial habitats or special status species.

5.2.5 Vegetation Management Alternative

Section 5.2.5.1 Physical Management on page 5-43 has been re-titled Physical Vegetation Removal and the discussion modified with text added as follows:

~~Nonherbicide management or physical vegetation removal~~ actions may involve reducing standing vegetation using equipment. The use of weed-whackers, small chainsaws, pruners, or shovels may lead to physical injury of terrestrial plants and animals in the treatment area. Manual removal

is the primary method of vegetation removal and would not be anticipated to affect substantial patches of vegetation in the affected area. Skid steers are typically used at a small number of sites to mow access paths in dense stands of cattails in seasonal wetlands and retention basins and, infrequently, in riparian habitat to mow access paths through dense stands of blackberry and poison oak to facilitate surveillance and the application of larvicides. This work is typically done in the fall to minimize potential impacts to special status species by avoiding the breeding season for birds and other species. The District will ensure that all required permits are in place before vegetation management activities are undertaken. Short-term (a few days to a week) increases in noise could result from the operation of heavy equipment under this alternative. The District is in communication with resource agencies prior to performing this type of work.

Section 5.2.5.2.1 Glyphosate, page 5-44, paragraphs one and two are modified and text added as follows:

The District may use glyphosate widely on a limited, infrequent basis for vegetation management in vector habitats and for site access. Although some recent concerns have been expressed about possible sublethal effects of glyphosate products (e.g., endocrine disruption in humans, see Chapter 7, Section 7.2.5.1), it is virtually nontoxic to mammals and practically nontoxic to birds, fish, and invertebrates on an acute basis. With BMP Claims that glyphosate is destroying bee and butterfly populations have not been substantiated. The use of glyphosate to control milkweed, which is a severe problem for farmers, but a host plant for some species of butterfly, may be connected to loss of foraging vegetation and, thereby, indirectly impacting butterfly populations. However, this effect is an indirect effect and glyphosate is not actually toxic to the butterflies. With BMPs and targeted application techniques, glyphosate can be used safely when an adequate buffer (>15 feet) to water sources is maintained (glyphosate is much more toxic to fish and aquatic invertebrates than to mammals, birds, or terrestrial invertebrates) or when a formulation specifically designed for use in aquatic environments (e.g., Aquamaster) is used. In terrestrial systems, glyphosate is immobile and breaks down relatively quickly via microbial processes. Glyphosate does not pose a risk to nontarget terrestrial mammals, birds, or invertebrates based on past usage patterns and use of BMPs. This herbicide is nonselective and may affect many types of plants. Glyphosate is not effective on submerged or mostly submerged foliage and, therefore, is only applied to control emergent foliage (Schuette 1998; Siemering 2005). When Some reports of sublethal effects on disease resistance, biological diversity, enzyme activity, and increased use of genetically engineered foods are interesting but without clear mechanisms that can be related directly to glyphosate (Gertsberg 2011).

When herbicide application BMPs are applied, the potential impact of glyphosate on special status species or other nontarget plants is greatly reduced. TheyThe District also makes every effort to minimize treatments that could affect milkweed, a plant important to Monarch butterfly populations. These BMPs include using targeted, small-scale treatments and taking actions to minimize drift and runoff post-application.

Section 5.2.5.2.1 Glyphosate, page 5-44, impact statement is added as TR-14 and reads as follows:

Impact TR-14: The use of herbicides including glyphosate as a vegetation management technique would result in a less-than-significant impact to special status species and their habitats and mitigation is not required.

Section 5.2.5.3 Adjuvants, pages 5-44 to 5-45, last paragraph in section and Impact TR-15 are added as follows:

Little is known about the toxicity or environmental fate of lecithins. Lecithins are naturally occurring phospholipids in biological cell membranes (Bakke 2007). Although toxicity and environmental fate information for these products is limited, using application BMPs including application at the lowest effective concentration for a specific set of vectors and environmental

conditions, use of lecithins should not result in unwanted adverse effects to nontarget terrestrial organisms.

Impact TR-15: The use of adjuvants would result in a less-than-significant impact to special status species and their habitats and mitigation is not required.

Section 5.2.5.3.7 Treeholes, page 5-47, section renumbered to 5.2.5.4.7 and text added to read as follows:

Standing water in treeholes (cavities in branches and trunks of live trees or snags that may provide habitat for a variety of species) may facilitate the appropriate habitat to support mosquitoes. Treeholes support a variety of special status species including purple martin and a variety of cavity nesting avian species including owls (afforded protection under USFWS and CDFW), and western red bat, pallid bat, and other bat species. Vegetation management activities primarily involve minor hand trimming to allow access for monitoring, physical control (e.g., use of an absorbent material, see Section 5.2.4.1.7), and sometimes hand chemical treatment (e.g., methoprene pellets) of those treeholes that are less than 12 feet above ground level and typically in trees that are not on steep slopes and other difficult-to-access areas. Management of treehole breeding mosquitoes using the Physical and Vegetation Management Alternatives is very limited, as many of the trees with treeholes are in areas of steep terrain that is not easily or safely accessible. Vegetation management that is performed would be done in coordination with landowners or land managers and resource agencies, as well as following the BMPs described in Table 5-3. Therefore, less-than-significant impacts would occur to special status species associated with treeholes from the Vegetation Management Alternative.

Section 5.2.5.3.11 Seasonal Wetlands (includes Vernal Pools), page 5-48 has been renumbered to 5.2.5.4.11, discussion has been modified and text added to read as follows:

Seasonal wetlands (defined in Section 5.2.4.1.11), including vernal pools, may also support substantial stands of emergent vegetation, although these areas are typically not inundated for long enough periods to support dense stands of vegetation preferred by mosquitoes. Terrestrial species that might occur here include tricolored blackbird, alkali milk-vetch, Sonoma sunshine, Mead's owls-clover, dwarf downingia, Santa Lucia dwarf rush, Contra Costa goldfields, woolly meadowfoam, Baker's navarretia, Calistoga popcorn flower, saline clover, and others as indicated in Tables 4-3 and 4-4. As a result, these areas are unlikely to be subject to vegetation management actions. If vegetation management activities were required, potential effects would be avoided and minimized by the BMPs in Table 5-3 relating to agency communication, environmental training, and pretreatment screening. Vegetation Management Alternative specific BMPs would be applied. Depending on the species potentially present in an area, species-specific BMPs may also be applied, including seasonal avoidance measures. With these BMPs, the effects of this action would be less-than-significant. While the District would not operate equipment including ATVs within vernal pools, the District may cross hydrological connections (i.e., swales) between vernal pools when necessary and with permission from regulatory agencies. The District regularly communicates with and works collaboratively with representatives from agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives environmental awareness training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species.

The Vegetation Management Alternative would not result in the direct removal, filling, or hydrological interruption of federally protected wetlands as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal). It may result in the removal of minor amounts of

vegetation in these areas. All work in wetlands would be subject to additional permitting and oversight by the USACE, USFWS, CDFW, BCDC, RWQCB, and others.

If vegetation management activities are required, potential effects would be avoided and/or minimized by the BMPs in Table 5-3 relating to resource agency communication, environmental training, and pretreatment screening. Vegetation management-specific BMPs would be applied. With these BMPs implemented, the effects of vegetation management on seasonal wetlands would be less than significant.

Section 5.2.5.3.17 Impact Determinations, pages 5-49 to 5-50, has been divided into the following Sections 5.2.5.4.16 Impact Determinations for Special Status Species and Habitats, 5.2.5.4.17 Effects on Movement and Migration, 5.2.5.4.18 Conflict with Local Policies and 5.2.5.4.19 Conflict with Conservation Plans in order to better clarify explanatory text and simplify the impact statements.

5.2.5.4.17 Effects on Movement and Migration has text moved from 5-49 and modified to read as follows:

This alternative could have a small effect on the migration of wildlife and movement and migration corridors. The removal of small areas of vegetation would not substantially affect movement corridors, but the presence of personnel and equipment may result in short-term avoidance of active work areas. In all cases this occurrence would be short term, generally not more than a few days in any given location. Work that may be performed would be conducted in coordination with landowners and, therefore, or managers and resource agencies, and all necessary permits would be required before work was implemented. Therefore, this effect would be minimal and would have little effect/impact on the movement of any native resident or migratory fish or wildlife would not affect, wildlife migration corridors, or nursery areas, as little to no physical disturbance would occur.

New Section 5.2.5.4.18 Conflict with Local Policies has text moved from page 5-49 and additional text added to read as follows:

The county and city general plans and their goals and policies pertaining to natural resources are generally consistent with the CEQA criteria regarding impacts on species and protective of terrestrial resources and focused on conservation of existing resources. Vegetation management activities would not result in the conversion of natural habitats. Any impacts identified to other land uses or in the long-term or permanent dislocation of plant and animal species from natural areas except indirectly for these CEQA criteria would also be relevant to the county and city goals. The project mosquitoes and vectors of disease and discomfort. Vegetation management would not affect trees of more than a 4 inches-inch diameter at breast height and, therefore, would not conflict with any local tree ordinances.

New Section 5.2.5.4.19 Conflict with Conservation Plans has text moved from page 5-49 and additional text added to read as follows:

No HCPs or NCCPs were identified whose action area is within Napa County, the District's primary Service Area, although six were identified in adjacent counties (excluding the California Department of Corrections Statewide Electrified Fence Project, Table 4-5). District activities are typically not among those covered by these HCPs. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and

associated special status species. Therefore, the District's vegetation management activities would not be inconsistent with the provisions of any HCP, NCCP or other adopted local, regional, or state approved conservation plan.

Impact TR-13 on page 5-49 is renumbered to TR-16 and modified with explanatory text moved into preceding discussion and now reads as follows:

Impact TR-16. The Vegetation Management Alternative would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

Impact TR-14 on page 5-49 is renumbered to TR-17, modified with explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-17. The Vegetation Management Alternative would have a **less-than-significant** impact on any riparian habitat or other sensitive natural community. No mitigation is required.

Impact TR-15 on page 5-50 is renumbered to TR-18, modified with explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-18. The Vegetation Management Alternative would have a **less-than-significant** impact on federally protected wetlands as defined by CWA Section 404. No mitigation is required.

