9 NUISANCE CONDITIONS FROM INSECTS

This chapter provides an evaluation of the generation and dispersal of nuisance insects at the proposed Oliveira Dairy Expansion project. As established in the Initial Study for the proposed project (see Appendix A, *Notice of Preparation and Initial Study*), operation of the Oliveira Dairy Expansion may result in the potential for nuisance conditions related to insects. Additional potential health hazard assessment criteria have been previously evaluated in the Initial Study/Notice of Preparation (IS/NOP) and will not be evaluated further in this chapter (these less-than-significant impacts are briefly summarized in Section 9.3.1 below).

For a discussion on feed supplementation at the proposed dairy, and the potential selenium and heavy metals effects on biological resources, in addition to the potential for pathogen contamination of groundwater and surface water at the project site and at off-site locations, see Chapter 10, *Hydrology, Water Quality, and Soil Erosion.*

The following evaluation implements, and is consistent with, mitigation measures and study protocols adopted by Merced County in its certification of the 2030 Merced County General Plan EIR in addition to the EIR for Revisions to the Animal Confinement Ordinance (ACO) and its approval of the ACO.

9.1 REGULATORY FRAMEWORK

9.1.1 MERCED COUNTY MOSQUITO ABATEMENT DISTRICT

The Merced County Mosquito Abatement District is responsible for implementing and enforcing mosquito control measures countywide. Mosquito Abatement Districts are established in accordance with the provisions of California Health and Safety Code Section 2000 et seq. The mission of the Mosquito Abatement District is to provide area-wide mosquito control, prevent mosquito-borne disease, and reduce economic loss and discomfort from mosquitoes.

The Merced County Mosquito Abatement District provides the following guidelines for the construction and management of dairy wastewater systems to prevent significant mosquito production (Souza, *pers. comm.* 2018):

- Wastewater holding ponds should not exceed 100 feet in width;
- All dairy wastewater holding and solids separator ponds should be surrounded by an access road at least 14 feet in width. The road must be accessible at all times to provide for the use of vehicle-mounted mosquito control equipment;
- All fencing around wastewater and solids ponds should be placed on the outside of the 14-foot lanes and gates to provide easy access.
- All four interior banks of holding and separation ponds should be graded 1:1 or steeper for the first ten feet, soil type permitting, but no greater than 2:1.
- Two or more separator ponds should be used. These ponds should not be more than 60 feet in width.
- No drainage lines should by-pass the separator ponds, except those that provide for normal corral run-off. All such drain inlets must be sufficiently grated to prevent the accumulation of solids in the holding ponds.

- Floatage of any solid substance that could provide harborage for immature mosquito stages should be kept out of all wastewater holding ponds. Mechanical agitators may be very helpful in this regard.
- Prevent vegetative growth from all areas of the wastewater and solids separation ponds. This includes access lanes, interior pond embankments, and any weed growth that might become established on pond surfaces.
- Dairy wastewater discharged for irrigation purposes shall be managed so that it does not stand for more than three days. Discharges that stand for more than three days could cause severe mosquito emergence.

9.1.2 MERCED COUNTY

The Merced County Division of Environmental Health (DEH) is responsible for implementing and enforcing fly abatement measures countywide. The County's primary fly abatement tool for animal confinement facilities is the ACO.

MERCED COUNTY ANIMAL CONFINEMENT ORDINANCE

The ACO includes regulation of potential health hazards, including numerous requirements for vector control management. These provisions include design and management guidelines for the construction of retention ponds and settling basins to prevent excessive fly or mosquito breeding, and to reduce the potential impact of insects to adjacent residents. In addition, the EIR prepared for the ACO contains mitigation measures to address potential impacts from nuisance flies to be implemented during environmental review of animal confinement facility projects such as the Oliveira Dairy Expansion project. Mitigation measures adopted in the EIR for the ACO include:

- Measures to be applied on a site-specific basis by the DEH, including Best Management Practices and sanitation practices;
- Measures to control fly populations if nuisance conditions are reported to the DEH, including biological and chemical pest control; and,
- Measures to ensure the remedy of nuisance conditions within a specified period of time.

