# Appendix 6

MOE Permit Number:

## Guidance For Methoprene Efficacy Monitoring

### Collection Data

Date:

Collector's Name:

Location No.:

Location Description (if no location no.):

### Breeding Site Description

Site Type (Check one):

Catch Basin/Storm Drain

Sewage/Sludge Lagoon

Ditch

Temporary Pool

Permanent Pool

Storm Water Management Pond

Pond

Organic level of water: low  moderate  high

Organic content of the water can be determined by taking a clear glass container and dipping it below the water surface. Hold the glass container up to the light. If you can see through the water the organic content is low, if the water is translucent the organic content is moderate and if you cannot see through the water the organic content is high. If algae or scum is found on the water surface the water should be considered as high organic content.

Water Temperature:

Lagoon Length (m): Width (m): Depth (m):

Pool Length (m): Width (m): Depth (m):

Emergent Vegetation: Nil  Low  Mod.  High

### Pre-Larviciding Sequential Sampling

Pool rating: Nil  Low  Moderate  High

Pool Rating

1. If no larvae are collected, the site is rated as “nil”.

2. If only 1 to 6 larvae are collected in 10 dips, this site is rated as “low”.

3. If 7-30 larvae are collected in 10 dips, this site is rated as “moderate”.

4. If >30 larvae are collected in 10 dips, this site is rated as “high”.

5 If the number of larvae collected in at least 5 dips is 51 or more, the site is rated as “high”.

Note: if the surface area of the site is greater than 50 m by 50 m (2500 m2), then the number of dips taken should be doubled.

| Dip No. | No. of Larvae | Cumulative No. |
| --- | --- | --- |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |

### Species Identification

Culex pipiens CP, Culex restuans CR, Culex salinarius CS, Aedes vexans AV, Coquillettidia pertubans CP, Anopheles punctipennis AP,Ochlerotatus triseriatus OT, Ochlerotatus cantator OC, Ochlerotatus trivattatus OTR.

| Species Code | Larva Instar (1-4) | No. Identified |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

### Post-Larviciding Monitoring For Methoprene Efficacy

1. Determine the catch basins that will be used in the monitoring study. Take samples of pupae from these same catch basins every week. Note the date when the larvicide was applied, the organic content, any oil sheen on water surface and temperature of the water. Do not take samples after a major rain event since pupae will likely to have been flushed out of the catch basin.
2. Collect 3 separate samples of pupae only once a week from each of the randomly selected treated catch basins and from nearby untreated catch basins (if available). Record number of pupae.
3. Place the pupae in a covered clear glass or plastic container (half-filled with water from the catch basin) and cover with netting or screening. Transport in a cooler with ice packs. Place the container in a sheltered area where the pupae will not be disturbed. Keep at a constant temperature, without direct light (i.e., they can be kept in a room in which the light is on during the day and turned off at night).
4. Check for emergence every day for up to four days.
5. Count the number of dead pupae (DP), dead adults (DA) and live adults (AA).
6. Use the following formula to determine the % control = (DP+DA) ÷(DP+DA+AA) x 100
7. Record results in an Excel spreadsheet format to facilitate calculations (see example below)

Most catch basins should have less than 10% emergence up to 21 days using methoprene pellets. Some catch basins may show less control (perhaps due to flushing, larger than normal size catch basin or storm drain, or some other reason) and should be retreated.

### Recording Results

| Treated  Site | No. of  Pupae | DP | DA | AA | % Control |
| --- | --- | --- | --- | --- | --- |
| Sample 1 |  |  |  |  |  |
| Sample 2 |  |  |  |  |  |
| Sample 3 |  |  |  |  |  |
| Sample 4 |  |  |  |  |  |
| Sample 5 |  |  |  |  |  |
| Sample 6 |  |  |  |  |  |
| Sample 7 |  |  |  |  |  |
| Sample 8 |  |  |  |  |  |
| Sample 9 |  |  |  |  |  |
| Sample 10 |  |  |  |  |  |

| Control  Site | No. of  Pupae | DP | DA | AA | % Control |
| --- | --- | --- | --- | --- | --- |
| Sample 1 |  |  |  |  |  |
| Sample 2 |  |  |  |  |  |
| Sample 3 |  |  |  |  |  |
| Sample 4 |  |  |  |  |  |
| Sample 5 |  |  |  |  |  |
| Sample 6 |  |  |  |  |  |
| Sample 7 |  |  |  |  |  |
| Sample 8 |  |  |  |  |  |
| Sample 9 |  |  |  |  |  |
| Sample 10 |  |  |  |  |  |