Impact TR-16 on page 5-50 is renumbered to TR-19 and modified with explanatory text moved into preceding discussion and now reads as follows:

Impact TR-19. The Vegetation Management Alternative would have ~~no a~~ **less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. No mitigation is required.

Impact TR-17 on page 5-50 is renumbered to TR-20 and simplified to read as follows:

Impact TR-20. The Vegetation Management Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

Impact TR-18 on page 5-50 is renumbered to TR-21, modified with explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-21. The Vegetation Management Alternative would have a less-than significant impact on any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. No mitigation is required.

5.2.6 Biological Control Alternative

Section 5.2.6.2.1 Effects on Habitat, Movement, Local Policies and Ordinances, and HCP/NCCPs is divided into the following sections: 5.2.6.2.1 Impacts to Special Status Species and Habitats, 5.2.6.3 Effects on Movement and Migration, 5.2.6.4 Conflict with Local Policies, and 5.2.6.5 Conflict with Conservation Plans in order to better clarify explanatory texts and impact statements.

5.2.6.2.1 Mosquito Larvae Pathogens on page 5-51 is renamed Impacts to Special Status Species and Habitats, and first paragraph is added to read as follows:

The use of mosquitofish in a given situation is given careful consideration with regard to the potential ecological consequences of such introductions. The District uses them in

selected aquatic environments where they do not pose a threat to natural environments or native fish and amphibians and where they do not directly impact terrestrial habitats or species that would have access to other food sources. Although mosquitoes may serve as one of many types of prey items for some fish, avian insectivores, bats, and small reptiles and amphibians, the reduction of mosquito abundance by mosquitofish over a small area would not affect the predator populations overall, as other prey sources are available.

Impact TR-19 on page 5-51 is renumbered to TR-22, modified with explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-22. The Biological Control Alternative would have **no impact**, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species.

Impact TR-20 on page 5-51 is renumbered to TR-23 and modified to read as follows:

Impact TR-23. The Biological Control Alternative, ~~with the BMPs identified in Table 5-3,~~ would have **no impact** on any riparian habitat or other sensitive natural community ~~identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.~~

Impact TR-21 on page 5-52 is renumbered to TR-24 and simplified to read as follows:

Impact TR-24. The Biological Control Alternative would have **no impact** on federally protected wetlands as defined by CWA Section 404.

New Section 5.2.6.3 Effects on Movement and Migration is added with text added as follows:

District use of mosquitofish would have no effect on the movement of any native resident or migratory fish or wildlife and would not ~~limited to, marsh, vernal pool, coastal, etc.~~ affect wildlife migration corridors or nursery areas.

Impact TR-22 on page 5-51 is renumbered to TR-25 and modified to read as follows:

Impact TR-25. The Biological Control Alternative would have **no impact** on the movement of any native resident or migratory fish or wildlife species. ~~Not, nor~~ would it impact any native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

New Section 5.2.6.4 Conflict with Local Policies has text added to read as follows:

The county and city general plans and their goals and policies pertaining to natural resources are protective of terrestrial resources and focused on conservation of existing resources. Biological control activity with mosquito fish would not result in the conversion of natural habitats to other land uses or in the long-term or permanent dislocation of plant and animal species from natural areas except indirectly for mosquitoes and vectors of disease and discomfort. This alternative would not affect trees and, therefore, would not conflict with any tree ordinances.

Impact TR-23 on page 5-51 is renumbered to TR-26 and modified to read as follows:

Impact TR-26. The Biological Control Alternative would have **no impact** on local policies or ordinances protecting biological resources, ~~such as a tree preservation policy or ordinance, as none have been identified.~~

New Section 5.2.6.5 Conflict with Conservation Plans section added, paragraph three of Section 5.2.6.2.1 page 5-51 moved to this section and modified, and additional text added so that new Section 5.2.6.5 reads as follows:

No HCPs or NCCPs were identified whose action area is within Napa County, the District's primary Service Area, although six were identified in adjacent counties (Table 4-5). District activities are typically not among those covered by these HCPs. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. Biological control with mosquitofish in designated sensitive habitats would not be implemented within the boundaries of these conservation plans unless appropriate protocols as required by the USFWS or CDFW demonstrated that special status species did not occupy that habitat and such habitat did not connect to other waters that could support special status species.

The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be inconsistent with the provisions of any HCP, NCCP or other adopted local, regional, or state approved conservation plan.

Impact TR-24 on pages 5-51 to 5-52 is renumbered to TR-27, modified with explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-27. The Biological Control Alternative would have **no impact** on any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

5.2.7 Chemical Control Alternative

Section 5.2.7 Chemical Control Alternative, page 5-52, has discussion added after the fourth paragraph as follows:

Chemical control is a Program tool that consists of the application of nonpersistent insecticide products demonstrated to reduce populations of larval or adult mosquitoes and other problem vectors (e.g., yellow jacket wasps). If and when inspections reveal that mosquitoes or other vector populations are present at levels that trigger the District's guidelines for chemical control – based on the vector's abundance, density, species composition, proximity to human settlements, water temperature, presence of predators and other factors – staff will apply pesticides to the site in strict accordance with the pesticide label requirements and the BMPs summarized in Section 5.2.2.1 and listed in Table 5-3. The threshold guidelines for these response triggers are based on previous documentation and monitoring/current surveillance of likely vector outbreaks or expansions of vector populations. Additional response triggers are based on verified vector populations, outbreaks, discomfort and irritation issues for humans and animals, and public concern about vectors.

Section 5.2.7.1.4 Surfactants (Alcohol ethoxylated surfactant, aliphatic solvents) on page 5-55 is modified and text added from Chapter 6 Ecological Health and Chapter 7 Human Health as follows:

Petroleum- and plant-based (ethoxylated isostearyl alcohols) oils are used as surface-active agents effective against larvae and pupae. These oils are effective against these immature life stages when inhaled at the water surface or by physically forming a surface film that drowns the mosquito. These treatments Surfactants (Alcohol ethoxylated surfactant, aliphatic solvents) and plant-derived oils work by making it difficult for mosquito larvae and pupae to attach to the water's surface, causing them to drown. Surfactants affect only the uppermost layer of the water. The use of these materials

is employed only when absolutely necessary to prevent emergence of adult mosquito populations and is also a least preferred method for mosquito management. Surfactant applications may also be effective against adult mosquitoes during adult emergence. These treatments are specific to aquatic environments and are not applied to terrestrial environments, although some drift may occur. The toxicity of these materials is discussed more thoroughly in Appendix B and summarized in Table 6-1, Appendix B.

Alcohol ethoxylated surfactants (monomolecular films) could result in reductions to populations of surface-breathing insects (other than mosquitoes) during treatment; however, it is unlikely that these reductions would result in lasting or observable effects on nontarget organisms when applied within product label limits. Monomolecular films are not environmentally persistent and typically degrade within 21 days. In addition, populations recover quickly following recolonization from adjacent and neighboring sites and habitats. The alcohol ethoxylated surface film used historically as a surfactant in California for mosquito control was Agnique. This material is no longer registered for use in California and currently no other alcohol ethoxylated surfactants are commercially available for mosquito control at this time.

Aliphatic solvents (e.g., mineral oils) are the product of petroleum distillation and, thus, are complex mixtures of long-chain aliphatic compounds. Aliphatic solvents are often used when monomolecular films (alcohol ethoxylated surfactants) are not available or do not provide sufficient mosquito control. They also break down more rapidly (2 to 3 days) and are practically nontoxic to most nontarget organisms. Therefore, aliphatic solvents should not result in adverse ecological effects when applied using District BMPs.

Plant-derived oils, whether vegetable or fruit, can be used for the management of vectors, especially immature mosquitoes. Plant-derived oils are generally of two types: triglycerides or methylated oils. CocoBear Mosquito Larvicide Oil is the only plant-based oil that is currently available for use in the District's Program (also see Section 4.3.6.4 in Appendix B). This product consists mostly of a modified coconut oil (75 percent or more by volume) combined with 10 percent by volume mineral oil and a very small amount of nonionic surfactant and other proprietary ingredients. CocoBear is also nonpersistent, becoming ineffective within 1 to 2 days. CoCoBear has no reported significant toxicity to any receptors likely to be exposed during or after use as a larvicide.

Impact TR-25 on page 5-61 has been divided into renumbered impact statements TR-28 to TR-31 to better address individual chemical options. Explanatory text has been moved into the appropriate discussion preceding each new impact statement. Renumbered impact statements TR-28 to TR-31 read as follows:

Impact TR-28: The Chemical Control Alternative's mosquito larvicides would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

Impact TR-29: The Chemical Control Alternative's mosquito adulticides and PBO would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

Impact TR-30. The Chemical Control Alternative's use of pyrethrin, pyrethroid, and lambda-cyhalothrin pesticides for control of yellow jackets and ticks would have a **less-than-significant** impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

Impact TR-31. The Chemical Control Alternative's use of rodenticides would have a less-than-significant impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. No mitigation is required.

Section 5.2.7.2 Mosquito Adulticides page 5-55 has been renumbered 5.2.7.1.2 with the first paragraph modified and second and third paragraphs added to read as follows:

In addition to chemical control of mosquito larvae, the District may use pesticides for control of adult mosquitoes when no other tools are not available and if specific criteria guidelines are met, including species composition, population abundance and/or density (as measured by landing count or other quantitative method), proximity to human populations, and/or human disease risk. Adulticides are can be used over terrestrial habitats, vegetated areas preferred by adult mosquitoes (see Section 4.2.7.2). Treatment of adults is a tertiary line of defense employed when physical controls and larviciding are have not been sufficiently effective. As with larvicides, adulticides are applied in strict conformance with label requirements (Appendix B). Adulticides the District uses are listed in Table 5-98. Because of the ecological sensitivity of vernal pools, which support numerous species of listed plants and invertebrates, and the toxicity of these chemicals to nontarget organisms, the District avoids use of these adulticides in areas with vernal pools. The District will use all available means to avoid use of adulticides over vernal pool habitats. If the use of adulticides were to become necessary within close proximity (relative to swath widths of ULV application equipment) to or over vernal pools, the District will notify USFWS and CDFW of the need. Applications would be performed in strict compliance with label requirements, with use of the appropriate BMPs as listed in Table 5-3, and in consultation with resource agencies and property owners. A detailed discussion of the environmental fate and toxicity of these pesticides is provided in Appendix B. The potential impact on wildlife from noise associated with equipment use would be minimal, as the use of equipment for adulticiding is of short duration and the animals would return to their selected habitats within a few hours at most for application techniques the District currently uses. Adulticides, when used, are usually applied from the ground via truck, ATVs, utility vehicles, or handheld devices as an ULV application.

