

SANTA CRUZ COUNTY MOSQUITO AND VECTOR CONTROL CSA 53

ENVIRONMENTAL REVIEW INITIAL STUDY

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**COUNTY OF SANTA CRUZ
PLANNING DEPARTMENT**

Date: February 7, 2005
Prepared by: Paul Binding
For: Santa Cruz County Mosquito
and Vector Control, CSA 53

ENVIRONMENTAL REVIEW INITIAL STUDY

APPLICANT: Santa Cruz County Mosquito and Vector Control CSA 53
APN: Countywide, Inclusive of incorporated cities
Application No: 04-0503
Supervisorial Districts: All

EXISTING SITE CONDITIONS

Not applicable

Parcel Size:

Existing Land Use:

Vegetation:

Slope:

0-15% _____, 16-30% _____, 31-50% _____,
51+% _____ acres/sq.ft.

Nearby Watercourse:

Distance To:

Rock/Soil Type:

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: YES

Water Supply Watershed: YES

Groundwater Recharge: YES

Timber or Mineral: NA

Agricultural Resource: YES

Biologically Sensitive Habitat: YES

Fire Hazard: NA

Floodplain: YES

Erosion: Potential

Landslide: NA

Liquefaction: NA

Fault Zone: NA

Scenic Corridor: YES

Historic: NA

Archaeology : NA

Noise Constraint: NA

Electric Power Lines NA

Solar Access: NA

Solar Orientation: NA

Hazardous Mtls.: YES

SERVICES

Fire Protection: NA

Drainage District: NA

School District: NA

Project Access: VARIOUS

Water Supply: NA

Sewage Disposal: NA

PLANNING POLICIES

Zone District: ALL

Special Designation: PROJECT AREA IS COUNTY WIDE INCLUSIVE OF INCORPORATED CITIES

General Plan: ALL

Special Community: ALL

Coastal Zone: YES

Within USL: WITHIN USL AND WITHIN RURAL AREA

PROJECT SUMMARY DESCRIPTION: The project is placement of a measure on the ballot that proposes to expand the area in which County Service Area (CSA) #53, also known as the Mosquito Abatement and Vector Control District, or MVC, conducts vector control activities. The area will expand from the current 70 sq. miles located in the south portion of the unincorporated area of the county and the City of Watsonville to the entire County of Santa Cruz, an approximately 446 sq. mile area. The expanded area will include the four incorporated cities (Capitola, Santa Cruz, Scotts Valley and Watsonville). See Attachment 1 for a map of the current and proposed expanded area.

DETAILED PROJECT DESCRIPTION:

The project consists of placing a measure on the ballot that will seek voter approval to:

- (a) Expand the MVC service area to include all of the unincorporated area of Santa Cruz County and to annex the cities of Capitola, Santa Cruz and Scotts Valley;
- (b) Provide the following activities within the entire expanded CSA:
 - 1) **Surveillance** for vector populations, vector habitats, disease pathogens, and public distress associated with vectors. This includes trapping, dipper cup surveys, and laboratory analysis of vectors to evaluate populations and disease threats, direct visual inspection of known or suspected vector habitats, the use of all-terrain vehicles, maintenance of paths, and public surveys;
 - 2) **Public Education** to encourage and assist in the reduction and prevention of vector habitat on private and public property;
 - 3) **Vegetation Management** to provide access to vector breeding sites, encourage natural predators, reduce vector habitat and improve surveillance;
 - 4) **Biological Control:** providing the public with “mosquito fish” (*Gambusia affinis*); application of the bacteria *Bacillus sphaericus* and *Bacillus thuringiensis israelensis*;
 - 5) **Chemical Control:** application of insecticides to reduce populations of mosquitoes and other invertebrate threats to public health.

General descriptions of these activities, including their typical annual frequency and intensity, and general MVC policies and procedures are given below. Detailed descriptions of these activities, including a literature review on the use of each biological or chemical material and site-specific MVC policies and procedures are discussed in detail in the Technical Review document, Attachment 2.

PROJECT SETTING:

Because of the diversity of vector habitat, vector control activities are conducted in a wide variety of ecosystems and habitat types throughout the MVC Project area. Mosquito control activities are associated with wet areas of all types and sizes. This includes marshes, ponds, creeks, seasonal wetlands, wastewater ponds, storm-water detention basins, ditches, ornamental fishponds, impound areas, etc., as well as individual homes or commercial buildings. Other vectors, such as yellowjackets, inhabit an even wider range of natural and artificial habitats.

The MVC will divide the Service Area into one or more zones, corresponding roughly to the pattern of mosquito production found in each. All of the zones have a wide range of climatic conditions,

land uses, and habitats, including salt marsh, riparian areas, oak woodland, chaparral, open grassland, agriculture, wastewater treatment ponds, urban development and parks.

History Of The Program

The MVC was established in 1993 by the County Board of Supervisors in response to public demand for relief from mosquitoes. The purpose of the program is the protection of public health from mosquito and vector borne diseases. The CSA was formed within the department of the Agricultural Commissioner, who serves as head of the program. The formation of the CSA and its' sphere of influence was the subject of CEQA review in 1992. A Negative Declaration was issued for that action and it was noted at the time that future operational decisions made by MVC would be subject to CEQA.

Purpose of the Program

The MVC exists to reduce the risk of vector-borne disease or discomfort to the residents of its Service Area. The California Health and Safety Code defines a vector as "any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, other insects, ticks, mites, and rats, but not including any domesticated animal" (Section 2002(k)). The diseases of most concern in the Project Service Area are West Nile virus (WNV), western equine encephalomyelitis (WEE), St. Louis encephalitis (SLE), dog heartworm, and malaria, which are transmitted by mosquitoes; plague and murine typhus transmitted by fleas; leptospirosis and hantavirus pulmonary syndrome associated with rats and other rodents; and Lyme disease, babesiosis, and ehrlichiosis transmitted by ticks.

The program's primary function is mosquito surveillance and control following Integrated Pest Management practices which incorporate public education, biological control, source reduction and least toxic pesticides. Surveillance includes sampling immature mosquitoes in water bodies and monitoring populations of adult mosquitoes using traps. Treatment is focused on the immature, aquatic stages of the mosquito because this approach is the most effective and environmentally sound. Abatement powers are authorized within County Code (Chapter 1.14). The program prioritizes resident service requests above other activities

Currently, the program's mosquito control operations are geographically limited to activities in two "zones of benefit" which lie within the Aptos and Pajaro Supervisorial Districts (approx. area 70 sq. mi.; population 85,000). The MCV also provides vector control services to the City of Santa Cruz for Neary Lagoon, Jessie Street marsh and the water pollution control facility. Because demand for services has become county wide, and the threat of vector-borne disease has increased, the County is proposing the expansion of mosquito and other vector control services (see map, Attachment 1).

Funding

Operating costs of the MVC are funded by two annual property tax assessments within the zone of benefit. Fees are based on a calculation of the proportion of service benefit received by a parcel and are categorized according to land use codes established by the County Assessor's Office. They must be approved each year by the elected governing board, the County Board of Supervisors, after a public hearing.

A manager, two technicians and a limited term aide staff the MVC year-round, with clerical and administrative support through the Agricultural Commissioner. Regular staff is certified by the California Department of Health Services in mosquito and vector control and must complete 40 hours of continuing education every two years. The MVC is also an active corporate member of the Mosquito and Vector Control Association of California, meets with regional districts, attends training programs and

incorporates the latest information on Integrated Pest Management (IPM) methods and materials.