These mitigation measures as contained in the EIR for the ACO are incorporated as study protocols for this EIR, and serve as the basis for mitigation measures identified in this document.

9.2 ENVIRONMENTAL SETTING

9.2.1 PROJECT SETTING

The existing Oliveira Dairy is located in an unincorporated area of Merced County on the southwest corner of West Oak Avenue and North Gurr Road in the Merced area, approximately two miles west of the City of Merced (for additional project area information, see Chapter 3, *Project Description*). There are off-site single-family residences surrounding the project area. There are four off-site residences within 1,000 feet: residences approximately 610 and 700 feet south of the wastewater storage ponds and west of Gurr Road; and residences 880 feet and 940 feet southwest of the feed storage area north of Dickenson Ferry Road (see Figure 3-10 in Chapter 3, *Project Description*). There are other animal confinement facilities in the vicinity of the project area, including a facility

immediately southwest of the Oliveira Dairy, and additional facilities located west and north of the project area.

NUISANCE FLIES

Nuisance flies are commonly associated with confined animal agriculture facilities such as dairies because they breed in the manure, animal feed, and other organic materials found on these facilities. Nuisance flies are known to cause significant economic losses in the form of reduced milk yields, increased hide damage, and higher production costs due to the nuisance and discomfort they cause to both animals and facility employees. Furthermore, nuisance flies have been shown to carry a large number of disease-causing pathogens such as *Salmonella* bacteria and *Trachoma* virus (bovine pink eye), and may be responsible for infecting animals or people with these pathogens (Gerry 2008).

Some nuisance flies are blood feeders and can inflict a painful bite while feeding on animals or humans. Blood feeding (or biting) flies include the stable fly and horn fly. Other flies do not bite (non-biting flies), instead feeding on body secretions or liquefied organic matter. Non-biting flies include the housefly, face fly, and garbage fly. Common nuisance flies and their characteristics are listed in Table 9-1.

Table 9-1 Common Nuisance Flies

Species	Primary Breeding Location(s)	Larval Habitat	Primary Season
Housefly (*Musca domestica*)	Animal confinement facility, residential	Garbage, fresh manure, dry manure, silage	Warm seasons
Face Fly (*Musca autumnalis*)	Animal confinement facility	Fresh, undisturbed manure	Spring/fall; tend to invade homes in fall
Little Housefly (*Fannia canicularis*)	Poultry operations	Fresh poultry manure	Spring/fall
Stablefly (*Stomxys calcitrans*)	Stables	Wet manure with vegetation (e.g., horse manure)	Mid to late spring
Garbage Flies (*Phaenicia, Calliphora, Phormia, and Ophyra spp.*)	Residential	Garbage	Warm seasons

Source: Merced County, Revised DEIR for the Animal Confinement Ordinance, 2002.

Different species of nuisance flies are most predominant during different seasons of the year. The length of time required to complete the development from egg to adult is temperature-dependent, and may be as short as seven days during the summer months. Nuisance flies have a life cycle comprised of the following stages: egg, three larval, pupal, and adult. Eggs are laid on wet substrates, especially dung pats and manure or wet/rotting feed, hay, and bedding straw, where the larvae can feed on food particles found on the substrate. A single female can lay hundreds of eggs during her life.

It is important to note that fly larvae are not capable of developing in truly aqueous habitats – they need wet but not overly wet substrates. The third and final (largest) larval stage is called the "wandering stage." During the wandering stage, fly larvae will leave the wet developmental substrate to find a dry area where they can pupate (develop into the pupal stage). The pupal case will vary in color from light brown to red to black depending upon the age of the pupa, and superficially looks like a rodent dropping except that it is segmented and well rounded on both ends. Within the

confines of the pupal case, the developing fly will undergo further changes to become a winged adult fly that will eventually emerge from the pupal case and disperse from the site.