Aerial adulticiding, although the least preferred technique, could potentially be utilized in the future to deal with a severe vector outbreak or risk of mosquito-borne disease transmission. Aerial applications are made using ULV techniques. Aerial application of adulticide may be the only reliable means of obtaining effective control in areas bordered by extensive mosquito production sites with a small, narrow, or inaccessible network of roads, or to cover a very large area quickly in case of unusually severe mosquito outbreaks or vector-borne disease epidemics. Since 1978, the District has conducted an aerial application of adulticides only once. This application was over a marsh area containing an extraordinarily high outbreak of summer salt marsh mosquitoes with the ability to travel more than 10 miles from the larval source. The decision to conduct aerial application of adulticides is taken with every precaution, and is considered a last resort by the District.

Pyrethrins

The District uses pyrethrin for mosquito and/or yellow jacket wasp control. For yellow jacket control, pyrethrin is applied around parks, landscaping, and directly into ground nests and rarely on tree nests. For adult mosquito control, pyrethrins may be applied over a wide range of land uses and habitat types, although this line of defense is tertiary and infrequently used. However, the District uses pyrethrins only when absolutely necessary due to mosquito abundance and density in an area and, even then, minimal amounts are applied (via ULV application), thus reducing the potential for impacts to nontarget ecological receptors (BMPs H3, H4, H11). As an additional measure, pyrethrin applications are canceled during less than ideal wind and potential drift

conditions (BMP H6). For wasp (yellow jacket and paper wasps) control, the District applies pyrethrins in minute volumes directly to ground nests and tree nests if necessary, which essentially negates any impact to nontarget species. The District ensures that all applications are made in accordance with label specifications and USEPA and CDPR recommendations for use with mosquitoes and other vector insects.

Section 5.2.7.3 Yellow Jacket and Tick Control on page 5-58 has been renumbered to 5.2.7.1.3 with Section 5.2.7.3.2 (page 5-59) modified and text added. Revised Section 5.2.7.3 now reads as follows:

Pyrethroids and Pyrethroid-like Compounds

Pyrethroid insecticides are synthetic compounds that are chemically similar to the pyrethrins but have been modified to increase stability and activity against insects. First-generation or "Type I" photosensitive pyrethroids include d-allethrin, phenothrin (sumithrin), prallethrin, resmethrin, and tetramethrin. Typically, these pyrethroids are used indoors and around residential areas. The newer second-generation pyrethroids are mostly "Type II" pyrethroids. The active ingredients that fall into this group include deltamethrin, esfenvalerate, and permethrin. Permethrin use is restricted to situations when it is absolutely necessary and in ULV applications that are designed to degrade rapidly and, thus, reduce the potential for impacts to nontarget ecological receptors. Type II pyrethroids are more toxic (than Type I pyrethroids) because they are less photosensitive and persist longer in the environment. Most pyrethroids and pyrethroid-like compounds are of low toxicity to birds and mammals, but of high toxicity to honeybees.

Section 5.2.7.4.1 Anticoagulant Rodenticides on page 5-60 is renumbered to Section 5.2.7.1.4 and renamed Rodent Abatement.

Section 5.2.7.4.2 Effects on Habitat, Movement, Local Policies and Ordinances, and HCP/NCCPs page 5-61 has been divided into the following sections and text added: 5.2.7.2 Impacts to Habitat, 5.2.7.3 Effects on Movement and Migration, 5.2.7.4 Conflicts with Local Policies and 5.2.7.5 Conflicts with HCP/NCCPs in order to better clarify explanatory text and impact statements.

New Section 5.2.7.2 Impacts to Habitat reads as follows:

The Chemical Control Alternative would not affect the quantity or distribution of habitats, such as riparian areas, marshes, lakes or ponds, seasonal wetlands, or terrestrial habitat types identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. This alternative would not affect the composition of their vegetative ~~community~~communities, as the pesticides used would not be expected to affect plants or their physical or hydrologic attributes. This alternative would not result in ~~any~~substantial ground-disturbing activity, and, therefore, i.e., just temporary site access as described under the Surveillance Alternative. Therefore, the Chemical Control Alternative would not result in any removal, filling or hydrologic interruption of federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal).

New Section 5.2.7.3 Effects on Movement and Migration reads as follows:

Any disruption of migration patterns would be due to the presence of personnel and equipment in the environment. In all cases this occurrence would be very short -term, generally not more than a few hours in any given location and, therefore, this effect would be minimal and would have little effect on the movement of wildlife ~~and would not affect~~, wildlife migration corridors, or nursery areas, ~~as no physical disturbance would occur.~~

New Section 5.2.7.4 Conflicts with Local Policies reads as follows:

The county and city general plans and their goals pertaining to natural resources are ~~generally consistent with the CEQA criteria regarding impacts on species~~protective of terrestrial resources and focused on conservation of existing resources. Chemical control activities would not result in

~~the conversion of natural habitats. Any impacts identified for these CEQA criteria would also be relevant to the county other land uses or in the long-term or permanent dislocation of plant and animal species from natural areas except for mosquitoes and vectors of disease and discomfort. Chemical control would not affect trees of a more than a 4-inch diameter breast height and, therefore, would not conflict with any tree ordinances.~~

New Section 5.2.7.5 Conflicts with HCP/NCCPs reads as follows:

No HCPs or NCCPs were identified whose action area is within Napa County, the District's primary ~~service area~~ Service Area, although a few ~~six~~ were identified in adjacent counties (see Table 4-5). District activities are typically not among those covered by these HCPs. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. Therefore, the District activities would not be ~~in conflict~~ inconsistent with the provisions of any HCP, NCCP or other ~~approved~~ adopted local, regional, or state approved conservation plan.

Impact TR-26 on page 5-61 is renumbered TR-32, modified, explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-32. The Chemical Control Alternative would have **no impact** on any riparian habitat or other sensitive natural community.

Impact TR-27 on page 5-61 is renumbered to TR-33 and modified to read as follows:

Impact TR-33. The Chemical Control Alternative would have **no impact** on federally protected wetlands as defined by CWA Section 404.

Impact TR-28 on page 5-61 is renumbered to TR-34 and modified to read as follows:

Impact TR-34. The Chemical Control Alternative would have ~~no~~ **a less-than-significant** impact on the movement of any native resident or migratory fish or wildlife species. No mitigation is required.

Impact TR-29 on page 5-62 is renumbered to TR-35 and modified to read as follows:

Impact TR-35. The Chemical Control Alternative would have **no impact** on local policies or ordinances protecting biological resources.

Impact TR-30 on page 5-62 is renumbered TR-36, modified, explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-36. The Chemical Control Alternative would have **no impact** on any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. ~~No such plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work the District does in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans. Therefore, no impact would occur.~~

5.2.8 Other Nonchemical Control/Trapping Alternative

Section 5.2.8 page 5-62 has been divided into the following new sections: 5.2.8.1 Impacts to Special Status Species and Habitats, 5.2.8.2 Effects on Movement and Migration, 5.2.8.3 Conflict with Local Policies, 5.2.8.4 Conflict with Conservation Plans, with text modified to better clarify explanatory text and impact statements.

New Section 5.2.8.1 Impacts to Special Status Species and Habitats reads as follows:

This alternative would be undertaken under prescribed circumstances in and around developed/urban areas that do not provide good habitat for special status species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Rodent trapping may also be performed in rural settings to collect blood samples to test for disease. Trapping of yellow jackets would not be expected to have any effect on special status species or their habitats, as these traps are highly localized, self-contained, and inaccessible to these species. Traps for rodents are designed for live trapping of small mammals and baited to attract rodents, the target species. These traps are usually not deployed in areas where special status mammals occur. When trapping is required, the District consults with the CDFW and USFWS and obtains all appropriate permits for trapping. All animals captured, have a blood sample taken for testing and are released. A report of animals captured and released is filed in accordance with CDFW at the conclusion of each trapping day, permit requirements. These traps are highly unlikely to attract special status birds, reptiles or amphibians, and even more unlikely to capture ~~any~~ special status species. The placement and operation of these traps would not change the amount or physical properties of any type of habitat or alter the hydrology in any way. They would not impair migration or alter migratory corridors or nursery sites.

This alternative would not affect the quantity or distribution of habitats, such as riparian areas, marshes, lakes or ponds, seasonal wetlands, or other habitat types. This alternative would not affect the composition of their vegetative community as the placement of traps and baits would not affect plants. This alternative would not result in any ground-disturbing activity and, therefore, would not result in any removal, filling or hydrologic interruption of federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal).

New Section 5.2.8.2 Effects on Movement and Migration reads as follows:

Any disruption of migration patterns would be due to the presence of personnel and equipment (to set traps) in the environment. In all cases this occurrence would be very short term, generally not more than a few hours in any given location and, therefore, this effect would be minimal and would have little effect on the movement of any native resident or migratory fish or wildlife and would not affect wildlife migration corridors or nursery areas, as no physical disturbance would occur.

New Section 5.2.8.3 Conflict with Local Policies reads as follows:

The county and city general plans and their goals pertaining to natural resources are generally consistent with the CEQA criteria regarding impacts on species and protective of terrestrial resources and focused on conservation of existing resources. The other nonchemical control/trapping activities would not result in the conversion of natural habitats. Any impacts identified to other land uses or in the long-term or permanent dislocation of plant and animal species from natural areas except indirectly for these CEQA criteria would also be relevant to the county and city goals, mosquitoes and vectors of disease and discomfort. These activities would not affect trees of a more than 4-inch diameter breast height and, therefore, would not conflict with any tree ordinances.