Staff is equipped with surveillance/applicator trucks and a boat. A helicopter and pilot are contracted for when the need arises. The most extensive mosquito sources within the current "zones of benefit" are the 600-acre Watsonville Slough complex and several hundred more acres of shallow inland lakes and ponds. Ground based treatments are augmented by aerial larvicide treatments and also inspection and treatment of the myriad residential, industrial and agricultural breeding sources.

Operations

MVC controls the following vectors of disease and/ or discomfort in the Service Area:

Mosquitoes

Eighteen species of mosquitoes frequently occur within Santa Cruz County. Attachment 4 lists those species known to occur within the MVC's Service Area. The reader is referred to the publications by Bohart and Washino (1978), and Meyer and Durso (1993) for detailed information concerning the biology, ecology, and diseases vectored by these mosquitoes.

Certain species of mosquitoes found in Santa Cruz County can transmit malaria, St. Louis encephalitis, western equine encephalomyelitis, and potentially other viruses. A few species of mosquitoes are also capable of transmitting dog heartworm. Although some species of mosquitoes have not been shown to transmit disease, most species can cause human discomfort when the female mosquito bites to obtain blood. Reactions range from irritation in the area of the bite to severe allergic reactions or secondary infections resulting from scratching the irritated area. Additionally, an abundance of mosquitoes can cause economic losses, and loss of use or enjoyment of recreational, agricultural, or industrial areas.

Yellowjackets

Three species of pestiferous yellowjackets (*Vespula pensylvanica*, *V. vulgaris* and *Dolichovespula arenaria*) occur within Santa Cruz County. Currently, yellowjackets are not known to be vectors of any transmittable diseases, however, yellowjackets are still economically and medically significant. Yellowjackets have a painful sting, can fly moderate distances, and are found throughout the Project Area. Economic impact may include loss of use of public recreational areas, or as an occupational hazard to certain types of urban and suburban employees. More significantly, yellowjacket stings can result in anaphylactic shock and rapid death for the approximately 0.5% of the public with severe allergies. Some individuals are allergic to all bee and wasp stings.

Africanized Honey Bees

Africanized honeybees (AHB) were first detected in California on October 24, 1994. AHB are not currently present in Santa Cruz County but are migrating north, are currently in San Luis Obispo County, and may become established here in the future. The County Agriculture Commissioner has asked the Santa Cruz County Mosquito and Vector Control CSA 53 to serve as the designated swarm removal agency if and when the bees arrive in this area. AHB are not known to be disease vectors and are no more venomous than European honeybees (EHB). However, AHB respond to threats more rapidly than EHB and will defend their hive with greater numbers of bees, resulting in a massive number of stings to an individual. Although individuals have died as a result of 100 - 300 stings, it is estimated that the average lethal dose of venom for an adult human is 1,100 bee stings; for a child or pet it can be substantially less. Bee stings, like yellow jacket stings, can result in anaphylactic shock and death within 15 to 30 minutes for the approximately 0.5% of the public with severe allergies.

Other Vectors of Importance

Although certain animal species such as rodents, fleas and ticks will not be regularly controlled, these animals play important roles in the transmission of plague, murine typhus, hantavirus, Lyme disease, babesiosis or ehrlichiosis, and may be surveyed for diseases. The MVC routinely provides education and consulting services to the public about disease risk associated with these vectors and appropriate measures to protect human health.

Most of the vectors mentioned above are extremely mobile and cause the greatest hazard or discomfort away from their breeding site. Each of these potential vectors has a unique life cycle and most of them occupy different habitats. In order to effectively control these vectors, an integrated vector management program must be employed. MVC policy is to identify those species that are currently vectors, to recommend techniques for their prevention and control, and to anticipate and minimize any new interactions between vectors and humans.

General Vector Management Strategy

The MVC manages vectors through a dynamic combination of surveillance, treatment criteria, and selection among multiple control options in a coordinated program generally known as Integrated Pest Management (IPM) (Glass 1975, Davis et al 1979, Borror et al 1981, Durso 1996, Robinson 1996). The MVC version of this method is called the Integrated Vector Management Program (IVMP). Sound vector management is accomplished by the manipulation of vector populations based on careful surveillance of their abundance, habitat (potential abundance), pathogen load, and/or potential contact with people; the establishment of treatment criteria (thresholds) (Attachment 4); and appropriate selection from a wide range of control methods. The focus is on preventive methods because integrated, preventive activities can avoid the more reactive, more widespread and potentially more toxic emergency measures that can be necessary if vector-borne disease and infestations go unchecked in early stages.

The MVC's IVMP, like any other IPM program, by definition involves procedures for minimizing potential environmental impacts. IVMP incorporates knowledge of mosquito biology and behavior, as well as an emphasis on controlling insects while they are in the larval development stages rather than when they are adults. IPM employs a variety of vector control methods that include habitat management, biological control agents, and pesticide application.

The MVC first determines the species and size of the population of vectors through evaluation of public service requests and field surveys of immature and adult populations. If the population exceeds predetermined criteria, MVC uses the most efficient, effective, and environmentally sensitive means of control. Public education is an important control strategy, and for some vectors (rodents, ticks) it is the MVC's only control method. MVC may cut back vegetation to reduce cover for mosquitoes or work to increase positive habitat conditions that will attract natural predators. In some situations the MVC uses biological control such as the planting of mosquitofish in ornamental ponds. When these approaches are not effective or are otherwise inappropriate, then pesticides are used to treat specific vector producing or harboring areas or vector populations.

Vector control activities are conducted at a wide variety of sites throughout the MVC's Project area. These sites can be roughly divided into: (1) those where activities may have an effect on the natural environment either directly or indirectly, and (2) sites where the potential environmental impacts are negligible ("Non-Environmental Sites"). Examples of "Environmental Sites" in the Project area include tidal marshes, freshwater sloughs, 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, or roadside ditches. Examples of "Non-Environmental Sites" include animal troughs, artificial containers, tire piles, fountains, ornamental fish ponds, swimming pools, animal waste

detention ponds, and non-natural harborage (such as wood piles, residential and commercial landscape, trash receptacles, etc.).

The MVC's IVMP principles for mosquitoes apply similarly to other pestiferous vectors, including assessing threat to surrounding organisms, proximity to populated regions, pesticide use in strict accordance with label requirements, eradication of breeding sources to prevent future re-infestation, educating the general public on preventative measures to prevent future colonization, and administration of funding and institutional support necessary to accomplish these goals.

The intensity of biological or chemical control activities in the MVC Service Area in general, or in any particular vector source, varies annually and seasonally because of weather conditions, size and distribution of vector populations, disease patterns, known or potential pesticide resistance, and in response to other variables. Therefore, the scopes of work discussed in the section below are typical of MVC activities. Actual activities in the field will necessarily vary from these descriptions.

Vector Surveillance

The integrated approach requires monitoring the abundance of vectors, vector habitat, vector-borne pathogens, and interactions between vectors and people over time and space. Collectively, these monitoring activities are termed Vector Surveillance. Vector Surveillance provides the MVC with valuable information on what vector species are present or likely to occur, when they occur, where they occur, how many there are, and if they are carrying disease or otherwise affecting humans. Vector surveillance is critical to an Integrated Vector Management Program because the information it provides is evaluated against treatment criteria to decide when and where to institute control measures. Equally important is the use of vector surveillance in evaluating the efficacy, cost effectiveness, and environmental impacts of specific control actions.