Adult flies are generally active during daylight hours and inactive at night. During the day, flies may be noted resting on vertical surfaces such as walls and support structures. Flies will preferentially rest on white (or light colored) surfaces that are in direct sunlight on cold days or in shade on hot days. Most nuisance flies are known to disperse from their development sites into surrounding areas. However, the distance and direction of dispersal are not well understood and are likely determined by many environmental and geographical conditions. Non-biting nuisance fly species are likely to disperse further from the dairy site than those fly species that require animal blood meals. The habitat surrounding a dairy site will likely also play a role in the distance of nuisance fly dispersal. Nuisance flies will likely disperse further in open habitats typical of rangeland and low agricultural crops than they will in urban or forested areas that contain substantially more vertical structure on which flies may rest (Gerry 2008).

At an animal confinement facility, proper design and manure management can significantly decrease fly populations. Because all nuisance flies require wet manure or organic matter (feed, straw, etc.) for development, the number of flies that successfully develop into adults can be reduced by ensuring that these substrates remain dry, or dry very quickly. Fly control at animal confinement facilities includes both housekeeping and pest control measures. Housekeeping measures include manure management, and management of feed and commodity areas. Such management often includes cleanup of spilled feeds and manure at corral edges. Biological controls can include predators of eggs and instars, parasites, and competitors. Operators should avoid the application of pesticides directly to manure because beneficial insects are probably more susceptible than flies, and their loss could result in a fly population explosion. Chemical control can be part of an Integrated Pest Management Program, but should be supplemental to sanitation practices and be used only to control fly outbreaks (Gerry 2008). Several strategies for dairy facility management to decrease breeding success of nuisance flies are contained in Appendix E, *Management of Nuisance Flies: Dairy Design and Operational Considerations.*

MOSQUITOES

Mosquitoes may be associated with animal confinement facilities, especially those that flush manure into wastewater storage lagoons. In addition to transmitting various severe diseases, mosquitoes cause great annoyance and economic loss. Nuisance mosquitoes affect human comfort and efficiency, cause weight loss and death of domestic animals, and reduce milk production (Lawler S. P. and Lanzaro, G.C 2005).

Mosquitoes are best known for the biting habit of females, which must have a blood meal for egg production. The beak of the male mosquito is dull and unable to penetrate the skin of humans or animals. Their main diet consists of fruit and plant juices.

The five dominant genera of mosquitoes in California are *Aedes, Ochlerotatus, Anopheles, Culex* and *Culiseta*. The *Aedes* and *Ochlerotatus* mosquitoes are also called the "floodwater mosquitoes," since they usually occur in areas that are subject to intermittent flooding. These areas include irrigated pastures and orchards, riverbanks, dry lakes, and containers with fluctuating water levels. The first mosquitoes to appear in the early spring are *Culiseta* or "winter mosquitoes." They are usually found from September through May. The most common genus in the project area is *Culex*. Their larvae occur in

almost any water source but prefer foul water, including septic tanks, dairy ponds, industrial wastes, catch basins, street gutters, artificial containers, stagnant pools, and even flower pots (DPH 2012).

Mosquitoes are insects that have a complete metamorphosis and therefore go through four basic stages to develop to an adult. These stages are: egg; larval; pupal; and adult. The larvae and pupae are the aquatic forms of the mosquitoes. They do not need a lot of water to develop, but cannot breed in areas that are merely damp.

The type of egg varies according to the mosquito genera. *Aedes* and *Ochlerotatus* are so-called floodwater mosquitoes that occur in areas that have a dry and wet period, such as irrigated pastures. They lay their eggs on damp ground that will be flooded later. Therefore, those eggs have to withstand the dry period. The other three genera lay their eggs on the surface of stagnant water, where they hatch within 1-2 days. *Culex* and *Culiseta* mosquitoes lay them in clumps of about 100-200 eggs, the so-called egg rafts, which float on the water. *Anopheles* on the other hand, lay single eggs, which have individual floating devices on the sides of each egg.

