

MASSACHUSETTS MOSQUITO CONTROL ANNUAL OPERATIONS REPORT



2011 Year of Report

Date of Report: Jan. 11, 2012

Project/District Name: **Central Mass. Mosquito Control Project**

Address: 111 Otis St.

City/Town: Northborough, MA

Zip: 01532

Phone: (508) 393-3055

Fax: (508) 393-8492

E-mail: cmmcp@cmmcp.org

Report prepared by: *Tim Deschamps*

If you have a mission statement, please include it here: The objective of the Project is to attain an efficient, economic mosquito control operation which will provide the best results possible and be consistent with all ecological aspects and the best interests of the member towns.

Our goal is to reduce mosquito exposure to the public, and the potential for disease transmission by mosquitoes, by utilizing proven, sound mosquito control techniques. CMMCP believes the best way to accomplish this task is by practicing an Integrated Pest Management (IPM) approach as it relates to mosquito control in Massachusetts. IPM utilizes a variety of control techniques and evaluation procedures. Control efforts are undertaken only after surveillance data has been collected and analyzed. Training, experience and common sense dictate our response in any given situation.

It is our desire and responsibility for this Project to have the best mosquito control for the communities that we serve.

ORGANIZATION SETUP:

Please list your Commissioner's names:

Richard Day, Chair
Dean Mazzarella
Samuel Telford III

Pablo Noguera
Paul Mazzuchelli

Please list the Supt./Director's name: Timothy D. Deschamps

Please list the Supt./Director's contact phone number: (508) 393-3055

Please list your Asst. Supt./Asst. Director's name: Timothy McGlinchy

Do you have a website? Yes

If yes, please list the web address here: <http://www.cmmcp.org>

Please list your staffing levels for the year of this report:

Full time: 19

Part time:

Seasonal: 5

Other: (please describe)

Please break these down into the following areas:

Administrative staff: 2.5

Field staff: 21.5

Please check off all that apply, and list employee name(s) next to each category:

- Public relations Tim Deschamps, Curtis Best, Tim McGlinchy, Frank Cornine, Juliana Miller
- Information technology Tim Deschamps
- Entomologist Curtis Best, Frank Cornine, Juliana Miller
- Wetland Scientist Katrina Proctor
- Biologist Frank Cornine, Juliana Miller
- Education Curtis Best, Juliana Miller, Frank Cornine, Tim Deschamps
- Laboratory Curtis Best, Frank Cornine, Juliana Miller
- Operations Tim McGlinchy
- Facilities Tim Welch
- Other (please list) Office Manager, Karen Millet

For the year of this report, we maintained:

28 vehicles

2 modified wetland equipment (list type) Link Belt 1600, John Deere 350

12 ULV sprayers (list type) ProMist HD

4 Larval control equipment (list type) Muryama backpack sprayers

Other (please be specific):

Comments: _____

How many cities & towns in your service area? 39

Please list: Acton; Ashland; Auburn; Ayer; Berlin; Billerica; Blackstone; Boxborough; Chelmsford; Clinton; Dracut; Devens; Fitchburg; Holliston; Hopedale; Hopkinton; Hudson; Lancaster; Leominster; Littleton; Lunenburg; Marlborough; Milford; Millbury; Millville; Natick; Northborough; Northbridge; Sherborn; Shrewsbury; Southborough; Stow; Sturbridge; Tewksbury; Uxbridge; Webster; Westborough; Westford; Wilmington

*Please attach a link to a map of your service area if possible.
<http://www.cmmcp.org/area.htm>

INTEGRATED PEST MANAGEMENT (IPM):

DEFINITION: a comprehensive strategy of pest control whose major objective is to achieve desired levels of pest control in an environmentally responsible manner by combining multiple pest control measures to reduce the need for reliance on chemical pesticides; more specifically, a combination of pest controls which addresses conditions that support pests and may include, but is not limited to, the use of monitoring techniques to determine immediate and ongoing need for pest control, increased sanitation, physical barrier methods, the use of natural pest enemies and a judicious use of lowest risk pesticides when necessary.

Please check off all of the services that you currently provide to your member cities and towns as part of your IPM program; details of these services are in the next sections.

- Larval mosquito control
- Adult mosquito control
- Source reduction
- Ditch maintenance
- Open Marsh Water Management
- Adult mosquito surveillance
- Education, Outreach & Public education
- Research
- Other (please list):

Comments: _____

LARVAL MOSQUITO CONTROL:

Do you have a larval mosquito suppression program? Yes

If yes, please describe the purpose of this program: To control mosquitoes in the larval stage to reduce mosquito emergence and reduce adulticide use

Please give the time frame for this program: March - October

Describe the areas that this program is used: Wetlands, catch basins, stormwater structures, containers (i.e. tires, etc.)