The MVC routinely uses a variety of traps for surveillance of adult mosquitoes, regular field investigation of known mosquito sources, flocks of sentinel chickens for arbovirus¹ testing, tracking of public service requests for mosquitoes and other insect vectors.

The MVC's vector and disease surveillance activities are conducted in compliance with accepted Federal and State guidelines, and the reader is referred to the volumes by Moore et al. (1993), Durso (ed.) (1996), and Reisen et al. (1995) for further information on specific surveillance techniques. These guidelines recognize that local conditions vary, and are thus flexible in the selection of material and the specific application methods.

Biological Control

The MVC uses the mosquito fish, a predator of mosquito larvae, in ornamental fishponds and other discrete water impoundments as a biological control of mosquitoes. The MVC stocks about 5-7 pounds of mosquitofish annually.

Other biological control methods are application of the biological insecticides *Bacillus sphaericus* (*Bs*) and *Bacillus thuringiensis israelensis* (*Bti*). Please refer to the Technical Review document, Attachment 2 for detailed information on how each of these materials work and potential impacts in the environment.

Because the potential impacts of applying *Bs* and *Bti* relate to potential disturbance associated with the mode of application, and the potential for non-target toxicity, these materials are discussed further under Chemical Control.

¹Arbovirus is a conventional term used to refer to ARthropod-BORne Viruses (Reisen et al 1995)

Chemical Control (Pesticide Application)

The MVC does not treat all sites where mosquito breeding is found with pesticide. In addition to being inefficient, that might hasten resistance and cause unnecessary impacts. Comprehensive and scientific criteria are used to determine the action threshold for appropriate treatment decisions (see Attachment 4).

When field inspections indicate the presence of vector populations that meet MVC criteria for chemical control (including abundance, density, species composition, proximity to human settlements, water temperature, presence of predators and other criteria) MVC staff apply pesticides to the site in strict accordance with the pesticide label instructions. The total number of applications and weight or volumes of pesticides applied by the MVC in 2000-2004 are shown in Table 1, Attachment 5. This amount of pesticide is expected to approximately double if the service area is expanded. A table showing the criteria for treatment is included as Attachment 4.

Pesticides are divided into larvicides, which eliminate immature insects, and adulticides which target adult insects. Note that the program is oriented to larvicides, as larvicides are a far more targeted, less toxic, and less impacting form of treatment than adulticide. Adulticides are not proposed to be used unless there is a public health emergency caused by actual cases of human vector borne disease such as West Nile Virus (WNV), the California Department of Health Services or the County Health Officer declares a Level 3 disease outbreak (epidemic conditions), AND there is specific, prior approval by the County Board of Supervisors. Effective use of larvicides may prevent the need for adulticides. Adulticides have been used in only one instance, in the first year of the MVC's ten-year existence.

Mosquito Larvicides

Depending on time of year, water temperature, organic content, mosquito species present, larval density, and other variables, pesticide applications may be repeated at any site at intervals ranging from weekly to annually.

Larvicides routinely used by the MVC include *Bti*, *Bs*, Altosid (s-methoprene), Agnique (mono-molecular surface film) and Golden Bear 1111 (naphthenic oil). *Bti* is a bacterium that is ingested by larval mosquitoes and disrupts their gut lining, leading to death before pupation. They are applied by the MVC as a liquid or powder or bonded to an inert substrate (sand or corncob granules) to assist penetration of vegetation. Persistence is low in the environment, and efficacy depends on careful timing of application relative to the larval instar. Therefore, use of *Bti* requires frequent inspections of larval sources during periods of larval production, and may require frequent applications of material. Application can be by hand, ATV, boat or aircraft.

Bs is a living biological larvicide that the MVC uses. The mode of action is similar to that of *Bti*, but *Bs* may be used more than *Bti* in some sites because of its higher effectiveness in water with higher organic content. *B.s.* is also accepted for use by the Organic Materials Review Institute (OMRI) around organic crops.

Methoprene, or Altosid, is a synthetic juvenile hormone designed to disrupt the transformation of a juvenile mosquito into an adult. It is applied in response to observed high populations of mosquito larvae in their latter stages, or as a sustained-release product that is present for up to about four months. Application can be by hand, ATV, boat or aircraft. Please refer to the Technical Review, Attachment 2, for detailed information on how each of these materials work and impacts in the environment.

It is important to note that both methoprene and *Bti* are available to the general public at hardware and landscape supply stores. For the purposes of the baseline of the environmental review, some amount of use of these materials by the public, though not quantifiable at this time, is the baseline condition that currently exists.

Golden Bear Oil-1111 is a petroleum distillate with low phytotoxicity and relatively fast

environmental breakdown that forms a thin film on water and kills larvae through suffocation and/or direct toxicity. It is typically applied by hand or truck at application rates of 3-5 gallons per acre.

Agnique is the trade name for a recently reissued water surface film larvicide, comprised of ethoxylated alcohol, that kills mosquito larvae and pupae in much the same manner as Golden Bear 1111. The MVC uses Agnique as an alternative to Golden Bear 1111. Because the application rate of Agnique is much lower than that of Golden Bear, this does not include an increase in volume of materials applied.

Mosquito Adulticides

Adulticides are pesticides that target adult mosquitoes and must be applied as an aerosol or as a residual barrier spray, are not used operationally by the MVC at this time. However, adulticides might be used if there is a public health emergency caused by actual cases of human vector borne disease such as West Nile Virus (WNV), the California Department of Health Services or the County Health Officer declares a Level 3 disease outbreak (epidemic conditions), AND there is specific, prior approval by the County Board of Supervisors. Often called "spraying" by the public, aerosol fogging would be a last resort method for reducing infected adult mosquitoes.

Approval from the County Board of Supervisors would be sought prior to use of adulticide, or to any aerosol fogging applied aerially or by truck. Adulticides that might be used by the MVC are Pyrethrins (Pyrenone 25-5) and the synthetic pyrethroids Resmethrin and Permethrin.

It is important to note that expansion of MVC operations countywide, which will initiate the survey of more breeding sites and wider application of preventive techniques including larviciding, would reduce the risk of both infected adult mosquitoes and a public health emergency that would result in the need for adulticiding. This is a positive environmental impact. In addition, because it is not possible to determine the specific adulticide that would be used, the amount or concentration, or the location or scale of the application, any analysis of the potential negative impacts of adulticides at this time use would be speculative. Given that it would consist largely of speculation, and also considering the fact that there will be public hearing and an opportunity for public input prior to any adulticide being used, a detailed analysis of the impacts of adulticide is outside the scope of this document.

Other Insecticides

The MVC use of chemicals for the control of stinging insects is currently limited to yellowjackets; but may include Africanized Honeybees in the future. The MVC performs chemical control of yellowjacket nests in public areas at the request of government officials or individual property owners when such yellowjackets pose a risk to the public. The MVC does not control any bees or wasps that are located inside or on a structure. If a technician finds that a bee or wasp nest is located inside a structure, the resident is referred to companies in the County that are certified for control of bees and wasps. If a technician elects to treat stinging insects he or she will apply an insecticide directly to the insect or insect nest in accordance with MVC policies to avoid any drift and harm to other organisms, or place tamper-resistant traps or bait stations, selected for the target insect, in the vicinity of the problem animals.