New Section 5.2.8.4 Conflict with Conservation Plans reads as follows:

No HCPs or NCCPs were identified whose action area is within Napa County, the primary ~~service area~~ Service Area, although ~~a few~~ six were identified in adjacent counties (see Table 4-5). District activities are typically not among those covered by these HCPs. When called into these adjacent counties to perform work, the District would operate under the auspices of that county's mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs. The District regularly communicates with and works collaboratively with representatives from resource agencies such as RWQCB, USEPA, USACE, CDFW, and USFWS. The District receives training from resource agency staff and professional biologists (e.g., CDFW, USFWS) to minimize impacts and conducts annual field training for field staff regarding precautionary and avoidance measures related to sensitive habitats (e.g., vernal pools) and associated special status species. ~~When called into these adjacent counties to perform work, the District would operate under the auspices of that counties mosquito and vector control district and in compliance with their practices and permits, including compliance with all active HCP/NCCPs.~~ Therefore, the District activities would not be in conflict with the provisions of any HCP, NCCP or other ~~approved~~ adopted local, regional, or state approved conservation plan.

Impact TR-31 on page 5-63 is renumbered to TR-37 and modified to read as follows:

Impact TR-37. The Other Nonchemical Control/Trapping Alternative would have **no impact**, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species.

Impact TR-32 on page 5-63 is renumbered to TR-38 and modified to read as follows:

Impact TR-38. The Other Nonchemical Control/Trapping Alternative would have **no impact** on any riparian habitat or other sensitive natural community.

Impact statement TR-33 page 5-63 is renumbered to TR-39 and modified to read as follows:

Impact TR-39. The Other Nonchemical Control/Trapping Alternative would have **no impact** on federally protected wetlands as defined by CWA Section 404.

Impact TR-34 page 5-63 is renumbered to TR-40 and modified to read as follows:

Impact TR-40. The Other Nonchemical Control/Trapping Alternative would have ~~no~~ a less-than-significant impact on the movement of any native resident or migratory fish or wildlife species. No mitigation is required.

Impact TR-35 on page 5-63 is renumbered to TR-41 and modified to read as follows:

Impact TR-41. The Other Nonchemical Control/Trapping Alternative would have **no impact** on local policies or ordinances protecting biological resources.

Impact TR-36 on page 5-63 is renumbered to TR-42, modified, explanatory text moved into preceding discussion, and now reads as follows:

Impact TR-42. The Other Nonchemical Control/Trapping Alternative would ~~not conflict with the provisions of~~ have no impact on any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. ~~No such approved plans are currently in place within the District, but several are in place in adjoining counties, as identified in Table 4-5. Any work the District does in adjoining counties would be at the request of and under the authority of the adjoining counties mosquito and vector control district and would adhere to the provisions of any applicable conservation plans. Therefore, no impact would occur.~~

3.2.7 **Chapter 6. Ecological Health**

6.2.1 **Hazards, Toxicity, and Exposure in the Environmental Setting**

A new Section 6.1.1.3 Bioaccumulation and Biomagnification was added to page 6-3.

Bioaccumulation is the increase in concentration of a chemical from the environment to the first organism in a food chain, while biomagnification is the increase in concentration of a chemical from one trophic level in the food chain to another. In addition to direct exposures, the issues of bioaccumulation of some chemicals (they have all been categorized by USEPA) and their persistence in the environment are all included in the risk calculations wherever the data are available. Several chemicals are identified as persistent, meaning that they remain in the media of application for relatively long periods (i.e., weeks, months). However, most pesticides currently used by the District are selected preferentially for much shorter half-lives of hours to days. These physio/chemical characteristics of the chemicals selected for vector control are always considered early in the risk calculation process. Only in some special situations such as an USEPA Section 18 “emergency”³ are the older, more persistent products allowed. These emergency situations are intended for and only to stop dramatic and sometimes potentially catastrophic vector infestations.

Biologically persistent chemicals (and bioaccumulation) by definition address the potential for a chemical to move up the food chain and even increase the tissue concentration (biomagnification) in higher trophic animals. The chemicals known to elicit bioaccumulation and/or biomagnification are specifically addressed in the assessment as each of the “higher” (predator) receptor species is considered. As a result of this focus on biological and chemical properties of selected pesticides, the risk assessment process provides the best, conservative estimate of any potential unwanted adverse effects.

Some chemicals have the potential to be retained in the fatty tissues of organisms and accumulate after their prolonged exposure to contaminated sources (bioaccumulation), resulting in a higher concentration in the organism over time. In some cases chemicals can even exist in organisms above the exposure media concentrations (biomagnification). However, biomagnification is correlated with an organism that is associated with continued exposure to a contaminated environment (e.g., usually sediments and water) and is not typically associated with the limited and/or short term chemical exposures that might result from District applications for vector control. Even chemicals that have a potential to bioaccumulate do not exhibit this phenomenon in all biota, since toxic chemicals are selectively taken up by fat (e.g., a chemical may bioaccumulate in fish but not in all animals). Many toxic substances are excreted or metabolized after ingestion such that bioaccumulation is dependent on the physio/chemical characteristics of the chemical (persistence and toxicity), the concentration of the chemical, and the specific organism exposed.

With the exception of a small number of pesticides currently used or planned for use by the District, the majority do not bioaccumulate. The herbicide adjuvants nonylphenol and short-chain nonylphenol ethoxylates are discussed in Section 6.2.5.1.2. See Section 6.2.7 under the Chemical Control Alternative for a discussion of seven pesticides with potential for bioaccumulation. The persistence, bioaccumulation, and the toxicity of each of the chemicals used or planned for use by the District are presented in each of the respective sections addressing these chemicals in Appendix B and in Appendix B, Table 6-1.

³ Section 18 of FIFRA authorizes EPA to allow States to use a pesticide for an unregistered use for a limited time if EPA determines that emergency conditions exist. Current and recent actions under Section 18 are detailed in the FIFRA Section 18 Emergency Exemptions database.

6.2.1 Evaluation Concerns and Criteria

On page 6-7, item c response was revised.

- > Bs is a naturally occurring soil bacterium. Data indicate a high degree of specificity with Bs (and Bti) for mosquitoes and demonstrate no toxicity to chironomid larvae at any mosquito control application rate. Bs is capable of cycling in the aquatic environment providing weeks of effective mosquito control after a single dose. It is very effective in water with high organic content and ineffective in brackish and saline waters. The use, fate and transport, and potential toxicity of Bs is discussed in Section 6.2.7 and described in detail in Appendix B.

On page 6-7, item h response was revised.

- > Although larval and adult mosquitoes serve a positive role as potential prey items for some invertebrates, fish, avian insectivores, bats, small reptiles, and amphibians, the loss or reduction of a focus area (~~infested or large~~ population of mosquitoes) will not affect the predator populations overall. Many species of mosquitoes are short lived or seasonal, so they generally serve as only one of many possible prey sources for predators. The decline in one prey species generally means that a predator will shift its food preference. No predators are known that rely exclusively on mosquitoes (larval or adult) for prey.

6.2.2 Evaluation Methods and Assumptions

On page 6-12, last paragraph is revised.

Most products sold as herbicides and pesticides are evaluated herein both for the active ingredient and for the adjuvants and surfactants used to make the product more useful. When multiple products are used in a vector control application, the impacts are weighed against the proximity and timing of each application. ~~When two approved products are used that contain two active ingredients, this scenario is possible, but the product usually already contains two active ingredients.~~ If products with an identical similar or different active ingredients are applied simultaneously, it is likely that the net effect could be the sum of the total active ingredient that is available for uptake by the vector.

6.2.3 Surveillance Alternative

On page 6-14, the last sentence of the fourth paragraph is revised.

Trapping to assess rodent presence and abundance is infrequently conducted. When rodent trapping is performed, specialized traps are utilized and care taken in placement, pickup and processing to reduce effects to reduce the chance of nontarget species capture.

6.2.4 Physical Control Alternative

On page 6-15, the last sentence of the first full paragraph is revised.

The presence of special status species at aquatic or terrestrial sites or the presence of suitable habitat for ~~or~~ special status species would require consultation and coordination with resource agencies prior to implementation ~~result in cancellation~~ of scheduled physical control activities.

6.2.5 Vegetation Management Alternative

On page 6-15, paragraph 3 is revised.

The District uses hand tools (e.g., shovels, pruners, chainsaws, and weed-whackers) and heavy equipment where necessary for vegetation removal or thinning and sometimes apply herbicides to improve surveillance or reduce vector habitats. Vegetation removal or thinning primarily occurs in aquatic habitats to assist with the control of mosquitoes and in terrestrial habitats to help with the control of other vectors. To reduce the potential for mosquito breeding associated with water

retention and infiltration structures, District staff may systematically clear weeds and other obstructing vegetation in wetlands, winery waste ponds, and retention basins (or request the structures' owners, within the limits of resource agency requirements and permits, to perform this task). Surveys for special status plants, coordination with the landowner, and acquisition of necessary permits are completed before any work is undertaken. In some sensitive habitats and/or where special status species concerns exist, vegetation removal and maintenance actions would be restricted to those months or times of the year that minimize disturbance/impacts. Vegetation management is also performed to assist other agencies and landowners with the management of invasive/nonnative weeds. These actions are typically performed under the direction of the concerned agency, which also maintains any required permits.

On page 6-15, paragraph 4 is revised.

Vegetation management in the form of removal could include the use of weed-whackers, chainsaws, and shovels. These activities could lead to physical injury to special status species of terrestrial plants and animals. The District applies BMPs to reduce these impacts, including the identification of special status species in treatment areas, communication with resource agencies, and acquisition of permits, prior to commencing any vegetation removal actions. The nonherbicide component of the Vegetation Management Alternative is not expected to result in adverse ecological effects. These activities are generally coordinated with and monitored by public agencies and conducted during times to alleviate potential impacts to nontarget organisms.

On page 6-17, the material preceding Section 6.2.5.1.1 is modified.

The majority of herbicides the District was using and may use in the future exhibit little to no toxicity to mammals, birds, and terrestrial invertebrates (Chapter 5). See Chapter 4 for a discussion of potential impacts to aquatic receptors. Glyphosate and Sselect herbicidesadjuvants were identified for further evaluation based on historical use patterns and toxicity (Appendix B) and are discussed in further detail below.

On page 6-17, Section 6.2.5.1.1 Glyphosate, the discussion of glyphosate is revised.