The larvae develop in four stages, which are called "instars." They are active free-swimming forms, which feed on tiny pieces of organic matter. All species except *Anopheles* have breathing tubes to breathe air at the water surface. *Anopheles* mosquitoes have to lay parallel to the water surface to breathe. They usually complete this cycle within 2-5 days, but some species (like *Culiseta* spec.) can overwinter in this stage.

The pupae are also known as "tumblers." Some people mistake them for tadpoles, since they have a big round head and a tail. As in most insects, the pupae don't feed at all. They have two air tubes at the top of their head to breathe. The adult mosquito develops inside the pupal case.

After one to two days, the adult mosquito is ready to exit the pupal case. It breaks through the top of the pupae by pumping air into its body and stretching out. Then it sits on the water surface until it's dry and flies off. Usually the male mosquitoes are the first ones to hatch. After mating, the female mosquito is ready to take her first blood meal in order to obtain protein for her eggs' development. The males die shortly after mating, but the females can reproduce several times and live four to eight weeks. Some species overwinter as pregnant females and are able to live for several months at reduced metabolism.

Although some mosquitoes need only five to seven days in hot summer months to complete their life cycle, they are seldom a problem around deep, well-managed wastewater lagoons. To eliminate places where mosquitoes and flies can lay eggs, a holding pond should have weed-free sides and minimal floating solids (DPH 2012).

Mosquito-borne Diseases

Mosquitoes are very important vectors of serious diseases. Global efforts to reduce the numbers of mosquitoes usually are due to the deadly diseases they can transmit, and not because of the nuisance. Mosquito-borne diseases under surveillance in California include the endemic arboviral[1] diseases

[1] "Endemic Arboviral disease" is a term used to describe infections regularly found among particular people or in a certain area caused by a group of viruses spread to people by the bite of infected insects (arthropods) such as mosquitoes and ticks.

caused by West Nile virus, St. Louis encephalitis virus, and western equine encephalitis virus, as well as travel-associated diseases caused by *Plasmodium* spp. (malaria), dengue, chikungunya, and Zika viruses. The California Department of Public Health, Vector-Borne Disease Section monitors and consults with local agencies regarding invasive mosquito species including *Aedes aegypti* (yellow fever mosquito) and *Aedes albopictus* (Asian tiger mosquito) (DPH 2017)

The virus that causes encephalitis is normally contained in birds, but horses and humans can become "accidental hosts" if they get bitten by an infected mosquito. Encephalitis is an inflammation of the brain, which results in high fever, irritability, and disorientation, with the most serious cases terminated by coma and death. Most people that are bitten by an infected mosquito never show any symptoms of the disease. In 2017, St. Louis encephalitis virus was detected for the first time in more than 40 years in five northern California counties: Butte, Merced, Placer, Stanislaus, and Yuba (DPH 2017).

The first mosquito carrying West Nile Virus in Merced County was identified in June 2006, with the first human diagnosed with the disease reported in August 2006. Most humans infected with this disease have mild or no obvious symptoms, but 20 percent develop fever and muscular weakness. Less than one percent develops the very serious neuron-invasive form, which causes long term or permanent damage. This disease causes a high mortality among horses and over 225 species of wild birds, and is considered an endemic disease for humans, domestic animals, and wildlife in California (DPH 2012). For 2017 data, there have been a number of human disease cases from West Nile Virus throughout California, with most of the disease cases reported in southern California and ten reported cases in Merced County (DPH 2018b). In 2017, a total of 553 symptomatic and 47 asymptomatic West Nile Virus infections were identified in California, a 24.2 percent increase in infections compared to 2016 (DPH 2017).

Two genera of mosquitoes are probable transmitters of the West Nile Virus. They are the *Culex* and *Aedes* mosquitoes. One of the *Culex* species, *C. quinquefasciatus*, prefers to breed in waste lagoons such as those commonly found on dairies. For this reason, mosquito control around dairy lagoons is necessary.