Do you use:

- Ground applied (includes hand, portable and/or backpack)
- Helicopter applications

Other (please list):

Comments: _____

What products do you use in – (please use product name and EPA#)

Wetlands: Vectobac G, EPA# 73049-10; Agnique MMF, EPA #53263-28

Catch basins: Altosid WSP, EPA#2724-448; FourStar 45 day briquets, EPA#83362-3

Containers: Vectobac G, EPA#73049-10; Agnique MMF, EPA#53263-28

Other (please list):

Please list the rates of application for the areas listed above:

Wetlands: Vectobac G, 5-20lbs/acre; Agnique MMF, 0.2-1 gal./acre

Catch basins: Altosid WSP, 1 7 gram packet per basin, FourStar 45 day briquets, one per basin

Containers: Vectobac G, 5-20lbs/acre; Agnique MMF, 0.2-1 gal./acre

Other:

What is your trigger for larviciding operations? (check all that apply)

Larval dip counts – please list trigger for application: >1 per 5 dips

Historical records

Best professional judgment

Comments: _____

***Please attach a link to maps of treatment areas if possible. Basin application maps included as standard in town annual reports - check here:**

<http://www.cmmcp.org/about.htm>

ADULT MOSQUITO CONTROL:

Do you have an adult mosquito suppression program? Yes

If yes, please describe the purpose of this program: To suppress populations of adult mosquitoes

Please give the time frame for this program: June - October

Describe the areas that this program is used: streets, yards, recreational areas

Do you use:

Truck applications

Portable applications

Aerial applications

Other (please list):

Comments: _____

Please list the names of the products used with EPA #:

- 1). Anvil 10+10, EPA# 1021-1688-8329
- 2).
- 3).
- 4).
- 5).
- 6).

Please list your application rates for each product:

- 1). Anvil - 0.0012 lbs a.i./acre, 1.9 oz. per minute at 15mph
- 2).
- 3).
- 4).
- 5).
- 6).

Please describe the maximum amounts or frequency used in a particular time frame such as season and areas

once or twice per week, at least 24 hours apart

What is your trigger for adulticiding operations? (check all that apply)

- Landing rates - please list trigger for application >1 per minute
- Light trap data - please list trigger for application >5 human-biting per night
- Complaint calls - please list trigger for application >2 per square mile
- Arbovirus data
- Best professional judgment

Comments: _____

***Please attach a link to maps of treatment areas if possible. N/A**

SOURCE REDUCTION

Do you perform source reduction methods such as tire/container removal? Yes

If yes, please describe your program: To remove larval mosquito habitats and bring for recycling or disposal

What time frame during the year is this method employed? year round

Comments: 1,973 tires were picked up in 19 member cities and towns and brought to a recycling center in Littleton.

DITCH MAINTENANCE

Do you have a ditch maintenance program? Yes

Please check all that apply:

- Inland/freshwater
 Saltmarsh

If yes, please describe: Maintenance of existing ditch systems by removal of accumulated organic debris and other obstructions.

Please check off all that apply INLAND DITCH MAINTENANCE:

- Hand tools
 Mechanized equipment
 Other (please list):

Comments: _____

Please check off all that apply SALTMARSH DITCH MAINTENANCE:

- Hand cleaning
 Mechanized cleaning
 Other (please list):

Comments: No salt march in our service area

Please give an estimate of cumulative length of ditches maintained from the list above **INLAND:**

Hand cleaning 149,486 feet
Mechanized cleaning 2,155 feet
Other (please list):

Comments: _____

Please give an estimate of cumulative length of ditches maintained from the list above **SALTMARSH:**

Hand cleaning N/A
Mechanized cleaning N/A
Other (please list): N/A

What time frame during the year is this method employed? N/A

Comments: _____

*Please attach a link to maps of ditch maintenance areas if possible. N/A

MONITORING (Measures of Efficacy)

Please describe monitoring efforts for each of the following:

| | |
|---|---|
| Aerial Larvicide – wetlands: | one dip station per 250 acres |
| Larvicide – catch basins: | |
| Larvicide-hand/small area checks in 2011 | as many as time and manpower allows: 172 |
| Ground ULV Adulticide: | evaluation of ULV spray efficacy in 2011 |
| Source Reduction: | as directed in the BMP |
| Open Marsh Water Management: | |
| Other (please list): | |