The District strictly adheres to their BMPs and product label requirements, including the restriction of glyphosate application to targets outside an approved (by USFWS) or other commonly used buffer zone separating water sources, which reduces the potential for impacts to special status species or other nontarget receptors. The District also makes every effort to minimize treatments that could affect milkweed, a plant important to Monarch butterfly populations. Targeted, small-scale treatments are conducted to minimize post-application drift and runoff.

On page 6-18, Section 6.2.5.1.2 Adjuvants, the following paragraph is added, after the second paragraph.

Polydimethylsiloxanes are insoluble in water and typically sorb to particulates. Degradation time varies depending on moisture in soils. These chemicals appear to be relatively nontoxic to most organisms, but information is limited regarding the toxicity and environmental fate of polydimethylsiloxanes. Similarly, little is known about the toxicity or environmental fate of lecithins, which are a commonly used amphoteric surfactant derived from soybeans.

6.2.6 Biological Control Alternative

On page 6-19, Section 6.2.6.2 Mosquito Predators, a sentence was added to the discussion above Impact ECO-7.

Mosquitofish (*Gambusia affinis*) are presently the only commercially available mosquito predators. The District's use of these fish in mosquito habitats is the most commonly used biological control agent for mosquitoes in the world. Used correctly, this fish can provide safe, effective, and persistent suppression in various mosquito-producing sources. However, due to concerns that mosquitofish may potentially impact red-legged frog and tiger salamander populations, the District

limits the use of mosquitofish to constructed ponds such as ornamental fish ponds, water troughs, water gardens, fountains, and unmaintained swimming pools, which are not connected to natural waterways. Limiting the introduction of the mosquitofish to these sources and retrieving the fish at the conclusion of the treatment would be sufficient to prevent impacts to special status species in natural habitats. However, it is possible for individuals of these species or nonlisted species to enter these constructed ponds and not be able to proliferate.

On page 6-19, Section 6.2.6.2.3 Other Vectors was added.

No effective natural predators exist to control high rodent populations. Domestic and feral cats may provide short-term control when the rodent population is low, but they can also impact bird populations. The District does not employ cats for rodent control. Currently, no commercial biological control agents or products are available for wasp, yellow jacket, and tick control.

6.2.7 Chemical Control Alternative

On page 6-20, following Table 6-6, new text and a new Table 6-7 were added to address the bioaccumulation issue in greater detail.

A few of these pesticides used by the District have the potential to bioaccumulate to varying degrees. Pesticides in use identified as having the potential to bioaccumulate under some conditions are listed below in Table 6-7.

Table 6-7 Pesticides with Potential to Bioaccumulate

<u>Active Ingredient</u>	<u>Vector</u>	<u>Potential to Bioaccumulate</u>
<u>Methoprene</u>	<u>Mosquito (larvae)</u>	<u>Yes</u>
<u>Spinosad</u>	<u>Mosquito (larvae)</u>	<u>Yes</u>
<u>Esfenvalerate</u>	<u>Yellow jacket wasp; tick</u>	<u>Yes</u>
<u>Lambda-cyhalothrin</u>	<u>Yellow jacket wasp; tick</u>	<u>Yes</u>
<u>Etofenprox</u>	<u>Mosquito(adults) / yellow jacket wasp</u>	<u>Yes</u>
<u>Bromadiolone</u>	<u>Rodent</u>	<u>Yes</u>
<u>Brodifacoum</u>	<u>Rodent</u>	<u>Yes</u>

Although these active ingredients have the potential to bioaccumulate, the conditions in which they are used include the use of ULV application methods for adult mosquito control and highly localized applications for yellow jackets, ticks, and rodents. The larvicides methoprene and spinosad have been designated as bioaccumulators, but the environmental conditions on the ground and in water after an application of one of these pesticides by the District generally does not provide the continuous exposure needed for substantial bioaccumulation in a nontarget organism with no subsequent biomagnification. Therefore, the impact is less than significant.

On page 6-22, to Section 6.2.7.1.3 Hydrocarbon Esters (Methoprene), a sentence is added to the end of the third paragraph.

Release rates of extended release methoprene products are also engineered to be at the low levels effective for mosquito control while minimizing impacts to nontarget organisms.

On page 6-22, Section 6.2.7.1.5 Aliphatic Solvents (Mineral Oil), the first paragraph under this section is deleted.

~~Monomolecular films are alcohol ethoxylated surfactants, which are low-toxicity pesticides that spread a thin film on the surface of water that makes it difficult for mosquito larvae, pupae, and emerging adults to attach to the water's surface, causing them to drown (USEPA 2007a). The~~

~~films also disrupt larval respiration of some other classes of air-breathing aquatic insects. They are used on an assortment of waterbodies including ornamental ponds, pastures, irrigation systems, drainage systems, and drinking water systems (CDPR 2010a).~~ On page 6-23, the following sentence was added before the Impact ECO-11.

Plant oil mixes include the use of the small amount of mineral oil alcohol ethoxylated surfant and a blend of methyl esters of fatty acids.

On page 6-24, Section 6.2.7.2.1 Pyrethrins, the first full paragraph is modified.

The District uses pyrethrin for mosquito and/or yellow jacket wasp control. For yellow jacket wasp control, pyrethrin is applied around parks, landscaping, and directly into ground nests. For mosquito control, pyrethrin is applied to man-made and natural sites including, but not limited to, woodland areas with treehole mosquitoes, ditches and moving and standing water.

On page 6-25, Section 6.2.7.2.2 Pyrethroids and Pyrethroid-like Compounds, the following is added to the third paragraph on resmethrin.

This material would be considered for use only when pyrethrin and the other synthetic pyrethroids are not available.

6.2.9 Cumulative Impacts

After the first paragraph in this section, on page 6-29, the following paragraph was added.

The incremental effects of the District's use of seven pesticides with the potential to bioaccumulate in the environment (i.e., including methoprene and spinosad for mosquito larvae; esfenvalerate, etofenprox, and lambda-cyhalothrin for adult mosquitoes/yellow jackets/ticks; and brodifacoum and bromadiolone for rats) do not contribute considerably to large-scale bioaccumulation and regional impacts to ecological health. The limited number and use of the adult insect products (esfenvalerate, etofenprox, and lambda-cyhalothrin) and rodenticides (brodifacoum and bromadiolone) in relation to the area of application is inconsequential and does not create a risk that existing organisms would be subject to continuous exposure or exposure at a frequency and duration that is likely to present a substantial risk of bioaccumulation. Although spinosad and methoprene have been designated as potential bioaccumulators, the environmental conditions on the ground and in water after an application of one of these pesticides by the District generally do not provide the continuous exposure needed for substantial bioaccumulation in nontarget organisms. The impact of District applications of these pesticides that could contribute to the bioaccumulation of these pesticides in nontarget animals and the environment is short-lived with such a small fraction of their overall normal exposure to outside stress as to be unremarkable. The seven pesticides that have the potential to bioaccumulate are used in such low doses, usually with special application restrictions, and in such prescribed areas as to not substantially impact the regional environment and are not cumulatively considerable.

3.2.8 Chapter 7. Human Health

7.2.2 Evaluation Methods and Assumptions

On page 7-12, the second paragraph is revised.

This evaluation herein does not include assumptions about which alternative treatment strategy(ies) would be applied in any given area. Criteria used to trigger a particular alternative based on vector abundance and other variables are included in the District's operating procedures. This evaluation assumes that important parameters, such as media half-life, are dependent on the specific conditions at the time of pesticide application, and values listed herein serve as references values.

7.2.3 Surveillance Alternative

Beginning on page 7-12, the last paragraph is revised.

District practices would be a continuation of existing activities using applicable techniques, equipment, vehicles, and watercraft (except for possible purchase of an airboat for future use). Surveillance activities involve monitoring the distribution and abundance of adult and larval mosquitoes (field counting, sampling, and trapping), field inspection of mosquito habitat, testing for the presence of arboviruses in mosquitoes and their hosts, encephalitis virus-specific antibodies in sentinel chickens or wild birds, collection and testing of ticks for the presence of tick-borne pathogens (e.g., Lyme disease, ehrlichia, tularemia and spotted fever group rickettsia), small rodent trapping and testing, and/or response to public service requests regarding nuisance other vector animals or insects (e.g., yellow jacket wasps). Surveillance of potential areas of concern is a critical element for directing and responding to potential outbreaks of mosquitoes vectors and the potential for conveying mosquito vector-borne diseases.

7.2.5 Vegetation Management Alternative

On page 7-14, Section 7.2.5.1 Herbicides, the second paragraph is supplemented with the following additional information after Table 7-4, and a third paragraph is added before Impact HH-4..

The District may use herbicides to control vegetation in and around mosquito habitats to improve surveillance and reduce suitable breeding habitats. Herbicides are typically classified into the following major categories: pre-emergent herbicides (applied to the soil to prevent seedlings from germinating and emerging); post-emergent herbicides (applied after seedlings have emerged and control actively growing plants via contact damage or systemic impacts); contact herbicides (cause physical injury to the plant upon contact); and systemic herbicides (damage the internal functioning of the plant). Herbicides included in the Program have diverse chemical structures, act through distinct modes of action, and exhibit varying levels of potential toxicity to humans. These Many of the herbicides are typically nonselective and broad-spectrum and function by inhibiting growth but do so in a multitude of ways. Most of the herbicides are moderately persistent in soil and water (for each herbicide's half-life in soil and water, please refer to Appendix B). The following have been shown to exhibit no/low toxicity to humans: imazapyr (USEPA 2006a), triclopyr (USEPA 1998a), and sulfometuron methyl (USEPA 2008). The actual use and human exposure in the field are far less than tested in the laboratory, and much higher volumes (exposure) would be needed to result in toxicity.

Many of the herbicides are typically nonselective and broad-spectrum and generally function by inhibiting growth but do so in a multitude of ways. For example, sulfometuron methyl retards or stops root and shoot development. Herbicides used against annual broadleaf weeds are generally of the post-emergent variety, such as triclopyr and sulfometuron methyl. In addition, imazapyr is a systematic, nonselective, pre- and post-emergent herbicide used for a broad range of terrestrial and aquatic weeds. Glyphosate represents a commonly used herbicide for the

control and elimination of grass weeds and sedges. Most of the herbicides are moderately persistent in soil and water (for each herbicide's half-life in soil and water, refer to Appendix B).

On page 7-14, immediately prior to Section 7.2.5.1.1 Glyphosate the following was added.

