WETLAND DEVELOPMENT AND MANAGEMENT GUIDELINES FOR THE CONTROL OF MOSQUITOES

EXHIBIT A

WATER MANAGEMENT

1. Have manual control over water elevation.
2. Have a system that allows for the rapid draining of water during times of severe mosquito production or disease outbreaks.
3. The shore banks should be steep enough to prevent pooling as water level recedes and to allow wave action and access by predators.
4. Shoreline configuration should not isolate sections from the main body of water.
5. Depth should be maintained at a minimum of three feet during summer.
6. Depth should be maintained without fluctuations except during winter.
7. Shallower areas need to be drained and dry during the mosquito breeding season.
8. Winter wet areas should drain into a deep area with an outlet spillway to maintain water elevation and to give refuge to mosquitofish and predatory insects.

VEGETATION MANAGEMENT

1. Limit dense stands of aquatic vegetation from shore margins in shallow areas to lower harborage and enhance wave action.
2. When aquatic vegetation is present it should be maintained in small islands.
3. Avoid plants that mat on the surface such as water hyacinth, smartweed, water primrose, knotgrass, pondweed, *Hydrilla* or filamentous algae.
4. Certain plants, in moderate stands, like cattails and bullrushes generally do not promote mosquito productivity and can function as substrate for mosquito predators.
5. All aquatic vegetation needs to be periodically removed or partially harvested to reduce density.

WATERWAY MAINTENANCE

1. Levees, drain ditches and other water structures should be constructed and maintained to prevent seepage or flooding into adjacent lowland areas.
2. Levee faces should be steeply-sloped to limit growth of marginal vegetation.
3. Dikes or drains should also have steep slopes (1.5 - 2 foot horizontal to one foot vertical) to allow adequate drainage without standing water, and should be maintained free of vegetation.

WATER QUALITY

1. Inhibit all organically enriched effluent, biological or chemical pollutants and contaminants from entering wetlands.
2. Avoid islands of floating solids.
3. Avoid the use of treated sewage water or reclaimed wastewater on land where it may stand for three days or more.

BIOLOGICAL CONTROL

1. Stock wetlands with the mosquitofish *Gambusia affinis*.
2. Avoid stocking with game fishes or other predatory fishes that will reduce the population density of mosquitofish.

CHEMICAL CONTROL

1. Allow provisions for air and ground applications of *Bacillus thuringiensis* var. *Israelensis*, methoprene growth regulators or other EPA approved pesticides as needed.

SURVEILLANCE

1. Allow access for continual larval and adult mosquito surveillance and the continual monitoring of water quality and vegetation density.
2. Allow additional funding for local mosquito abatement and vector control agencies as needed for surveillance and management.

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