Provide or list standard steps, criterion, or protocols regarding the documentation of efficacy, (pre and post data) and resistance testing (if any): **2007: To test the efficacy of the CMMCP standard adulticide procedure, two sites were chosen per week for seven weeks with mosquito collections made for both sites every weekday evening. One of these sites was selected to be sprayed in the standard manner while the other is not sprayed and is used as the control site. Collections were made for each site Monday through Friday with the experimental site being adulticided on Wednesday evenings. Test sites were chosen from service requests received, while the control sites were selected from nearby areas that the residents were informed that their property would be treated as an exclusion area for that week. Of the seven weeks of trials, four were at residential sites, two at recreational locations, and one was at a transfer station. 2008: A local collection of recreational fields was selected as the site for this project based primarily on layout and dense barrier foliage, ideal for this type of application. The treatment and control sites were on separate fields towards the opposite ends of the complex. Once established, pre-application surveillance began at the two sites using model 512 CDC miniature light traps baited with CO₂ (500ml/min), along with model 1512 collection bottle rotators . These traps were place in the recreational field away from the foliage so that in order for the host-seeking mosquitoes to reach the traps, they would have to travel through the treated foliage. Bottle assays (2007, 2008, 2009 & 2010): The bottle assay procedure used by CMMCP was modeled after the CDC method where a baseline for resistance was established using specimens collected from an area without any historical adulticide exposure. This data could then be plotted against data from mosquito populations in areas where our records show past insecticide usage has occurred. This will determine if any degree of resistance has developed to our current adulticide product.**

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? No

If yes, please describe:

Please give an estimate of total square feet or acreage: N/A

What time frame during the year is this method employed? N/A

Comments: No salt march in our service area

***Please attach a link to maps of OMWM areas if possible. N/A**

ADULT MOSQUITO SURVEILLANCE

Do you have an adult mosquito surveillance program? Yes

Please list the number (not location) of MDPH traps in your service area: 2-5

Please check off all the types of surveillance that apply to your program:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Gravid traps | |
| <input checked="" type="checkbox"/> Resting boxes | |
| <input type="checkbox"/> CDC light traps | <input type="checkbox"/> Canopy |
| <input checked="" type="checkbox"/> CDC light traps w/CO ₂ | <input checked="" type="checkbox"/> Canopy |
| <input type="checkbox"/> ABC light traps | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> ABC light traps w/CO ₂ | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> NJ light traps | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> NJ light traps w/CO ₂ | <input type="checkbox"/> Canopy |

Other (please describe):

Please describe the purpose of this program: Monitor for species population trends and virus isolations

Do you maintain long-term trap sites in any of your areas? Yes

If yes, please describe how you chose these long-term sites. Prior virus isolations, geography and collection data

Please check off the species of concern in your service area:

- | | |
|--|---|
| <input type="checkbox"/> <i>Ae. albopictus</i> | <input checked="" type="checkbox"/> <i>Ae. cinereus</i> |
|--|---|

- Ae. vexans*
- An. punctipennis*
- An. quadrimaculatus*
- Cq. perturbans*
- Cx. pipiens*
- Cx. restuans*
- Cx. salinarius*
- Cs. melanura*
- Cs. morsitans*
- Oc. abserratus*
- Oc. canadensis*
- Oc. cantator*

- Oc. excrucians*
- Oc. fitchii*
- Oc. j. japonicus*
- Oc. punctor*
- Oc. sollicitans*
- Oc. stimulans*
- Oc. taeniorhynchus*
- Oc. triseriatus*
- Oc. trivittatus*
- Ps. ferox*
- Ur. sapphirina*

Other (please list):

Do you participate in the MDPH Arboviral Surveillance program? Yes

How many pools do you submit weekly on average? 50

Please check off the arboviruses found in your area in the past 5 years:

- West Nile Virus
- Eastern Equine Encephalitis
- Other Please list:

Did the above listed diseases cause human or horse illnesses? Yes

Please explain: Sporadic isolations of EEE in *Cs. melanura*, plus *Ae. vexans* (Shrewsbury), WNV is now endemic to area. One human WNV infection and one horse EEE infection, both in the city of Fitchburg,

At what arbovirus risk level did the year begin in your area? (If more than one please list)

WNV: low/moderate
EEE: low/moderate

At what arbovirus risk level did the year end in your area? (If more than one please list)

WNV: low/moderate/high
EEE: low/moderate/high

What time frame during the year is this method employed? May - October

Comments: _____

***Please attach a link to maps of surveillance areas if possible. Mosquito trap locations included as standard in town annual reports - check here:**
<http://www.cmmcp.org/about.htm>

EDUCATION, OUTREACH & PUBLIC RELATIONS

Do you have an education/public outreach program program? Yes

If yes, please describe: Letters sent out to all school superintedents regarding our program each year. Program describes mosquito biology and ways to minimize mosquito breeding from containers

Please check off all that apply:

- School based program
- Website
- PR brochures/handouts
- Community events
- Science fairs
- Meeting presentations
- Other (please describe): New program aimed at senior citizens

Please give an estimate of attendance/participants in this program: 1,500

Please list some events you participated in for the year of this report: Tewksbury Health Fair;MassRecylce Conference, 34 presentations in 12 schools, 3 presentations ot senior citizens.