Glyphosate and adjuvants were identified for further evaluation based on use patterns and toxicity (Appendix B) and discussed in further detail below.

On page 7-14, the first paragraph in Section 7.2.5.1.1 Glyphosate is modified.

Glyphosate is a nonselective, post-emergent, and systemic herbicide that is the active ingredient (as an acid or salt) in Alligare, Aquamaster, Buccaneer, and Roundup® products. It is designed to target the shikimic acid pathway, which is specific to plants and some microorganisms; therefore, glyphosate is thought to have very low toxicity to mammals (USEPA 1993). ~~The District employs an adequate buffer to water sources when it applies glyphosate strictly adheres to its BMPs and product label requirements when using Glyphosate. Every effort is also made to minimize treatments that could affect milkweed, a plant important to Monarch butterfly populations.~~

7.2.6 Biological Control Alternative

On page 7-16, a sentence is added to the end of first paragraph.

At present, mosquito parasites are not commercially available for mosquito control. The Biological Control Alternative as the District practices it at present would be a continuation of existing activities focused on mosquitofish using applicable techniques, equipment, vehicles, and water craft.

On page 7-16, in Section 7.2.6.1 Mosquito Larvae Pathogens, the second paragraph is replaced with the following.

All three bacteria are naturally occurring soil organisms, which are commercially produced as mosquito larvicides. Because these forms of biological control are regulated by USEPA and are applied in a similar manner to chemical pesticides, they are evaluated under Section 7.2.7, Chemical Control Alternative, including the discussion of potential impacts. The environmental fate and toxicity of these control agents are described in detail in Appendix B.

~~Because the potential environmental impacts of Bs or Bti application are generally similar to those of chemical pesticide applications, these materials and spinosad are evaluated below under Section 7.2.7, Chemical Control Alternative. The environmental fate and toxicity of these control agents is discussed in Appendix B.~~

On page 7-16, 7.2.6.2 Mosquito Predators, the discussion is modified.

Mosquitofish (*Gambusia affinis*) are presently the only commercially available mosquito predators. The District's ~~rearing and stocking use~~ of these fish in mosquito habitats is the most commonly used biological control agent for mosquitoes in the world. Used correctly, this fish can provide safe, effective, and persistent suppression in various mosquito ~~producing~~ sources. However, due to concerns that mosquitofish may potentially impact red-legged frog and tiger salamander populations, the District limits the use of mosquitofish to habitats such as ornamental fish ponds, water troughs, water gardens, fountains, and unmaintained swimming pools. Limiting the introduction of mosquitofish to these sources and retrieving the fish at the conclusion of the treatment minimizes impacts to special status species and sensitive habitats while maximizing benefits to human health.

On pages 7-17 and 7-18, in Section 7.2.7.1.1 Bacterial Larvicides (Bs, Bti, and Spinosad), the discussion is modified as follows.

~~These bacterial larvicides as applied are highly mosquito-specific bacteria that usually infect mosquito larvae when they are ingested. These pathogens multiply rapidly in the host, destroying internal organs and consuming nutrients. The pathogen can be spread to other mosquito larvae in some cases when larval tissue disintegrates and the pathogens are released into the water and are ingested by uninfected larvae. Bs and Bti, produce proteins that are toxic to most mosquito larvae, while the fermentation of *S. spinosa* produces spinosyns, which are highly effective mosquito neurotoxicants. Bacterial larvicides such as Bs and Bti are highly selective microbial pesticides for mosquitoes whose protein spores, when ingested, cause destruction of the gut wall leading to paralysis and death. Another bacterium, *Saacharopolyspora spinosa*, produces spinosyns, which are highly effective mosquito neurotoxicants. All three bacteria are naturally occurring soil organisms and are commercially produced as mosquito larvicides. Unlike Bti and *S. spinosa*, Bs is a live bacterium that can reproduce in natural settings for some time following release. Bs and Bti are applied on a variety of crops and standing and moving waterbodies, Bti materials the District applies do not contain live organisms, only spores. The spores of Bs and Bti can persist in the environment for months, but the endotoxins are readily degraded by UV light and persist only for a few hours to a maximum of a few days. Bacterial spores of Bti are uniquely toxic to nematoceran Diptera (mosquitoes, some midges, blackflies, psychodids, and ceratopogonids) (Lacey and Mulla 1990) and do not exhibit any human toxicity.~~

Spinosad alters nicotine acetylcholine receptors in insects, causing constant involuntary nervous system impacts ultimately leading to paralysis and death. ~~It is used on various crops, animal husbandry premises, recreation areas, rights-of-way, and local residences.~~ The USEPA has classified spinosad as a “reduced risk” compound because it is an alternative to more toxic, OP insecticides (CDPR 2002). It exhibits ~~very acute toxicity to target organisms~~ by all exposure routes ~~and but~~ has not been shown to elicit acute or chronic toxicity in humans.

On page 7-19, Section 7.2.7.2 Mosquito Adulticides, the paragraph is removed and replaced with two paragraphs as follows.

In addition to chemical control of mosquito larvae, the District may use pesticides for control of adult mosquitoes when no other tools are available and if specific criteria are met, including species composition, population density (as measured by landing count or other quantitative method), proximity to human populations, and/or human disease risk. Adulticide materials are used infrequently and only when necessary to control mosquito populations (e.g., those areas with treeholes where access to larval breeding sites is impractical.

Adulticides the District potentially uses include pyrethrins, synthetic pyrethroids, pyrethroid-like compounds, OPs, and synergists. Table 7-8 lists the adulticides the District uses for vector abatement. Several of these active ingredients, as well as a few others, are also used for the control of yellow jacket wasps and, in some cases, to control tick populations that pose an imminent threat to people, pets or livestock (Table 7-8 and this section). A subset of these active ingredients required further evaluation in Appendix B and further discussion is provided below. A detailed discussion of the environmental fate and toxicity of these pesticides is provided in Appendix B.

~~The District may use pesticides to control adult mosquitoes when no other tools are available and if specific criteria are met, including species composition, population density, proximity to human populations, and/or human disease risk. Adulticide materials are used infrequently to control seasonal adult mosquito populations. The adulticides the District may use or proposed to use to control mosquito and yellow jacket wasps and where they are applied are listed in Table 7-8 and discussed in detail in the section of Appendix B indicated.~~

3.2.9 Chapter 8. Public Services and Hazard Response

8.2.7 Chemical Control Alternative

On Page 8-11, the first paragraph in this section is modified.

Chemical control is a Program tool that consists of the application of nonpersistent selective insecticides to directly reduce populations of larval or adult mosquitoes and other invertebrate threats to public health (e.g., ticks, yellow jacket wasps), and the use of rodenticides to control rats and mice. Chemical control is implemented when inspections reveal that mosquitoes or other vector populations are present at levels that trigger the District's criteria for chemical control based on the vector's abundance, density, species composition, proximity to human settlements and recreational areas, water temperature, presence of predators, and other factors.

On Page 8-11, the first sentence of the fourth paragraph in this section is modified.

The District's rat population control program implements the limited use of rodenticides usually in response to the identification of high rodent populations as a result of citizen complaints ~~District resident requests.~~

Under Section 8.2.7.3 Yellow Jackets, Ticks, and Rodents, rodents are added to the discussions as appropriate.

3.2.10 Chapter 9. Water Resources

9.1.1 California's Hydrologic and Geomorphic Regions

Section 9.1.1.3 Sacramento River Hydrologic Region was added to page 9-6 with language that reads as follows:

The North Coast Hydrologic Region (North Coast region) encompasses all basins draining into the Pacific Ocean from the Oregon state line to Tomales Bay in Marin County. This region includes coastal areas, redwood forests, inland mountain valleys, and semidesert-like areas. The southern tip of this region includes a portion of Sonoma and Marin counties. Watersheds within Sonoma and Marin counties include Gualala River, Russian River, and Bodega; characteristics of these watersheds are described at the end of this section.

In the North Coast region, topographic relief can be steep and precipitation is generally high relative to the rest of the state. Heavy rainfall over the mountainous portions of the North Coast region (up to 100 inches per year) makes it California's most water-abundant area. The western coastal portion of this region receives less rainfall (e.g., at Bodega Bay in Sonoma County, annual precipitation is about 37 inches). Average temperatures are moderated by the influence of the Pacific Ocean and range from highs in the mid-80s in the summer to lows in the mid-30s during the winter (CDWR 2013c).

The North Coast region is generally forest land with agricultural land concentrated in narrow river valleys. Land use issues in the region include activities causing soil erosion such as road construction, logging and hillside agriculture (vineyards), which can affect native fish spawning. Many of the region's watersheds support threatened and endangered species of plants and animals, and many North Coast streams and rivers support runs of salmon and steelhead trout. Forest management practices are also a significant issue impacting flood management.

The North Coast region contains water service providers of all types, from small, private facilities that provide water for just a few neighboring residences to large municipal suppliers and wastewater treatment facilities. Private water districts include those representing counties or portions of counties, municipalities, irrigation districts, or particular waterbodies. Many of the smaller communities and rural areas in the North Coast region are generally supplied by small local surface-water and groundwater systems. In general for the North Coast region, groundwater

contamination from leaking underground tanks and health and safety issues from contaminated areas that are open to the public are identified by the California Department of Water Resources as priority issues related to groundwater quality (CDWR 2009c). Additionally, groundwater quality problems in the North Coast region include contamination from seawater intrusion and nitrates in some shallow coastal groundwater aquifers, and iron, boron, and manganese in some of the inland groundwater basins of Sonoma County (CDWR 2009c).

One of the largest water supply reservoirs in the North Coast region includes USACE's 380,000 acre-foot Lake Sonoma in the Russian River watershed. Lake Sonoma is operated to provide flood control and instream flows in the Lower Russian River in Sonoma County. This facility provides water for instream flows, recreation, hydropower, and water supply purposes (CDWR 2013c).