Malaria is a widespread disease that still kills hundreds of thousands of people per year – in 2016, an estimated 445,000 people died from malaria, most of them children in Africa (CDC 2018). The *Anopheles* mosquito, the vector for malaria, occurs almost everywhere; the reason that there are very few outbreaks of malaria in California is that the Plasmodium parasite is generally not present in the state. In most malaria cases, mosquitoes here transmit the disease by biting someone who was infected by malaria elsewhere in the world (CDC 2018).

Other forms of mosquito-borne encephalitis that infect birds, livestock, and humans also occur infrequently within the Central Valley region of California.

Two invasive (non-native) mosquito species have recently been found in several California cities and counties, and there is a potential for them to spread into other areas of California (CDPH 2018). They are *Aedes aegypti* (the yellow fever mosquito) and *Aedes albopictus* (the Asian tiger mosquito). The *Aedes aegypti* has been found in Merced County. Unlike most native mosquito species, *Aedes aegypti* and *Aedes albopictus* bite during the day. Both species are small black mosquitoes with white stripes on their back and on their legs. They can lay eggs in any small artificial or natural container that holds water. (CDPH 2018)

Aedes aegypti and *Aedes albopictus* have the potential to transmit several viruses, including Zika, dengue, chikungunya, and yellow fever. None of these viruses are currently known to be transmitted within California, but thousands of people are infected with these viruses in other parts of the world, including in Mexico, Central and South America, the Caribbean, and Asia. As of October 5, 2018, there have been 678 travel-associated Zika virus infections in California. (DPH 2018a)

9.3 ENVIRONMENTAL EFFECTS

9.3.1 SIGNIFICANCE CRITERIA

This analysis evaluates the potential generation and dispersal of nuisance insects at the proposed Oliveira Dairy Expansion project site. The following significance criteria established by the ACO and its EIR were used to evaluate these impacts:

- Would the project create significant nuisance conditions to the public or the environment through the generation of insects due to project operations?

As set forth in Appendix G to the State CEQA Guidelines, Section IX, *Hazards and Hazardous Materials*, the additional health hazard assessment criteria previously evaluated in the project IS/NOP include whether the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. *(IX.a)*
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. *(IX.b)*
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school. *(IX.c)*
- 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 create a significant hazard to the public or the environment. *(IX.d)*
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area. *(IX.e)*
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. *(IX.f)*
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. *(IX.g)*

These impacts were found to be less than significant in the IS/NOP (see Appendix A). In addition, potential impacts from the release of hazardous substances into the environment during on-site project operations related to routine transport and use of hazardous materials, including pesticides, diesel fuels, supplements in cattle feed, genetically modified crops, Recombinant Bovine Growth Hormone, and antibiotics were evaluated in the IS/NOP and found to be less than significant. Therefore, these impacts will not be evaluated further in this chapter. For a discussion of impacts to water quality as a result of increased export of dry manure and associated pathogens and residual contaminants, see Chapter 10, *Hydrology, Water Quality, and Soil Erosion*.

9.3.2 ENVIRONMENTAL IMPACTS

Impact HAZ-1: Increased fly production and related nuisance effects (ACO)

Implementation of the proposed Oliveira Dairy Expansion project could result in the generation of flies that can adversely affect animal and human health, and become a nuisance for other adjacent land uses. While there have been no nuisance fly complaints for the existing dairy facility, because the nearest off-site residence is located less than 1,000 feet from proposed active dairy facilities, there is an increased potential for nuisance conditions, and this would be a potentially significant impact.