What time frame during the year is this method employed? year-round

Have you performed any research projects, efficacy, bottle assays, etc.? Yes

If yes, please elaborate on your research projects: Details on our website here:
<http://www.cmmcp.org/research.htm>

Are you involved in any collaboration with academia, industry, environmental groups, etc.? Yes

If yes, please elaborate on your collaborations this past year: Mosquito Spraying Effects on Non-target Species w/Tufts School of Veterinary Medicine, Host-Seeking Activity of Mosquitoes in Central Mass. w/Norfolk County MCP

Please provide a list of technical reports, white/grey papers, publication in journal or trade magazines, etc. Details on our website here: <http://www.cmmcp.org/research.htm>

Does your staff participate in educational oppportunities? Yes

If yes, please list the training and education your staff received this year: Clarke seminar; NMCA meeting; CPR/AED training, internal training

Please list the certifications and degrees held by your staff: Curtis Best, B.A. in Entomology; Frank Cornine, B.A. in Biology working on Masters in Public Health; Juliana Miller, B.A. in Biology; Tim McGlinchy, MS non-profit mgmt. Katrina Proctor certifications in wetland science; Tim Deschamps, various licenses and certifications

Comments: _____

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? No

If yes, please describe:

Is this program the introduction of mosquito predators or the enhancement of habitat for native predators?

Please check off all that apply:

- Predatory fish
- Predatory invertebrates
- Other (please describe):

What time frame during the year is this method employed?

Comments: _____

INFORMATION TECHNOLOGY

Does your program use (check all that applies):

- Computers
- GIS mapping
- GPS equipment
- Computer databases
- Aerial Photography
- Other (please describe):

Please describe your capabilities in these areas: Beginning to use GIS systems; all computers networked

Please describe your current GIS abilities: Intermediate

Give details if possible on your GIS abilities:

Please describe any changes/enhancements in this area from the previous year:
Addition of larval habitats and treatments in ArcView

Comments: _____

REVENUES & EXPENDITURES

Please give a concise statement of revenues & expenditures for the prior fiscal year ending June 30.

\$1,671,893 budget FY11. \$1,706,585 expended, \$296,947 surplus.

List each member municipality along with the corresponding (cherry sheet) funding assessment dollar amount for the prior fiscal year.

Comments:

| | |
|---------------------|---------------|
| ACTON | 52,842 |
| ASHLAND | 33,306 |
| AUBURN | 37,108 |
| AVON | 17,365 |
| AYER | 20,778 |
| BERLIN | 26,117 |
| BILLERICA | 71,621 |
| BLACKSTONE | 24,458 |
| BOXBOROUGH | 23,299 |
| CHELMSFORD | 64,163 |
| CLINTON | 16,023 |
| DRACUT | 52,058 |
| FITCHBURG | 62,933 |
| HOLLISTON | 43,071 |
| HOPEDALE | 12,622 |
| HOPKINTON | 61,567 |
| HUDSON | 32,127 |
| LEOMINSTER | 70,005 |
| LITTLETON | 36,642 |
| LUNENBURG | 53,888 |
| MARLBOROUGH | 61,024 |
| MILFORD | 41,882 |
| MILLBURY | 35,339 |
| MILLVILLE | 10,396 |
| NATICK | 55,240 |
| NORTHBOROUGH | 44,376 |
| NORTHBRIDGE | 38,867 |

| | |
|---------------------|---------------|
| SHERBORN | 34,290 |
| SHREWSBURY | 59,538 |
| SOUTHBOROUGH | 35,574 |
| STOW | 37,331 |
| STURBRIDGE | 73,954 |
| TEWKSBURY | 55,860 |
| UXBRIDGE | 61,027 |
| WEBSTER | 30,220 |
| WESTBOROUGH | 53,517 |
| WESTFORD | 72,350 |
| WILMINGTON | 46,962 |

PESTICIDE USAGE

Please total your pesticide usage with information from your Mass. Pesticide Use Report, WNV Larvicide Use records and contracted pesticide applications. Applications methods include; hand/backpack, aerial, ULV, mistblower, other (please explain)