Section 9.1.1.4 San Joaquin River Hydrologic Region was added immediately after Section 9.1.1.3 (because a small portion of the Program Area includes this region) with language that reads as follows:

The San Joaquin River Hydrologic Region is generally located in the northern portion of the San Joaquin Valley. The region includes approximately half of the Sacramento-San Joaquin River Delta, including those areas that are in Contra Costa, Alameda, and San Joaquin counties. The region also contains portions of Alpine, Amador, Benito, El Dorado, Fresno, Sacramento, and San Joaquin counties; and all of Calaveras, Madera, Mariposa, Merced, Stanislaus, and Tuolumne counties. The San Joaquin River is the principal river in the region, and all other streams in the region are tributary to it (CDWR 2013b).

Average annual precipitation varies considerably, ranging from about 22 inches in the north to about 6.5 inches in the southwest. Additionally, snowfall occurs in the higher elevations of the Sierra Nevada. The snow serves as stored water before it melts and is a typically a major contributor to eastern San Joaquin Valley water supplies. Summers are hot and dry in both the valley and upland areas. Winters are usually mild, but temperatures may at times drop below freezing (CDWR 2013b).

The vegetation and topography also are highly variable, ranging from forested lands in the Sierra Nevada; chaparral communities, oak woodlands, riparian habitat, and grass savannas in the Sierra Nevada and Diablo Range foothills and rangelands; and riparian areas in the Delta and along rivers, streams, lakes, and ponds. The valley floor is primarily in agricultural use but has pockets of urbanized areas. Wetlands are present in private waterfowl hunting areas and federally and state-managed wildlife refuges and wildlife management areas. Vernal pools are located primarily along the valley's edges. The wetlands, rivers, and upland areas support a number of federally and state-listed wildlife and plant species (CDWR 2013b).

Many agricultural and municipal users receive water supply from large irrigation districts. Water use is first met by surface water supplies, primarily high-quality water from the tributaries of the San Joaquin River. Where insufficient surface water exists, imported surface water is delivered primarily through the Central Valley Project, but smaller amounts are also delivered from the State Water Project. Local groundwater is pumped where insufficient surface water is available or where needs can be met by groundwater. Each of these water supplies is strained by a variety of factors. Surface water supplies are stressed by increased local demands, environmental requirements, and restoration needs. Imported supplies are increasingly limited due to drought, legal actions, and other compliance requirements. Average annual groundwater extraction also has been shown to frequently exceed the sustainable aquifer yield (CDWR 2013b).

Original Section 9.1.1.3 Existing Water Quality has been renumbered to Section 9.1.1.5.

9.2.6 Biological Control Alternative

Because the District does not rear mosquitofish but instead purchases them from other districts and maintains them temporarily in a holding tank, Impact WR-8 was modified.

Impact WR-8: The Biological Control Alternative's use of mosquitofish ~~limits wastewater~~ does not produce discharges to the sanitary sewer or upland areas storm drains or surface waters.

Therefore, the use of mosquitofish would have a **less-than-significant** impact on surface-water and groundwater resources and no mitigation is required.

9.2.7 Chemical Control Alternative

On page 9-32, Section 9.2.7.1.2 Hydrocarbon Esters, the last sentence in paragraph five is modified.

Although it may exhibit toxicity to fish and aquatic invertebrates, as well as nontarget insects including moths, butterflies, and beetles, methoprene is considered the least toxic of all larvicide alternatives especially at ~~typically applied low~~ concentrations allowed for mosquito control.

On page 9-33, in Section 9.2.7.1.3 Surfactants, the first complete paragraph is modified.

The District would avoid use of surfactants, when possible, in sites with aquatic nontarget species or natural enemies of mosquitoes present such as nymphal damselflies and dragonflies, dytiscids, hydrophilids, corixids, notonectids, and ephydriids. Although surfactants can be used with pupae, microbial larvicides (e.g., Bti, Bs) or insect growth regulators (e.g., methoprene) are often used with other earlier life stages (Table 9-3, BMP E2) to prevent development of pupae and minimize use of surfactants.

On page 9-37, the discussion of tetramethrin and Impact WR-24 are duplicative of material on the preceding page. The duplicative material is removed and the subsequent impact statements are renumbered.

~~Tetramethrin is a Type I synthetic pyrethroid that the District uses in very localized applications for the control of yellow jacket wasps. It is slightly mobile in soil but decomposes rapidly by photolysis and hydrolysis and is not considered persistent in the environment. Tetramethrin is practically nontoxic to birds and terrestrial mammals but meets the criteria for classification as a possible human carcinogen. It is highly toxic to fish, aquatic invertebrates, and honeybees. When District BMPs are implemented and materials are used according to label requirements and BMP application techniques that limit its release to aquatic systems, tetramethrin would not result in adverse effects to surface water or groundwater. Use of tetramethrin would have a less-than-significant impact on surface water or groundwater.~~

Impact WR-24: ~~Application of tetramethrin would have a less-than-significant impact to surface water and groundwater resources and no mitigation is required.~~

On page 9-37, Section 9.2.7.5 Rodenticides, the sentence is modified.

The District's limited use of rodenticides is as a result of surveillance and/or in response to the identification of high rodent populations as a result of citizen complaints~~District resident requests.~~

3.2.11 Chapter 10. Air Quality

10.1.6 Regulatory Framework

On page 10-12, Section 10.1.6.5.5 Nuisance (Odors), paragraph four is modified as follows.

Some of the pesticides used for mosquito control have an unpleasant odor in concentrated form, in particular the Bti liquids and the adulticides pyrethrin and permethrin. ~~When sprayed, once the fog dissipates (about 20 minutes maximum) there is no residual smell.~~ Bti liquids, when diluted with water and sprayed onto water containing breeding mosquitoes, has almost no odor within a few minutes of application. The adulticides pyrethrin and permethrin have no residual smell once the ULV fog dissipates (about 20 minutes maximum). The BVA-2 oil has an odor, although once applied (3 - 5 gallons per acre) there is not much odor. To manage potential nuisance issues, the District has a notification process for areas that request adulticiding. Residents within 100 yards of an application site must sign an agreement form prior to an application taking place.

10.2.2 Evaluation Methods and Assumptions

On page 10-16, BMP H2 is modified to be consistent with Table 2-9.

- > District will avoid use of surfactants, when possible, in sites with aquatic nontargets or natural enemies of mosquitoes present such as nymphal damselflies and dragonflies, dytiscids, hydrophilids, corixids, notonectids, ephydriids, etc. Surfactants are a least preferred method and are the only tool that can ~~but must~~ be used with pupae to prevent adult emergence. Use a microbial larvicide (Bti, Bs) or insect growth regulator (e.g., methoprene) instead, if possible.

3.2.12 Chapter 11. Greenhouse Gases and Climate Change

11.2.6 Biological Control Alternative

On page 11-23, the first full paragraph is modified.

The Biological Control Alternative would be a continuation of existing activities currently practiced by the District using applicable techniques, equipment, vehicles, watercraft, and aircraft. It currently involves the use of mosquito predators, i.e., mosquitofish (*Gambusia affinis*) as these are the only commercially available biological control agents at this time. The environmental impact concerns are phrased as questions as follows for the Biological Control Alternative:

3.2.13 Chapter 12. Noise

12.2.4 Physical Control Alternative

On page 12-17, the last paragraph is modified.

As shown in Table 12-6, ground management would require the periodic use of light trucks, such as pickup trucks and jeeps, and ATVs. Water management would require the use of ATVs and, occasionally, boats. Table 12-6 also shows the range of noise levels that they typically would generate at 50- and 400-foot distances from the source. This table also shows the land use types where activities typically would occur. However, in the event of an emergency such as a major flood, the District could respond in any of the land use types identified with any equipment that might be needed.

12.2.5 Vegetation Management Alternative

On page 12-19, the second paragraph contains the following change.

Helicopters could be used for aerial application of herbicides to control cattail growth in sewage treatment ponds and unwanted vegetation in agricultural and open space areas, although their use has been rare in the past and would not occur during nighttime hours.

On page 12-20, Section 12.2.5.1 Exceedance of Noise Standards, the discussion includes the following changes.

Helicopters would be used only in agricultural, open space, and industrial areas; such areas are not noise-sensitive, and ~~helicopters~~ would remain at any one location only briefly during the daytime. Thus, their use would not exceed noise standards.

3.2.14 Chapter 13. Cumulative Impacts

13.2.2.3 Chemical Control Alternative

On page 13-7, the beginning of the paragraph is revised.

As described in Section 13.4 (Ecological Health) and 13.5 (Human Health), historic trends in pesticide use vary from county to county based on information available from CDPR. Within the District's Program Area as a whole, pesticide use ~~decreased (or increased)~~ by approximately 17 tons (34,000 pounds) in 2010 relative to 2006. Napa County had a reduction in use of 140 tons. This reduction may be due in part to extensive regulatory oversight of pesticide use by the USEPA, CDPR, USFWS, NMFS, SWRCB, CDFW, and others as well as IPM policies. However, the use of pesticides and herbicides will continue to be necessary.

On page 13-12, the notes for Table 13-1 Historical Pesticide Use by all Users within the Napa County Mosquito Abatement District Program Area were numbered and expanded to read as follows:

Notes:

Application data were queried by active ingredient for each county and each year from CDPR's Pesticide Use Reporting database.

1. Blank cells mean either no use reported for that chemical in that county in that year or reported data were less than 0.005 lb. Because data is usually reported as pounds of product, and the active ingredient needs to be calculated, there are apparent problems in the CDPR database for some of the chemicals used by NCMAD in quantities greater than the 0.005 lb threshold for reporting the pounds of Active Ingredient.

2. All values are reported in weight (lbs) of Active Ingredient used in a county over the given year.

3.2.15 Chapter 14. Other Required Disclosures

14.1.1 No Program

On page 14-1, the discussion is modified to include the following.

Furthermore, increases in mosquito and vector populations could lead to reductions in local and state revenues for parks, marinas, campgrounds, and other recreational activities and for the business that support these activities. There is also the issue of increased costs to individuals, businesses, and governments with respect to health care and additional vector management.

3.2.16 Chapter 15. Alternatives

Section 15.6 Environmentally Superior Alternative was added (copied) from Section S.5.3.

Table 15-1 Summary of Program Alternative Impacts was modified to reflect changes to several of the impact statements, mostly the reorganization of explanatory material contained in Section 4 Biological Resources – Aquatic and Section 5 Biological Resources – Terrestrial. A few of the impacts changed from “no impact” to a “less-than-significant impact.” None of the changes created any new potentially significant impacts.