The MVC uses or may use Vikor[®], Spectracide[®], Wasp Freeze[®], PT515[®], and Drione[®], for control of yellowjackets. The potential environmental impacts of these materials is small because the mode of application, primarily directly into the ground to contact underground yellow jacket nests, limits the potential for environmental exposure from these materials. Pesticides that contain the active ingredient potassium salts of fatty acids (essentially soap), such

as M-Pede[®], may be used to control Africanized Honeybees. M-Pede[®] is only available in California under a Special Local Need Registration, which requires that the MVC pass a complete annual inspection by the Santa Cruz County Agricultural Commissioner's Office. Potassium salts of fatty acids are extremely low in toxicity but are alkaline and therefore an eye irritant.

Governing Regulations and Current Interagency Agreements

The MVC is signatory to the California Department of Health Services' Cooperative Agreement (pursuant to California Health and Safety Code section 116180) which outlines conditions for calibration, recordkeeping, reporting, continuing education and certification, physical environmental modification and reporting of adverse effects of pesticides. The MVC is also subject to Title 3 of the California, Code of Regulations (3CCR).

Regarding local regulations and programs, the MVC conforms to the County Integrated Pest Management Policy, adopted by the Board of Supervisors in 2000. Pesticides used by the MVC are exempt from restrictions imposed by this policy but nevertheless are reviewed annually by the IPM – Departmental Advisory Group (IPM – DAG) to ensure that every effort is being made to use the least toxic pesticides available. On May 1, 2001 the County IPM – DAG adopted the following statement regarding the MVC's Integrated Vector Management Program:

“The materials and methods used by the Santa Cruz County Mosquito Abatement District are an example of a model IPM program. Monitoring is extensive, detailed records are kept of pest breeding locations, species of mosquitoes, type and quantities of control materials used, and the efficacy of those controls, and these materials are the least toxic, most effective currently available. The District stays informed about the latest research available on new control strategies and technologies, and promotes public education and breeding site source reduction as key components of its mosquito abatement program.”

The City of Santa Cruz passed an Integrated Pest Management Policy in 1998. The Resource Ecologist administering the Policy reviewed the MVC's IVMP, approved the materials to be used in the contract work the MVC has conducted for the City and acknowledged the authority of the Health and Safety Code (Division 3, Chapter 1, Section 2000 *et seq.*) and California Department of Pesticide Regulation (DPR) exemptions.

The MVC has a current agreement with the U.S. Fish and Wildlife Service (USFWS) to defer from mosquito treatments with the larvicide methoprene in the breeding pond for Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*), a federally endangered species, in the Ellicott Slough National Wildlife Refuge (ESNWR) pending a USFWS Section 7 (inter-agency consultation) for the refuge, which will result in a permit that will determine mosquito control alternatives.

Baseline Conditions

This document evaluates the potential impacts that may occur as a result of the project relative to the existing conditions. In this case the following conditions are part of the existing setting:

1. The current Service Area of 70 sq. miles includes about 15 acres of wetland within the 300 acre Ellicott Slough National Wildlife Refuge which offers protection for the endangered Santa Cruz Long-Toed Salamander and threatened Red-Legged Frog, an 130 acre ecological reserve managed by CDFG in the Watsonville Slough, 10-acres of coastal freshwater marsh at Sunset state beach, and other sensitive habitats. Surveillance and vector control currently occurs in these areas using the materials and methods described in Attachment 2. Refer to Table 1 (Attachment 5) for details of the amounts of different vector control materials that have been used annually by the MVC.
2. Three of the common materials used for treatment, mosquito fish, *Bti* and methoprene, are each available to the public at hardware, aquaculture or landscape supply stores. Some amount of each of these materials, though not quantifiable at this time, is currently used every year countywide.

3. There is an unquantified amount of unregulated background use of commercial and residential pesticide, and regulated agricultural pesticide, within the County. The expected scope and scale of MVC activities are limited compared with these existing uses.

4. In the areas that may be annexed many of the natural areas are distant from population centers. Since one of the criteria for treatment is proximity to population it is likely that many sensitive areas, in particular marsh areas, wet meadows, and beaches on the North Coast will receive no or minimal surveillance and treatment.

ENVIRONMENTAL REVIEW CHECKLIST

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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A. Geology And Soils

Does the project have the potential to:

1. Expose people or structures to potential adverse effects, including the risk of material loss, injury, or death involving:

a) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or as identified on other substantial evidence?	_____	_____	_____	<u> X </u>
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b) Seismic ground shaking?	_____	_____	_____	<u> X </u>
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c) Seismic-related ground failure, including liquefaction?	_____	_____	_____	<u> X </u>
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d) Landslides?	_____	_____	_____	<u> X </u>
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2. Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?	_____	_____	_____	<u> X </u>
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3. Develop land with a slope exceeding 30% ?	_____	_____	_____	<u> X </u>
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4. Result in soil erosion or the substantial loss of topsoil?	_____	_____	<u> X </u>	_____
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5. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to property?	_____	_____	_____	<u> X </u>
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6. Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative wastewater disposal systems?	_____	_____	_____	<u> X </u>
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7. Result in Coastal cliff erosion?	_____	_____	_____	<u> X </u>
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A4. Any impacts from erosion are expected to be less than significant because 1) the MVC does not use ATV's at this time; 2) if ATVs are purchased they will have low pressure tires, wide soft treads, a ground loading well under 2 psi, and be driven at low speeds; 3) neighboring mosquito agencies with over ten years experience with the same types of machinery have found no evidence of long-term or significant impacts from erosion.

Lastly, MVC may perform brush cutting and pruning to open existing trails and in a few cases each year to create temporary access. Trail opening consists of the use of hand tools to trim vegetation, and does not include clearing or removing roots or soil. Access is normally via existing trails, few new temporary trails are created, and trails are limited to 3-4 feet wide.

<u>B. Hydrology, Water Supply And Water Quality</u>	Significant or Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
Does the project have the potential to:				
1. Place development within a 100-year flood hazard area?	_____	_____	_____	_____X_____
2. Place development within the floodway resulting in impedance or redirection of flood flows?	_____	_____	_____	_____X_____
3. Inundation by seiche, tsunami, or mudflow?	_____	_____	_____	_____X_____
4. Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit, or a significant contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table level?	_____	_____	_____	_____X_____
5. Degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).	_____	_____	_____X_____	_____
6. Degrade septic system functioning?	_____	_____	_____	_____X_____
7. Alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which could result in flooding, erosion or siltation on- or off-site?	_____	_____	_____	_____X_____

- | | | | | |
|--|-------|-------|--------------|--------------|
| 8. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff? | _____ | _____ | <u> X </u> | _____ |
| 9. Contribute to flood levels or erosion in natural water courses by discharges of newly collected runoff? | _____ | _____ | _____ | <u> X </u> |
| 10. Otherwise substantially degrade water supply or quality? | _____ | _____ | <u> X </u> | _____ |

B 5, 8, 10

The MVC treats storm drains, detention basins, ponds, wetlands, and other water impoundments that drain to area creeks, lagoons, and wetlands. Therefore the materials that MVC uses, if they were long lived in the environment and not used in small amounts and low concentrations, could create impacts in area waters. The technical document prepared for this environmental evaluation is attached as Attachment 2. Detailed information on the form, mode of action, application dose and use pattern, and research documenting potential environmental effects on humans, other non-target species and the environment, for each of these materials is included in that document. Based on that information and the low concentrations of these materials that are used by the MVC, they are expected to have a less than significant negative impact on water quality. See also Section C, Biological Resources.