Product Name: Vectobac G
 EPA Reg. #: 73049-10
 Application method: hand/backpack
 Targeted life stage: Larvae
 Total amount of concentrate applied: 4,323 lbs.
 Comments: _____

Product Name: Vectobac G
 EPA Reg. #: 73049-10
 Application method: helicopter
 Targeted life stage: Larvae
 Total amount of concentrate applied: 10,765 lbs.
 Comments: 3 towns - Billerica, Boxborough & Chelmsford

Product Name: Agnique MMF
 EPA Reg. #: 53263-28
 Application method: pump can
 Targeted life stage: Larvae/pupae
 Total amount of concentrate applied: 58 gal.
 Comments: _____

Product Name: Altosid WSP
 EPA Reg. #: 2724-448
 Application method: hand
 Targeted life stage: Larvae
 Total amount of concentrate applied: 668 lbs.
 Comments: catch basins only - 43,297 basins at 7 grams/basin

Product Name: Anvil 10+10
EPA Reg. #: 1021-1688-8329
Application method: truck (ULV)
Targeted life stage: Adult
Total amount of concentrate applied: 350 gal.
Comments: _____

Product Name: FourStar Microbial 45 day briquets
EPA Reg. #: 83362-3
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 2,341 briquets
Comments: used as pre-emptive treatments in catch basins in prior year WNV areas

Product Name: Vectolex WSP
EPA Reg. #: 73049-20
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: .028 pounds (130 grams)
Comments: abandoned swimming pools only

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:
Comments: _____

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:
Comments: _____

LARGE AREA EXCLUSIONS

Do you have large areas of pesticide exclusion, such as estimated or priority habitats?
Yes

If yes, please explain, and attach maps or a web link if possible. Only a few ACEC's, Sudbury Valley Trustees Property, and Assabet River National Refuge

SPECIAL PROJECTS

Do you perform any inspectional services such as inspections at sewage treatment facilities or review sub division plans? No

If yes, please elaborate

Do you work with DPW departments or other local or state officials to address stormwater systems, clogged culverts or other areas that you have identified as man-made mosquito problem areas? Yes

If yes, please elaborate: On a requested, as needed basis

Have you worked with these departments on long term solutions? No

If yes, please elaborate:

Did you conduct or participate in any cooperative research or restoration projects?

If yes, please elaborate: no

Did you or participate on any **State/Regional/National workgroups or panels or attend any meeting pertaining to the above?**

If yes, please elaborate: no

CHILDREN AND FAMILIES PROTECTION ACT

Is your program impacted by the Children and Families Protection Act? Yes

If yes, please explain: Incomplete compliance by schools regarding our products, including larval control products

If you have data on compliance with this Act and your program, please list here:

If you had difficulties with implementation of your program due to this law, please elaborate here: We have sent letters and hand delivered information packets to the School Superintendents' offices for 7 years now, compliance is slowly rising.

Comments:

GENERAL COMMENTS

Please list any comments not covered in this report: _____

Central Mass. Mosquito Control Project Pesticide Discharge Management Plan

Central Mass. Mosquito Control Project
111 Otis Street
Northborough, MA 01532
Phone: (508) 393-3055
Fax: (508) 393-8492
E-mail: cmmcp@cmmcp.org