The dairy facility and proposed expansion area are predominantly surrounded by field crops (north, south, east, and west) including low-growing forage crops and corn, in addition to other animal confinement facilities immediately southwest of the Oliveira Dairy, and additional facilities located west and north of the project area. The majority of the project area (approximately 249 acres) consists of intensively managed, cultivated, and flood-irrigated fields used for the production of corn and forage crops and the application of manure process water. Some weedy plants and sparse vegetation grow along the edges of the cropped fields and near the agricultural drains. No trees are present within the project site. There is a row of trees located immediately south of the dairy facility. Where trees, tall crops, or man-made structures (e.g., homes) surround an animal facility, the dispersal distance will be short. When low-growing crops or native vegetation surround an animal facility, dispersal distance is typically longer as flies fail to find nearby vertical resting structures or feeding sites to halt the dispersal behavior.

The operators of the Oliveira Dairy currently hire a monthly pest control service to minimize the fly population on the dairy site, primarily for the on-site residences. These practices would continue with implementation of the proposed expansion project.

Merced County has sought to prevent agricultural nuisances by the use of setbacks between potential sources of nuisance insects and adjoining sensitive land uses. Under existing regulations, Merced County enforces a setback of 1,000 feet between animal confinement facilities (such as ponds, corrals, barns) and rural residences. As discussed in Chapter 11, *Land Use Compatibility*, there are four off-site residences within 1,000 feet: residences approximately 610 and 700 feet south of the wastewater storage ponds and west of Gurr Road; and residences 880 feet and 940 feet southwest of the feed storage area north of Dickenson Ferry Road (see Figure 3-10 in Chapter 3, *Project Description*).

According to Merced County Code Chapter 18.48.040 (B)(2), the modification or expansion of an existing facility must not decrease the existing separation distance from off-site residences that are less than 1,000 feet unless the off-site property owner provides written permission. Construction of the proposed facilities would occur predominantly west of existing facilities and would not reduce the distance to off-site residences within 1,000 feet. Also, the proposed expansion would not reduce the distance to less than 1,000 feet for any off-site residence currently greater than 1,000 feet from existing active dairy facilities (see Figure 3-10 in Chapter 3, *Project Description*).

The ACO prohibits new dairies within one-half mile of urban areas, areas zoned for residential uses, or concentrations of rural residences (Merced County Code Chapter 18.48.040 (B)(1)(a)). According to Merced County Code Chapter 18.48.040 (B)(2), if the dairy facility is located within the minimum

setback distance, the modification or expansion of an existing facility must not decrease the existing separation distance from these areas. There are no residentially zoned areas or concentrations of rural residences within the 0.5-mile setback distance (Merced County 2018a). The City of Merced (city limits) is located approximately two miles east of the active dairy facilities.

The DEH has responsibility for the maintenance of public health in the county. As required by the DEH, the methods for insect control must be described in a Vector Control Plan as outlined in Chapter 18.48.055 C.8.c of the ACO (see Appendix C). No Vector Control Plan has been prepared for the existing Oliveira Dairy operations or the proposed expansion as of the date of EIR preparation (January 2019).

Since adoption of the ACO, the Regional Water Quality Control Board has become the regulatory body for nutrient management planning, thereby replacing the ACO requirement for submission of a Comprehensive Nutrient Management Plan (CNMP) to the DEH with a state process. As a result, no CNMP (that would have included a Vector Control Plan) has been submitted to DEH for review and approval.

DEH enforces the operational measures of each Vector Control Plan through periodic random inspections, and by requiring the annual submittal of compliance reports. The DEH also responds to complaints from neighbors of such facilities as described above. No current or active fly complaints have been reported and submitted to DEH at the Oliveira Dairy (Merced County, October 2018).