The accidental release of pesticides could have a significant negative impact on water quality. That possibility is discussed in Section G, Hazards & Hazardous Materials.

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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C. Biological Resources

Does the project have the potential to:

- | | | | | |
|--|-------|-------|--------------|-------|
| 1. Have an adverse effect on any species identified as a candidate, sensitive, or special status species, in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service? | _____ | _____ | <u> X </u> | _____ |
| 2. Have an adverse effect on a sensitive biotic community (riparian corridor), wetland, native grassland, special forests, intertidal zone, etc.)? | _____ | _____ | <u> X </u> | _____ |

- | | | | | |
|---|-------|-------|--------------|--------------|
| 3. Interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | _____ | _____ | <u> X </u> | _____ |
| 4. Produce night time lighting that will illuminate animal habitats? | _____ | _____ | <u> X </u> | _____ |
| 5. Make a significant contribution to the reduction of the number of species of plants or animals? | _____ | _____ | _____ | <u> X </u> |
| 6. Conflict with any local policies or ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, Sensitive Habitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of 6 inch diameters or greater)? | _____ | _____ | <u> X </u> | _____ |
| 7. Conflict with the provisions of an adopted Habitat Conservation Plan, Biotic Conservation Easement, or other approved local, regional, or state habitat conservation plan? | _____ | _____ | _____ | <u> X </u> |

General Discussion

The proposed project is county wide and therefore the area includes a wide range of natural habitats with an equally wide range of plant and animal communities. Many sensitive areas, such as the National Wildlife Refuge that includes Ellicott Pond, the Watsonville Slough system, and Sunset Beach State Park occur within the MVC current coverage area. Many more will be annexed into the area if the District is expanded. Much of the area is also urbanized, with a mix of commercial and residential uses. It is important to note that one of the threshold criteria for treatment is proximity to populated areas. Many of the natural areas in the County, for example much of the north coast, are unlikely to be candidates for treatment because they are not near population centers.

Mosquito control activities are generally associated with wet areas of all types and sizes. These sites can be roughly divided into those where activities may have an effect on the natural environment either directly or through drainage from an upstream site, “Environmental Sites”, and sites where the potential environmental impacts are negligible. Examples of “Environmental Sites” in the Project area include tidal marshes, freshwater sloughs, lakes, ponds, lagoons, storm water detention basins, flood control channels, flood water spreading grounds, street drains and gutters, wash drains, and roadside ditches. Examples of “Non-Environmental Sites” include animal troughs, artificial containers, tire piles, fountains, ornamental fish ponds, swimming pools, liquid waste detention ponds, and non-natural harborage (such as wood piles, residential and commercial landscape, trash receptacles, etc.).

C-1, C-2. Potential Impacts On Special Status Species

The California Department of Fish and Game’s Natural Diversity Database (NDDDB) (Attachment

6) lists 112 special status species² in Santa Cruz County. Most of the special status species are associated with specific locations and habitats where the MVC does not perform routine operations. The 12 special status species which are found in ecosystems that could be impacted by routine activities are marked with an asterisk on Attachment 6.

Five species listed as “Endangered” under either the Federal or State Endangered Species Acts (ESA), occur in habitats where the MVC may have routine operations. These are: the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), the tidewater goby (*Eucyclogocius mykiss irideus*), the coho salmon (*Oncorhynchus kisutch*), the least Bell’s vireo (*Vireo belli pusillus*) and the California clapper rail (*Rallus longirostris obsoletus*). Habitat descriptions and current maps of the distribution and potential habitat of endangered species in the service area are maintained by the MVC and incorporated into the operational guidelines of field personnel.

Many additional taxa are listed as “Threatened”, “Rare” or a Species of Special Concern by Federal or California resource agencies. Of these the following animals may be impacted by routine activities: the Southern steelhead trout (*Oncorhynchus mykiss irideus*), the California red-legged frog (*Rana aurora draytonii*), the California tiger salamander (*Ambystoma californiense*), the Southwestern pond turtle (*Clemmys marmorata*), the Western snowy plover (*Charadrius alexandrinus nivosus*), marsh hawk (*Circus cyaneus*), and the California black rail (*Laterallus jamaicensis coturniculus*) Habitat descriptions and current maps of the distribution of threatened, rare and species of special concern in the service area are maintained by the MVC and incorporated into the operational guidelines of field personnel. Detailed information about the activities carried out by the MVC (surveillance, vegetation management, biological control and chemical control) and the potential impact on special status species appear in the Technical Review, Attachment 2.

Regarding impacts from surveillance and vegetation management, the three potential impacts are loss of vegetation important to habitat, disturbance of nests of ground nesters (plovers) or birds that build small nests in vegetation close to the ground, and disturbance of amphibian reproduction by dip sampling.

Because the MCV prunes vegetation for access but does not clear brush or remove mature trees, loss of vegetation is less than significant (Attachment 2, Section 4). Occasionally, invasive aquatic plants such as Parrotfeather (*Myriophyllum aquaticum*) are herbicided where they exclude natural mosquito predators and provide dense cover that supports mosquito larval development (see Attachment 2, Section 4.B). Parrotfeather is easily treated in small sections without affecting nearby natives. Invasive aquatic plants also out-compete native species and tend to form monocultures devoid of wildlife habitat. Reduction of these plants is a beneficial impact as it stems the spread of invasives and opens water for waterfowl.

In order to avoid disturbance of nests, as part of the overall vector control program that will be implemented prior to expansion, MVC staff will be trained by a qualified biologist to recognize the nesting habitat of the Western snowy plover, marsh hawk (*Circus cyaneus*) California black rail, least Bell’s vireo, and California clapper rail. If treatments are planned in those locations during breeding season (late March through end of August) a qualified individual will survey for nests prior to treatment and occupied nests will be avoided. Impacts will be less than significant as a result of this practice.

Dip sampling currently occurs in areas that host California red legged frogs and breeding Santa Cruz long toed salamanders. If the district expands many more areas of potential habitat for these animals may be monitored for vector control. MVC currently follows a protocol for sampling and disinfection in these areas under an agreement with USFWS. These protocols will be extended to new areas of potential habitat if they become part of the Service Area. For description of the protocols refer to Attachment 2, Section 6E.

²Under the Federal and California Endangered Species Acts, the word “species” may also mean subspecies or other taxonomic groupings.

Regarding impacts to special status species from biological controls, a potential impact is predation of native fish and amphibians and their eggs by stocked mosquito fish. There is discussion of the scientific research and opinions of wildlife biologists on this subject in the technical document, Attachment 2, Section 5E. In summary, though the extent to which the mosquito fish create adverse conditions for native animals is a subject of debate, it is prudent to avoid introduction of new Mosquito fish into natural habitats and waterways (there is an existing population of these fish in many of the natural waterways from stocking that occurred decades ago). The MVC stocks these fish only in discrete, artificial impoundments of water, such as ornamental ponds and pools with hard boundaries that separate them from the surrounding area. Fish are not introduced into ponds that are man made but are open to exchange with the natural environment, such as stock ponds and even settling ponds in mine or industrial settings, which can and do support California red legged frogs. The avoidance of natural waterways limits impacts to less than significant.