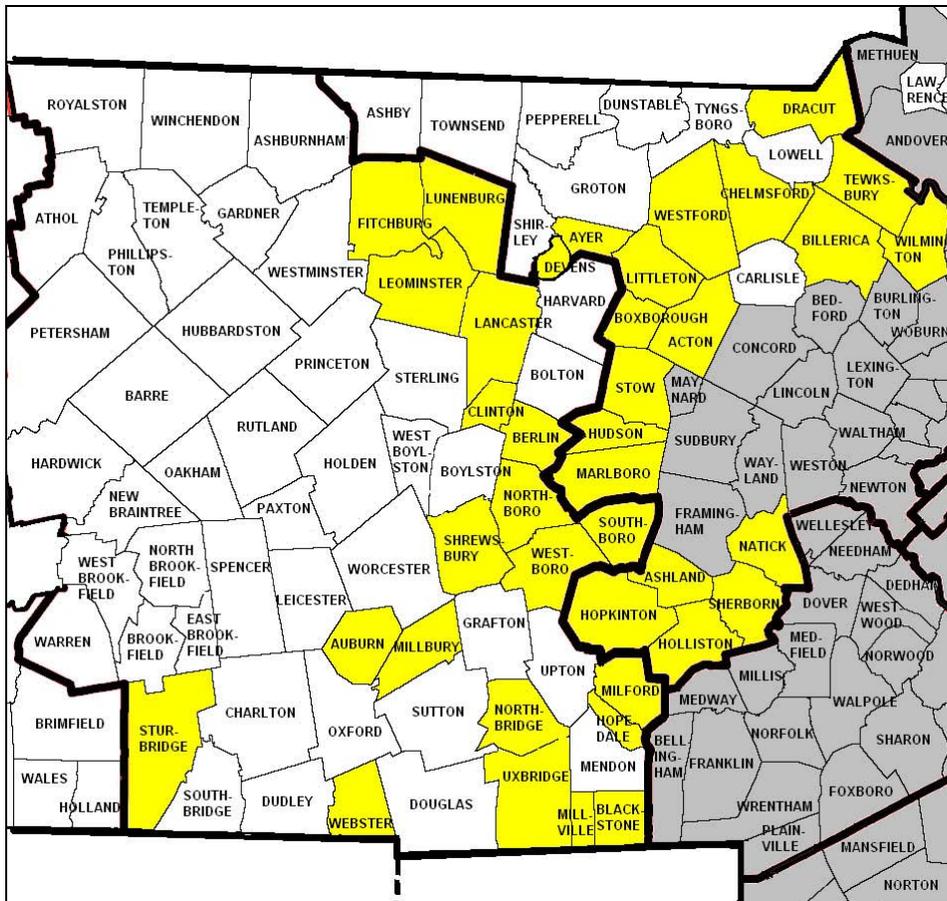
A. Pesticide Discharge Management Team. All persons may be contacted at: Central Mass. Mosquito Control Project. 111 Otis Street, Northborough, MA 01532. Phone: (508) 393-3055 Fax: (508) 393-8492 E-mail: cmmcp@cmmcp.org

1. Person(s) responsible for managing pests in relation to the pest management area.
 - a. Timothy Deschamps – Executive Director
 - b. Timothy McGlinchy – Director of Operations
2. Person(s) responsible for developing and revising the PDMP.
 - a. Timothy Deschamps – Executive Director
 - b. Timothy McGlinchy – Director of Operations
3. Person(s) responsible for developing, revising, and implementing corrective actions and other effluent limitation requirements.
 - a. Timothy Deschamps – Executive Director
 - b. Timothy McGlinchy – Director of Operations
4. Person(s) responsible for pesticide applications (mix, load, apply).
 - a. Edward Allard Field Technician
 - b. Jay Begin Crew Leader
 - c. Curtis Best Staff Entomologist
 - d. Jonathan Briggs Crew Leader
 - e. Frank Cornine Field Biologist
 - f. Edward Croshaw Field Technician
 - g. Timothy Deschamps Executive Director
 - h. Richard Greite Crew Leader
 - i. Sean Healy Crew Leader
 - j. Timothy McGlinchy Director of Operations
 - k. Julianna Miller Field Biologist
 - l. Michael Pojani Crew Leader

- m. Katrina Proctor Wetland Project Coordinator
- n. Jeffrey Provost Field Technician
- o. Edward Storonsky Operations Foreman
- p. Michael Tagg Field Technician
- q. David Walsh Field Technician
- r. Timothy Welch Facility Manager
- s. Other field staff hired, trained and licensed after implementation of this plan

B. Pest Management Area Description

1. Pest Problem Area Description: Central Mass. Mosquito Control (CMMCP) is charged with managing mosquito populations in 39 communities in both Middlesex and Worcester counties. Cities and towns in our service area lie in the following watersheds: Blackstone, Charles, Merrimac, Nashua, Shawsheen and SuAsCo. The CMMCP service area encompasses 703 square miles, or 449,920 acres. Pest problem areas can best be separated into 2 broad types within our service area that can be further divided into more specific groups based on habitat type.



i. Natural Environments

1. Woodland ponds, pools, and depressions are isolated wetlands occurring throughout the CMMCP service area within forested uplands and pasture areas. Examples of these habitats include bogs, shrub swamps, fens, wooded coniferous/deciduous swamps, and depressions caused by uprooted trees. Many of these sites only contain water during the wet seasons of the year, and serve as excellent nurseries for most species of mosquitoes found in our region.
2. Other natural environments include springs, seeps, tree holes, tree cavities, burrows made by various species of wildlife