As required by the ACO, DEH must implement the following procedures if nuisance insect conditions are reported at, or adjacent to, the animal confinement facility:

A. If fly nuisance conditions are reported to the Division of Environmental Health, the Division shall take the following actions:

   Within 72 hours of receiving a complaint, the Division of Environmental Health shall determine the species and population density of a fly population during an inspection of the location of the complaint, and identify potential sources of flies in the vicinity. At the location of the nuisance complaint, the County will seek to identify access points, identify attractants, and locate breeding sites. If an animal confinement facility is identified as a potential source of the fly nuisance, the County will evaluate the affected herd, identify sources of the fly population, and evaluate weather conditions. In general, an infestation would be indicated by insect pests found on over 25 percent of the animals sampled during monitoring, or by the presence of substantial breeding areas. In the event of infestation causing a nuisance, the County will impose additional control measures on a site-specific basis. Measures that may be required by DEH include both biological and/or chemical pest control methods.

B. If fly nuisance conditions are confirmed, and are attributable to operations at an animal confinement facility, the Division of Environmental Health shall require the owner/operator to remedy the nuisance condition within a specified period of time. The Division shall notify the parties reporting the nuisance of its findings, and shall provide follow-up inspections to ensure that the nuisance condition is cured. Should the condition persist, the Division shall initiate an enforcement action against the offending operator.

Management measures previously adopted by the County in the EIR for the ACO would apply to the proposed project as included in Mitigation Measures HAZ-1a and HAZ-1b. Because the nearest off-site residence is located less than 1,000 feet from proposed active dairy facilities and the proposed expansion could result in an increase in flies, there is an increased potential for nuisance conditions, and the following mitigation would be required.

Significance of Impact: Significant.

Mitigation Measure HAZ-1a:
Prior to obtaining a building permit, the project sponsor shall prepare a Vector Control Plan to meet the requirements of the Animal Confinement Ordinance Chapter 18.48.055 C.8.c. The Vector Control Plan shall be submitted to the Merced County Division of Environmental Health for review and approval. The applicant shall implement all measures within the approved Vector Control Plan throughout the active life of the dairy.

Mitigation Measure HAZ-1b:
The following operational measures identified in the EIR for the ACO shall be implemented prior to obtaining a building permit and throughout ongoing operations.

1. All confined animal facilities shall implement the following Best Management Practices to address potential fly problems:
    a. Daily inspection of manure flushing systems to ensure that manure is being effectively removed from flushed areas, with particular attention paid to corners and isolated areas;
    b. Daily inspections of water supply and circulation systems to ensure that any leaks are promptly repaired. These inspections shall include all watering troughs to ensure that mechanisms for controlling water level are operating effectively and are protected from damage;
    c. Regular blading of feeding lanes in freestall barns and corrals to ensure that spilled feed is promptly removed and disposed;
    d. Daily removal of manure and spilled feed from stalls in freestall barns;
    e. Scraping of corrals at least twice a year to minimize the potential for development of fly populations on manure;
    f. Weekly inspection of silage storage areas to ensure proper covering, drainage, and removal of any spoiled silage;
    g. Weekly inspection of fence lines of corrals and other "edge" areas, and removal of any accumulated manure;
    h. Periodic monitoring of stable flies by direct observation and counting of the number of stable flies on the legs of a representative number, minimum of two percent, of the support stock herd;
    i. All exterior doors and windows in milk rooms shall have screens that are inspected monthly to determine if they are working properly, and to identify rips in the screening. Ripped or otherwise damaged screens shall be repaired or replaced immediately;
    j. If necessary, flytraps shall be set throughout barns at strategic locations. The traps are inspected monthly, or more frequently if necessary, and replaced when saturated with captured flies.

2. In addition to fly management practices in the cattle housing and milking areas of dairy facilities, the following sanitation practices shall be implemented at animal confinement facilities to control fly populations:
    a. Dead animals shall be stored in a secured area at the dairy facility, and off-site rendering plant operators shall immediately be notified for pickup of carcasses. Carcasses must be removed within three business days pursuant to ACO Section 18.48.005(A);
    b. Residual feed shall be removed from infrequently used feeding areas;
    c. All garbage shall be disposed of in closed dumpsters that are regularly emptied by a contracted waste management service for off-site disposal;
    d. Grass and other landscape clippings shall be removed from the site for off-site disposal or reuse (as feed or soil amendment).