Further, MVC currently supplies nurseries with mosquito fish for the general public who are not within the service area and therefore cannot be visited by staff that will actually stock the fish. This increases the possibility of accidental release into waterways because MVC staff does not have the opportunity to check the setting and to provide personal education on how to prevent adverse impacts. The practice of supplying nurseries, which is the baseline condition, will be ended if the MVC expands and staff is available to do all stocking. This is a beneficial impact.

Lastly, regarding the bacteria *Bti* and *Bs*, there is no evidence in the literature or in local experience of adverse impacts on non-target (non mosquito) species at concentrations used for vector control (Attachment 2, section 6C).

Regarding impacts to special status species from chemical larvicides, the potential adverse impacts of using methoprene are damage to non-target species in general, and interruptions in the food chain of higher non target organisms, such as fish, amphibians, and birds, if non target insects are reduced below levels needed to provide an adequate food source.

The literature indicates that higher concentrations of methoprene than are used for vector control are required to produce adverse results in most non-target organisms. The exception is documentation of population drops in some orders of non-target insects, however this was found to be less than significant due to rapid recovery of those populations. More specifically, the issue of whether larvicides reduce the populations of *Chironomid* or other midges to a degree that adversely affects waterfowl or wading birds have been examined with the conclusion that 1) there is no evidence of a spatial or temporal relationship between larvicide use and population dynamics of waterfowl or wading birds; 2) Golden Bear 1111 surface film has no effect on midge larvae (the species of concern in our area are primarily benthic); 3) *Bti* and *Bs* have no detectible effect on midge larvae when applied at label rates for mosquito control; 4) methoprene, at label rates for mosquito control, can prevent adult emergence of mosquitoes and midges but does not directly kill mosquito or midge larvae and therefore does not remove them from the food chain.

Studies do not indicate bioaccumulation (magnification in the food chain) of methoprene or breakdown products. Also, the literature does not indicate that significant, negative impacts are associated with the other larvicides that may be used, GB111 and Agnique water surface films. See Attachment 2, Sections 6B and 6 C for technical information supporting these conclusions.

Lastly, wildlife biologists are concerned about association of methoprene breakdown products and deformities in frogs. Even though this link remains controversial it is prudent to avoid or limit methoprene in the habitat of protected amphibians. Currently MVC Service Area includes Ellicott Slough National Wildlife Refuge (NWR) and other known breeding habitat for Santa Cruz long toed salamander, and various potential habitats for California red legged frogs. Treatments at Ellicott Slough NWR are governed by voluntary agreements between the MVC and USFWS and CDFG. If the district expands, treatment will not occur prior to consultation with the resource agencies in locations that have been identified as habitat for special status species by USFWS, CDFG, or other qualified biologists.

Regarding use of adulticides, it is important to note that expansion of MVC operations countywide, which will initiate the survey of more breeding sites and wider application of preventive techniques including larviciding, would reduce the risk of both infected adult mosquitoes and a public health emergency that would result in the need for adulticiding. This is a positive environmental impact. In addition, because it is not possible to determine the specific adulticide that would be used, the amount or concentration, or the location or scale of the application, any analysis of the potential negative impacts of adulticides at this time would be speculative. Given that it would consist largely of speculation, and also considering the fact that there will be public consideration by the County Board of Supervisors prior to any adulticide being used, a detailed analysis of the impacts of adulticides is outside the scope of this document.

The following characteristics of the MVC program are also relevant:

- The MVC complies strictly with pesticide labels and with agreements with resource agencies that dictate certain practices in sensitive habitat.
- MVC's IVMP conforms to suggest guidelines within the "Central Valley Joint Venture Technical Guide To Best Management Practices For Mosquito Control In Managed Wetlands" published by CDFG and USFWS (Kwasny 2004).
- The MVC's activities are selective in space and time, based on a detailed list of potential mosquito sources, pre-control surveillance for mosquito abundance, and threshold criteria for control applications.
- The MVC's field technicians are highly trained pesticide applicators, certified by the California Department of Health Services and required to complete frequent continuing education sessions sponsored by the Mosquito & Vector Control Association of California pursuant to State Regulations.
- The MVC's field activities are monitored by the Santa Cruz County Agricultural Commissioner and by regulatory agencies.

MVC staff routinely notifies and consults with other agencies for guidance on activities in specific areas, including the California Department of Health Services, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California State Parks, the Central Coast Regional Water Quality Control Board, and the U.S. Army Corps of Engineers.

Regarding the use of ATVs the MVC does not use these at present, but may potentially use) these in wetland and riparian areas to deliver and apply chemical pesticides. The potential impacts of ATV's consist of temporary noise and other disturbance to nearby wildlife, trampling of vegetation and/or nests, and compaction of soils. Review of the literature and evaluation of the way in which the ATVs would be used indicates that there will not be a significant effect on the environment because the low frequency of usage at any particular site will limit the disturbance and noise, and the low ground pressure (<2 psi.) of the ATVs will preclude significant soil compaction or erosion. Further, ATVs would not be used in habitat containing special status species as identified by USFWS, CDFG or other qualified biologists.

Although there is no evidence that the current Program will significantly impact special status species, the following mitigating practices are part of the MVC program:

1. Maintenance of maps and other information from the California Department of Fish and Game Natural Diversity Data Base and other reliable sources on the location of Special Status Species and designated Natural Communities in the Project Service Area;
2. Coordination of MVC activities with approved Habitat Conservation Plans and Species

Recovery Plans; and

3. In 1996 the MVC established an inspection and treatment protocol in agreement with USFWS to provide special protection to the SCLTS in the Ellicott refuge, which incorporates notification before inspection and treatments, and non-intrusive sampling procedures. Staff also practices voluntary disinfection of boots and equipment before working on the refuge and neighboring reserve. The MVC also has submitted Pesticide Use Proposals (PUPs) with the U.S. Fish and Wildlife Service for the most common larviciding materials used in the Ellicott Slough National Wildlife Refuge. The PUPs outline application rates, target mosquito species, methods of application and the listed sensitive species and helps to ensure compatible use through the MVC conforming to Best Management Practices in the Refuge/Reserve area.

Risks to Wildlife From Mosquitoes

It should be noted that studies by the U. S. Geological Survey, surveillance activities by the Audubon Society, public observations, and preliminary analysis of population survey data suggest that West Nile Virus has caused extensive mortality in many avian species, particularly corvids (crows) and raptors (hawks). There is concern that the virus may devastate flocks of threatened and endangered species, migratory birds, and other wildlife throughout the country (see Attachment 2 Section 2.E.) The potential for this to occur is lessened by control of vectors that spread this disease, which is a beneficial impact of the project.

C 4. Adult mosquito traps contain light sources as an attractant to the mosquitoes. Larger traps have a maximum light output of about 25 watts per trap. Lighted traps can attract non-target insect species and affect their movement or ability to orient in a negative way. The MVC program does not include placing traps in any area that is a known or potential habitat for any special status insect, i.e. Zayante Band Winged grasshopper, Mt. Hermon June beetle, or Ohlone Tiger beetle

C6 The Riparian Corridor and Wetland Protection ordinance, Chapter 16.30 of the County Code, applies to use of herbicides and pesticides in these areas. However, the MVC use of these materials is exempt from this ordinance and related General Plan provisions because local restrictions are pre-empted by state and federal laws.