3.2.17 Chapter 16. List of Preparers

Changes in position at the District and changes in the name of the consulting firms were made to reflect current conditions in 2015.

3.2.18 Chapter 17. References

The Final PEIR contains some additional references that are not repeated here.

3.2.19 Appendix A, Biological Resources Technical Report

Under Section 2.5.1 Federal, on page 2-12, at the end of the section the Stipulated Injunction and Order, Protection of California Red Legged Frog from Pesticides material is moved from page 2-13 (under State regulations).

3.2.20 Appendix B, Ecological and Human Health Assessment Report

The changes to this technical report are mostly errata (e.g., LC50 changed to LD50, Table 6.1 to 6-1) and corrections to the reference callouts primarily where there were multiple references for the same author in a year (e.g., USEPA 2008b). Table 6-1 was supplemented with data where previously no data was reported. None of the changes in the technical report change the conclusions reached on toxicity or effect on ecological and human health. Key changes to the text are provided herein.

Section 4.1.4 Prallethrin

On pages 4-16 and 4-17, the following change was made.

Prallethrin has low to moderate acute toxicity via the oral, dermal, and inhalation routes (Category II, III and IV). It is a moderate eye irritant (Category III), not a dermal sensitizer, and is nonirritating to skin. The oral LD₅₀ was found to be 460 to 640 mg/kg to rats, the dermal LD₅₀ was found to be greater than 5000 mg/kg, and the inhalation LC50 (rats nose exposure) was found to be 855 mg/m³ for males and 658 mg/m³ for females. 288 to 333 mg/m³ (USEPA 2003a) (Table 6.1). (USEPA 2003a)

Section 4.1.5 Deltamethrin

On page 4-18, Table 4-4, the half-life for aerobic metabolism (soil) degradation is changed from 22-25 days to 25-33 days.

Section 4.1.10 Permethrin

On page 4-26, under 4.1.10.3 Ecological Toxicity, the paragraph is revised.

Permethrin can be toxic to wildlife at high doses and it should not be applied or allowed to drift to crops or weeds where active foraging takes place (USEPA 2006d). However, in controlled toxicity tests with rats as mammalian surrogates~~mammals~~ permethrin is considered to have low mammalian toxicity (Cantalamessa, 1993~~Nowak et al. 2000~~). Permethrin has low toxicity to dogs (Richardson 1999), gerbils, guinea pigs, hamsters, mice and rats (Cantalamessa 1993, Sutton et al. 2007); however, dermal exposure in cats of 100 mg/kg of permethrin (equivalent to 1 mL of a 45 percent PSO in a 4.5 kg cat) has resulted in life-threatening effects (Hansen 2006).

Section 4.2.1 Naled

On page 4-33, under 4.2.1.2 Human Toxicity, the paragraph is revised.

Naled is rapidly absorbed by all routes (oral, inhalation, and intraperitoneal) and distributes to all tissues in the rat, chicken, goat, and cow. The oral LD₅₀ for naled technical grade active ingredient is 81 to 336 mg/kg in rats or mice, the dermal LD₅₀ is 354-to 800 mg/kg in rats or rabbits, and the nose exposure inhalation LC50 is as low as 0.19 ~~3.1 to 156 mg/L in ratser mice. (CDPR 1999) (Table 6.4).~~

Section 4.3.4 Methoprene

On page 4-47, the first paragraph under 4.2.4.4 Summary of toxicity and Potential Effects, is modified.

Methoprene readily degrades in soil and water by a variety of processes. It may exhibit toxicity to fish and aquatic invertebrates, as well as non-target insects including moths, butterflies, and beetles, but these concentrations are much higher than would be experienced in the application scenarios currently in use.

Section 4.3.6 Aliphatic Solvents (Mineral Oils and Aliphatic Petroleum Hydrocarbons)

Specially-derived aliphatic solvents (e.g., mineral oils and aliphatic petroleum hydrocarbons such as GB-1111 and BVA-2) are used to form a coating on top of water to drown larvae, pupae, and emerging adult mosquitoes. These products of petroleum distillation processes have been used for many years nationwide to kill aphids on crops and orchard trees, and to control mosquitoes (USEPA 2007d). They are applied to a wide variety of crops, trees and ornamental plants; to swamps, marshes and intermittently flooded areas. These compounds are also used as an adjuvant for pesticides to increase efficacy and/or application efficiency. These compounds, with appropriate BMPs are applied by mosquito abatement districts (CDPR 2010a). Dormant oils are widely used in the Central Valley on tree crops.

CocoBear Mosquito Larvicide Oil is a plant based oil (also see Section 4.7.3). This product consists mostly of a modified coconut oil (75 percent or more by volume) combined with 10 percent by volume mineral oil and a very small amount of nonionic surfactant and other proprietary ingredients. This material can be used in various waterbodies such as ditches, stagnant pools, swamps, marshes, temporary rainwater pools and intermittently flooded areas, ponds, catch basins and manmade containers for the management of immature mosquitoes.

On page 4-49, under 4.3.6.4 Summary of Toxicity and Potential Effects, the paragraph is revised.

Aliphatic solvents have very low water solubility and high sorption to organic matter. They are practically nontoxic to most non-target organisms and rapidly break down in the environment, reducing their impact on susceptible non-targets so that, using BMP application practices, these products should not result in unwanted adverse effects. These products are used for both mosquito control and as adjuvants to some pesticides to increase or improve efficacy and/or application efficiency. Golden bear and Cocoa bear oils are pesticides used in controlling mosquito larval populations and are used to suppress mosquito related problems, including suppression of potential West Nile virus. Some white mineral oil based compounds are nontoxic food products and used in numerous cosmetic products. No general direct toxicity has been reported. When added to other compounds as a surfactant, the toxicity of the primary chemical is the issue but not the oil product. A recent development is the use of plant based food grade oils such as coconut oil that is combined with a small amount of mineral oil (e.g. CoCoBear Oil) CoCoBear has no reported significant toxicity to any receptors likely to be exposed during or after use as a larvicide. Acute oral toxicity to rats is >5000 mg/kg, acute dermal toxicity to rats is > 5050 mg/kg, and acute inhalation toxicity to rats is > 2.16 mg/L (Clarke 2014).

Section 4.6.2 Glyphosate

On pages 4-63 and 4-64, under 4.6.2.3 Human Toxicity, the following paragraph is revised.

A one-year feeding study resulted in no chronic effects in beagle dogs at daily doses of 500 mg/kg (USEPA 1993). There is currently no published scientific evidence indicating that glyphosate is carcinogenic or mutagenic unless workers are exposed to extended, unrealistic industrial uses (USEPA 1993, Gertsberg 2011). Experimental evidence has shown that neither glyphosate nor its major breakdown product (aminomethylphosphonic

acid [AMPA]) bioaccumulates in any animal tissue (Williams et al. 2000). Glyphosate is poorly biotransformed in rats and is excreted mostly unchanged in the feces and urine (Williams et al. 2000).

On page 4-64, under 4.6.2.5 Summary of Toxicity and Potential Effects, the following material is added to the second paragraph.

Using BMP approaches, applications of glyphosate can be used safely when an adequate buffer to water sources is maintained. Although there has been some recent concerns expressed about possible sub-lethal effects of glyphosate products, it is virtually nontoxic to mammals and practically nontoxic to birds, fish, and invertebrates. Glyphosate has been identified as a candidate by USEPA for evaluation as a potential endocrine disruptor (USEPA 2009a). Based on these issues, it is likely that USEPA will provide an updated review of its potential risks in 2015, but until then, glyphosate products are effective, generally safe, products used for weed control. Concerns about endocrine disruption by glyphosate are not verified, and this chemical is only one of the dozens of chemicals USEPA is suggesting may have an EDC role. No significant indication of this mode of action has been reported at this time. Some reports of sub-lethal effects on disease resistance, biological diversity, enzyme activity, and increased use of genetically engineered foods are interesting but without clear mechanisms that can be related directly to glyphosate (Gertsberg 2011).

Chapter 5 Evaluations of Active Ingredients

On page 5-2, the following table is added.

Table 5-2 Chemicals Employed for Larval Mosquito Abatement

<u>Chemical Classification</u>	<u>Active Ingredient</u>	<u>Appendix B</u>
<u>Organophosphate</u>	<u>Temephos</u>	<u>Section 4.2.2</u>
<u>Bacterial larvicide</u>	<u>Bs</u>	<u>Section 4.3.1</u>
<u>Bacterial larvicide</u>	<u>Bti</u>	<u>Section 4.3.2</u>
<u>Bacterial larvicide</u>	<u>Spinosad</u>	<u>Section 4.3.3</u>
<u>Hydrocarbon ester</u>	<u>Methoprene</u>	<u>Section 4.3.4</u>
<u>Adjuvants/Surfactants</u>	<u>Alkylphenol Ethoxylate (APE)</u>	<u>Section 4.7.1</u>
	<u>Aliphatic Solvent (Mineral Oil)</u>	<u>Section 4.7.2</u>
	<u>Plant oil mix</u>	<u>Section 4.7.3</u>
	<u>Lecithin</u>	<u>Section 4.7.4</u>

Chapter 6 Toxicity Summary: All Active Ingredients

On page 6-1, the following paragraph is added to explain the values in Table 6-1. Table 6-1 has been revised to include additional values. The additional values do not change the conclusions in the text of Appendix B (or in the text of the PEIR).

Most of the chemical active ingredients listed in Table 6-1 below, and in the narrative sections, have undergone several levels of testing to determine potential toxicity to humans, wildlife and vegetation. The intended and expected use of each chemical and its likely target and non-target receptors are usually included in the tests. While each listed chemical has had numerous toxicity

values generated for a multitude of animal and plant species and human receptors, it would not be feasible to include all the possible data published for all species/receptors in Table 6-1. The values in this table have been included to represent a realistic set of potential species that might be affected by exposure to typical applications used for vector control by the Districts. Numerous additional toxicity data are available in a multitude of publications, particularly the several compendia produced by the USEPA, the European Union, Canada and the many state and national environmental regulatory agencies. (Chapter 7 References of this document includes a list of many of those additional sources.) As in all determinations of the potential toxic effects of a chemical, the key is the exposure to the chemical, regardless of the potential hazard (toxicity) demonstrated in laboratory tests.

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