Potential Environmental Effects of Measures: All physical improvements or activities that could result in changes to the physical environment required by this measure would be located within the project area. The impacts of implementing such measures, if any, would be similar to those identified for the project in Chapters 5-11 of this EIR.

Significance after Mitigation: Implementation of the foregoing measures would reduce the magnitude of this potential effect by requiring housekeeping and management measures. Because the setback distance to the nearby off-site residences would not be reduced with project implementation, with implementation of the above mitigation measures, the potential impact from nuisance flies would be reduced to less than significant.

Implementation/Monitoring: Implementation of these measures would be the responsibility of the project applicant. The Merced County Community and Economic Development Department and Division of Environmental Health shall monitor for compliance. Mitigation Measure HAZ-1a shall be implemented prior to issuance of a building permit and Mitigation Measure HAZ-1b shall be implemented throughout ongoing operations.

Impact HAZ-2: Create significant nuisance conditions due to increased mosquito production (ACO)

Implementation of the proposed Oliveira Dairy Expansion project would not provide additional mosquito-breeding habitat since the proposed dairy expansion would not modify existing active dairy facilities that provide potential mosquito habitat. This would be a less-than-significant impact.

Potential habitat for mosquitoes at the Oliveira Dairy Expansion project includes the on-site waste management system, which includes an existing settling basin and two wastewater storage ponds. Undesirable numbers of mosquitoes could occur if these facilities are improperly managed so that weeds build up along the sides of ponds, mats of solids float within lagoons, or if water levels of "beach areas" of lagoons are not fluctuated to alternately flood or dry out areas where insects lay eggs. Lagoons that become mosquito breeding grounds are those with less than two feet of free bank space (freeboard) from surface to top of levee, that have "dead" corners where little wind action can occur, or where floating solids are not mechanically corralled to one end of the lagoon and removed.

In addition to the requirement for a Vector Control Plan set forth in Impact HAZ-1, Section 18.48.050 H and Sections 18.48.060 B, C, J, K, and S of the ACO contain provisions related to mosquitoes (see Appendix C). The Merced County Mosquito Abatement District provides guidelines for the construction and management of dairy wastewater systems to prevent significant mosquito production (outlined in Regulatory Framework, above). The existing facilities are in compliance with all but one of the provisions of the Mosquito Abatement District and the ACO related to site design to control mosquitoes. One of the existing wastewater storage ponds exceeds the dimensions outlined in the ACO (Chapter 18.48.060 J) and those recommended by the Mosquito Abatement District. These guidelines state that wastewater holding ponds should not exceed 100 feet in width, and settling basins should not exceed 60 feet in width. Both of the existing wastewater storage ponds for the project are rectangular in shape and measure approximately 203 feet wide by 284 feet long and 200 feet wide by 345 feet long. The settling basin measures 200 feet wide by 391 feet long. While the existing wastewater storage ponds are located less than 1,000 feet away from the nearest off-site residences to the south, the proposed project would not modify the existing wastewater ponds or settling basin, nor would the proposed dairy expansion reduce the existing separation distance. However, the existing oversized ponds may continue to incur increased treatment costs for the Mosquito Abatement District.

Adherence to the guidelines of the Merced County Mosquito Abatement District and correct management of the dairy wastewater containment systems are required to comply with the Merced County ACO, and would prevent significant mosquito production. Management measures previously adopted by the County in the EIR for the ACO would require the preparation of an updated Vector Control Plan. The Vector Control Plan is required by the ACO to contain operational measures for the wastewater lagoons and settling basin to further reduce mosquitoes. There have been no recorded complaints regarding mosquitoes for the Oliveira Dairy. Further, the dairy expansion project would not modify existing active dairy facilities that currently provide potential mosquito habitat, and would not thereby increase the potential for mosquito nuisance intensity or frequency. This would be a less-than-significant impact.

Significance of Impact: Less than significant.

Mitigation Measure HAZ-2: None required.