C7. If the service area expands there will be two approved Habitat Conservation Plans (HCP) in residential areas and four approved HCPs on quarry properties in the service area. In addition, there are two proposed HCPs. In order to reduce any conflict the MVC will maintain maps of the HCP areas and will consult with the HCP plan administrator. The MVC will be included in review process for proposed HCPs, so that policies can be implemented to reduce conflicts between special status species and the potential for breeding of public health pests.

Significant	Less Than	Less Than	Not
Or	Significant	Significant	Applicable
Potentially	With	Impact	
Significant	Mitigation		
Impact	Incorporation		

D. Energy And Natural Resources

Does the project have the potential to:

- | | | | | |
|---|-----|-----|--------------|--------------|
| 1. Affect or be affected by land designated as Timber Resources by the General Plan? | ___ | ___ | ___ | <u> X </u> |
| 2. Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use? | ___ | ___ | <u> X </u> | ___ |
| 3. Encourage activities which result in the use of large amounts of fuel, water or energy, or use of these in a wasteful manner? | ___ | ___ | ___ | <u> X </u> |
| 4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)? | ___ | ___ | ___ | <u> X </u> |

D2. Production agriculture occurs throughout Santa Cruz County. Some of these fields are organic, and all can be affected by insecticide drift. A larvicide used by the MVC, *Bacillus sphaericus*, is listed by OMRI as approved for use in aquatic areas around and as irrigation for organic crops (Attachment 2, Sections 5.B, 6). Applications of larvicides are made when winds are less than 10 mph to reduce risk to crops to a less than significant level.

- | | Significant Or Potentially Significant Impact | Less Than Significant With Mitigation Incorporation | Less Than Significant Impact | Not Applicable |
|--|---|---|------------------------------|----------------|
| <u>E. Visual Resources And Aesthetics</u> | | | | |
| Does the project have the potential to: | | | | |
| 1. Have an adverse effect on a scenic resource, including visual obstruction of that resource? | ___ | ___ | <u> X </u> | ___ |
| 2. Substantially damage scenic resources, within a designated scenic corridor or public viewshed area including, but not limited to, trees, rock outcroppings, and historic buildings? | ___ | ___ | ___ | <u> X </u> |
| 3. Degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridgeline? | ___ | ___ | ___ | <u> X </u> |
| 4. Create a new source of light or glare, which would adversely affect day or nighttime views in the area? | ___ | ___ | <u> X </u> | ___ |

5. Destroy, cover, or modify any unique geologic or physical feature? _____ _____ _____ X

E1. Mosquito control activities will generally have no significant or long-term effect on the appearance of wetlands or riparian zones. Inspection and control activities using wheeled vehicles in vegetated areas can temporarily leave tracks or knock down tall or stiff plants on the marshlands, but this is a short-term phenomena that is generally not visible except from a distance And is less than significant. Similarly, changes along foot trails that are brushed to access aquatic breeding sources are temporary. MVC typically uses existing routes that minimize visual impacts (Attachment 2, Section 3.E).

E4. Some types of adult mosquito traps contain light sources as an attractant to the mosquitoes. However, these lights are insignificant in relationship to existing light sources. Larger traps have a maximum light output of about 25 watts per trap, and are located in areas with 110v AC power and, thus, inevitably other lights.

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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F. Cultural Resources

Does the project have the potential to:

- | | | | | |
|---|-------|-------|-------|--------------|
| 1. Cause an adverse change in the significance of a historical resource as defined in CEQA Guidelines 15064.5? | _____ | _____ | _____ | <u> X </u> |
| 2. Cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 15064.5? | _____ | _____ | _____ | <u> X </u> |
| 3. Disturb any human remains, including those interred outside of formal cemeteries? | _____ | _____ | _____ | <u> X </u> |
| 4. Directly or indirectly destroy a unique paleontological resource or site? | _____ | _____ | _____ | <u> X </u> |

F. Mosquito control activities are not ground disturbing and therefore will not have any impact on historic or archaeological resources.

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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G. Hazards And Hazardous Materials

Does the project have the potential to:

- | | | | | |
|--|-----|-----|--------------|--------------|
| 1. Create a significant hazard to the public or the environment as a result of the routine transport, storage, use or disposal of hazardous materials, not including gasoline or other motor fuels? | ___ | ___ | <u> X </u> | ___ |
| 2. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ___ | ___ | ___ | <u> X </u> |
| 3. Create a safety hazard for people residing or working in the project area as a result of dangers from aircraft using a public or private airport located within two mile of the project site? | ___ | ___ | <u> X </u> | ___ |
| 4. Expose people to electro-magnetic fields associated with electrical transmission lines? | ___ | ___ | ___ | <u> X </u> |
| 5. Create a potential fire hazard? | ___ | ___ | <u> X </u> | ___ |
| 6. Release bioengineered organisms or chemicals into the air outside of project buildings? | ___ | ___ | ___ | <u> X </u> |

G1. All pesticides are classified as "hazardous materials" by the State of California, regardless of their acute toxicity. Therefore, routine MVC activities do pose a risk of release of hazardous materials through accidental releases. MVC policies and practices, however, ensure that these risks and impacts are not significant.

a. MVC operates with a Health Permit issued by the County Department of Environmental Health Services. If the MVC expands the permit will be updated to reflect the changes in scope of the operation.

b. Pesticides are categorized by the EPA by relative toxicity into four categories. Category 1 is most toxic and bears the label "DANGER". Category 4 is least toxic, and bears the label "CAUTION". Attachment 2 Section 6A describes these categories. MVC does not use Category 1 or Category 2 pesticides. The pesticides that are routinely used by the MVC have low acute toxicities and very low chronic toxicity at the concentrations and volumes transported and applied by the MVC.

c. The amount of pesticide used by MVC is expected to double if the area is expanded. However, the volume of pesticides transported and used is still small. Refer to Table 1. Bulk deliveries of pesticides to the MVC are infrequent, and are always handled by haulers certified by the Department of Transportation for the materials they are transporting.

The MVC does not transport large volumes of pesticides in its own vehicles, and will not do so in the expanded service area. The highest load capacity for an MVC vehicle is 55 gallons of either GB-1111 (light oil) or 25 gallons of aqueous solutions of insecticides. One well-secured 55-gallon drum is picked up from Salinas twice a year. Two or three times a year, in early morning, up to thirty 40-pound bags of dry larvicide granules are transported less than 5 miles from the MVC air-sea shipping container storage site at the locked Burchell Water Yard of the City of Watsonville to the helicopter staging area, which is behind warning cones in an unfrequented levy area.

The Burchell yard container is locked, posted and permitted and inspected by the County Environmental Health Services Department.

d. All MVC vehicles that transport or apply pesticides are equipped with equipment and supplies needed to contain the largest possible spill from that vehicle. All MVC vehicles are maintained in good condition by County Fleet Services.

e. All MVC personnel that handle pesticides are registered by the California Department of Health Services as Pesticide Applicator, and are required to complete annual pesticide safety training, including pesticide spill drills, offered by the MVC.

f. MVC personnel are routinely inspected by the Santa Cruz County Agricultural Commissioner's office to verify that all equipment is calibrated and functioning properly and to assure adequate staff training and knowledge concerning the proper use and handling of all pesticides used by the MVC.

g. Lastly, none of the biological controls used by or proposed for use by the MVC are genetically engineered organisms.