ii. Man-made Environments

1. Ditches and canals are frequently suggested as sources of mosquito problems by the general public. However, these structures may contain fish, and are seldom the primary source of a mosquito infestation, especially if these systems tend to hold water on a permanent basis. On the other hand, shallow, roadside ditches do contribute to mosquito populations at times. Such sites often remain dry throughout much of the year or because of temperature, oxygen content, or other factors do not support fish life. Mosquito species encountered in such sites include *Aedes vexans*, *Culex salinarius*, *Cx. restuans*, and many species of *Ochlerotatus*.
2. Fallow cranberry bogs serve as habitat for a number of species of mosquitoes in our area. These shallow acidic wetlands can produce high numbers of mosquitoes.
3. Storm drains and catch basins are found throughout areas of the county, and provide a pristine environment for *Culex pipiens*, our primary WNV vector.
4. Containers come in all sorts of shapes and sizes. These may be represented by something as small as a bottle top to something as large as a discarded or unkempt boat. Containers serve as the primary larval site for *Culex pipiens* which is frequently associated with mosquito problems in our more urban and suburban areas of the county.
5. Other man-made sites include retention and detention ponds.

2. Pest Problem Description

- a. Central Mass. Mosquito Control (CMMCP) is charged with managing mosquito populations in 39 communities in both Middlesex and Worcester counties. Cities and towns in our service area lie in the following

watersheds: Blackstone, Charles, Merrimac, Nashua, Shawsheen and SuAsCo. The CMMCP service area encompasses 703 square miles, or 449,920 acres. The CMMCP service area is known to contain nearly 50 species of mosquitoes, although CMMCP actively surveys and conducts control efforts primarily on 12-14 species.

- i. Aedes vexans* is a common woodland mosquito that has the potential to fly up to 5 miles. It is generally encountered in the spring, but can be found at other times of the year as well after flooding rains. This species has been implicated as a vector of eastern equine encephalitis (EEE), West Nile virus (WNV), and dog heartworm.
- ii. Coquillettidia perturbans* is a fairly large mosquito that is often associated with aquatic habitats containing cattails, *Typha* spp. It is generally considered a bridge vector of EEE to mammals, but has also tested positive for WNV in the United States. It commonly takes blood meals from both bird and mammal species (including humans).
- iii. Culex pipiens*, the house mosquito, is our region's primary WNV vector. It prefers somewhat stagnant or polluted water conditions as larval habitat, and can be a common species in storm drain systems, especially in drainage lines equipped with sumps in the catch basins that tend to hold water on a permanent basis.
- iv. Culex restuans* is an early season mosquito. Larval habitats for this species typically include a variety of semi-permanent waterways, including roadside ditches and woodland pools. It has been reported to carry both EEE and WNV, and may be an important vector in the initial amplification of these viruses in bird populations as birds appear to be its primary blood hosts.
- v. Culex salinarius* is a common *Culex* mosquito throughout much of the year in our region. Adults are readily attracted to light traps, and larvae are found in both freshwater and somewhat saline environments. This species has been recorded to carry dog heartworm, EEE, SLE, and WNV. It appears to be an opportunistic feeder of birds, mammals, and even reptiles, and may serve as an important bridge vector in the transmission of arbovirus in the southeastern United States.
- vi. Culiseta melanura* and *Cs. morsitans* are swamp mosquitoes that occur in Atlantic White Cedar Swamps – hardwood floodplains and other aquatic habitats characterized by low pH. The larvae often are found within subterranean pockets that are difficult to treat with conventional larvicide agents. *Cs. melanura* almost exclusively obtains its blood meals from birds, and is our primary vector in the amplification of EEE in our area. It has also been found to carry WNV.

- vii. *Ochlerotatus canadensis* and *Oc. excrucians* are freshwater mosquitoes. Larvae develop in temporary or semi-permanent woodland pools. The females will bite in the woods any time of day, but are most active in the evening. They are aggressive and long-lived.
- viii. *Ochlerotatus abserratus* is a very common early spring to early summer mosquito pest of humans and other mammals. Larvae are found in temporary spring pools and margins of permanent waters in April. Readily bites in shaded areas during the day.
- ix. *Anopheles punctipennis* is found occasionally in the spring and summer. This pest of humans and other mammals has a mildly annoying bite. The larvae are found in a wide variety of wetlands including permanent swamps and along the edges of ponds and slow moving streams.
- x. *Anopheles quadrimaculatus* is a common summer mosquito. A pest of humans and other mammals that readily enters houses and has a mildly annoying bite. The population increases during the summer. The larvae are found in clear water amongst low vegetation or floating debris, in permanent swamps, and along the edges of ponds and slow moving streams.
- xi. *Ochlerotatus japonicus* is a pest of humans and other mammals. Its preferred habitat is artificial containers and discarded tire casings. It is not believed at this time to be a voracious biter of man, however research done by CMMCP has shown it can be a pest. West Nile Virus has been isolated from this species.
- xii. *Ochlerotatus triseriatus* is also a pest of humans and other mammals. Most of these larvae actually are found in old rimless tires, although some are found in other shaded artificial containers and in tree holes. When this mosquito is a pest, its breeding source is usually close by.