G3. There are no public airports within the proposed, expanded MVC project area. The Watsonville airport is within the existing service area. Currently, the MVC uses a wide turnout area of the Pajaro River levy as a staging area for a contracted helicopter (2-3 times a year) to apply larvicides by hopper to sloughs and lake edges. All flights from there are over farmland or public easements as much as possible, away from public activity and housing. If expansion occurs it is estimated that helicopters or airplane use will not increase proportionately as these methods are used when larger areas, such as the slough system, need treatment. Such areas do not occur elsewhere in the County close to population centers.

G5. One of the materials MVC uses, GB-1111, is a petrochemical product. However, the chemical and physical characteristics of GB-1111 make it extremely unlikely to ignite during foreseeable circumstances (MSDS), and if it did ignite, the low volumes used in MVC equipment and the wet nature of the application sites reduce the probability of a wildfire to insignificance.

In addition, all MVC vehicles carry fire extinguishers and cellular telephones, which can be used to summon assistance in the unlikely event that any MVC action initiates a fire.

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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H. Transportation / Traffic

Would the project:

1. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	_____	_____	___	___ <u>X</u> ___
2. Cause an increase in parking demand which cannot be accommodated by existing parking facilities?	_____	_____	_____	_____ <u>X</u> _____
3. Increase hazards to motorists, bicyclists, or pedestrians?	_____	_____	_____	_____ <u>X</u> _____

4. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the county congestion management agency for designated intersections, roads or highways? _____ _____ _____ X

H. The small number of expected MVC vehicle trips (less than 8 per day, County wide) relative to the existing traffic in the Service Area is negligible.

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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I. Noise

Would the proposal result in:

1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project? _____ _____ _____ X

2. Expose people to noise levels in excess of standards established in the General Plan, or applicable standards of other agencies? _____ _____ _____ X

3. Generate a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? _____ _____ X _____

I-3 The MVC uses a boat, may use ATVs, and contracts for helicopter treatments in marshlands surrounded by various land uses, including light industry, transportation, sewer treatment, agriculture, other open space, and residential areas 2 – 3 times per year.

Aircraft use is infrequent, and boat and aircraft use is infrequent, almost always near riparian corridors, agricultural or industrial areas, or open space at a distance from residential areas. Furthermore, aerial treatment activities are coordinated with local and county emergency services, the county airport, and local communities (as needed) to minimize concerns with respect to low-flying aircraft. Although the helicopter must fly less than 200 feet over the target areas to avoid drift, it is only in any given area for a minute or two. The MVC has been conducting these activities for over ten years without receiving noise complaints.

Each of these noise sources is temporary when it occurs and is not a significant impact.

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
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J. Air Quality

Would the project:

- | | | | | |
|--|-----|-----|-----|--------------|
| 1. Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ___ | ___ | ___ | <u> X </u> |
| 2. Conflict with or obstruct implementation of an adopted air quality plan? | ___ | ___ | ___ | <u> X </u> |
| 3. Expose sensitive receptors to substantial pollutant concentrations? | ___ | ___ | ___ | <u> X </u> |
| 4. Create objectionable odors affecting a substantial number of people? | ___ | ___ | ___ | <u> X </u> |

J 1-4 Pesticide applications by the MVC do not significantly contribute to air pollution, because most materials are applied directly to aquatic sources and aerosol applications use liquid droplets, not particulates, as carriers. Applications of GB-1111 and oil-based aerosols contribute insignificant quantities of volatile organic compounds. GB-1111, although an oil product, is listed as “non-volatile” on its Material Safety Data Sheet (MSDS).

Also refer to Attachment 2 for detailed information on the chemistry, toxicity, and other characteristics of the materials used and proposed to be used by the MVC.

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	Not Applicable
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K. Public Services And Utilities

Would the project:

- | | | | | |
|--|-----|-----|-----|--------------|
| 1. Result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | ___ | ___ | ___ | <u> X </u> |
|--|-----|-----|-----|--------------|
- a. Fire protection?
 - b. Police protection?
 - c. Schools?
 - d. Parks or other recreational facilities?
 - e. Other public facilities; including the maintenance of roads?

3. Result in the need for construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	___	___	___	<u> X </u>
4. Cause a violation of wastewater treatment standards of the Regional Water Quality Control Board?	___	___	___	<u> X </u>
5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?	___	___	___	<u> X </u>
6. Result in inadequate access for fire protection?	___	___	___	<u> X </u>
7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?	___	___	___	<u> X </u>
8. Result in a breach of federal, state, and local statutes and regulations related to solid waste management?	___	___	___	<u> X </u>

K 1-8 The project will not increase use of any of the above listed public services.

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	Not Applicable
<u>L. Land Use, Population And Housing</u>				
Would the project:				
1. Conflict with any policy of the County adopted for the purpose of avoiding or mitigating an environmental effect?	___	___	<u> X </u>	___
2. Conflict with any County Code regulation adopted for the purpose of avoiding or mitigating an environmental effect?	___	___	<u> X </u>	___
3. Physically divide an established community?	___	___	___	<u> X </u>

4. Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? _____ _____ _____ X

5. Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere? _____ _____ _____ X

L 1,2 The Riparian Corridor and Wetland Protection ordinance, Chapter 16.30 of the County Code, applies to use of herbicides and pesticides in these areas. However, the MVC use of these materials is exempt from this ordinance and related General Plan provisions because local restrictions are pre-empted by state and federal laws.

M. Non-Local Approvals

Does the project require approval of federal, state or regional agencies? Yes _____ No X
Which agencies?

N. Mandatory Findings Of Significance

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant, animal, or natural community, or eliminate important examples of the major periods of California history or prehistory? Yes _____ No X

2. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)? Yes _____ No X

3. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes _____ No X

<u>TECHNICAL REVIEW CHECKLIST</u>	<u>REQUIRED</u>	<u>COMPLETED*</u>	<u>N/A</u>
APAC REVIEW			X
ARCHAEOLOGIC REVIEW			X
BIOTIC ASSESSMENT			X
GEOLOGIC HAZARD ASSESSMENT			X
GEOLOGIC REPORT			X
RIPARIAN PRE-SITE			X
SEPTIC LOT CHECK			X
SOILS REPORT			X

List any other technical reports or information sources used in preparation of this initial study:
Extensive reference materials were consulted, especially in preparation of the Technical Review document, Attachment 2. Attachment 3 is a full bibliography of references used.

ENVIRONMENTAL REVIEW ACTION

On the basis of this initial evaluation:

_____ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

_____ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described below have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

_____ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Signature

Date

For: _____
Ken Hart
Environmental Coordinator

Attachments:

1. Map indicating current service area and proposed expansion
2. Technical Review
3. Bibliography
4. Threshold criteria for treatment action
5. Table 1, Pesticide Use 2000-2004
6. CNDDDB Special Status Species in Santa Cruz County
7. Santa Cruz County Arbovirus Surveillance and Response Plan
8. Letters of US Fish and Wildlife Service, Noda, 1996 and Barr, 2000
9. West Nile Virus, Positive Dead Birds, Santa Cruz County
10. Non target effects of mosquito larvicides
11. Concentration of methoprene required to produce certain effects in insects
12. Non target effects of Agnique