3. Action Threshold

- a. Recently the following thresholds were established to trigger larviciding missions within our service area:
 - i. Treatments of larval mosquito habitat may be conducted in areas that are found to contain an average of at least 1 larva per dip (using a standard 12 oz. dipper) over 5 dips. Actual treatments will be based on local demographics, mosquito species present, and other historic and current conditions.
 - ii. The storm water system (catch basins) may be treated in selected areas of the county where vector species have been found or there is a history of arbovirus activity.

4. Water Quality Standards - Waterways in the CMMCP service area are not impaired with any pesticides used by CMMCP.

C. Control Measure Description.

1. A description of the control measures to demonstrate how the operators specifically plan to meet the applicable technology-based or water quality-based effluent limitations.
 - a. Prevention, mechanical/physical methods and cultural methods are by definition very similar in nature and share many characteristics. These methods can be as basic as simply emptying water from containers or as complex as repairing broken water lines which often require the involvement of other county departments, such as Public Works. Educational programming at local schools and area events allow CMMCP staff the opportunity to suggest ways that residents can assist in the prevention of mosquito problems by removing containers and articles from their yards that provide larval habitat, and to be mindful that birdbaths and pet water bowls could serve as mosquito sanctuaries when not properly maintained. CMMCP does have a tire recycling program available in its service area to all member communities.
 - b. Physical manipulation of environments such as removing blockages in ditches that serve as barriers to natural predators of mosquitoes are sometimes quick and effective means for our Field Technicians to resolve problems on a localized level.
 - c. CMMCP uses various biological control agents for the control of larval stages of mosquitoes. Formulations containing *Bacillus sphaericus* and/or *Bacillus thuringiensis israelensis* are used to treat freshwater larval habitats. Hormone mimics such as methoprene is used in to treat catch basin/storm drains, as a precaution against our primary WNV vector species.
 - d. Pesticides often are any abatement agency's last choice of control measures. These products are applied as directed by their respective label, and all equipment used in this process is closely monitored and calibrated by staff.

Operators will consider impact to non-target organisms, impact to water quality, pest resistance, feasibility, and cost effectiveness when evaluating and selecting the most efficient and effective means of pest management to minimize pesticide discharge to waters of the U.S.

2. A brief explanation of the control measures used at the site to reduce pesticide discharge, including evaluation and implementation of the six pest management tools:
 - a. no action

- b. prevention
- c. mechanical/physical methods
- d. cultural methods
- e. biological control agents
- f. pesticides

Operators will consider impact to non-target organisms, impact to water quality, pest resistance, feasibility, and cost effectiveness when evaluating and selecting the most efficient and effective means of pest management to minimize pesticide discharge to waters of the U.S.

3. Control measures are evaluated separately on the basis of mosquito life stage as follows:
 - a. Efficacy can be determined from pre and post treatment trap counts when a trap site is located in the vicinity of a treatment area. In addition, landing rates taken by staff are used to supplement this data when trap sites are not located near a treatment area.
 - b. Larval control efficacy is easy to access. Post-treatment surveys verify successful treatments when using larvicide oils and films, or biological control measures, such as Bti products

D. Schedules and Procedures.

1. Pertaining to Control Measures Used to Comply with the Effluent Limitations in Part 2.
 - a. Application Rate and Frequency Procedures.
 - i. Application Rate Determination
 1. Determine species and age of target mosquito(es)
 2. Evaluate environmental conditions
 3. Consider target area flora and fauna
 4. Determine appropriate application rate based on product label recommendations, previous experience and efficacy tests.
 - ii. Frequency Determination
 1. Determine target site treatment history with selected pesticide

2. Evaluate effect of selected pesticide use on frequency and quantity thresholds for active ingredient.
 3. Consider alternate treatment options
- iii. Resistance Considerations
1. Consider documented resistance of target species to selected pesticide and/or any other compounds that are in the same class or exhibit similar modes of action. Also consider the possibility of cross resistance. CMMCP performs resistance management testing each year.
 2. Consider the use of alternate control options and/or product rotation.
- b. Spill Prevention Procedures.
- i. Perform daily inspections of pesticide storage areas.
 - ii. All applicators in the field are all equipped with cell phones, and are given a list of the following contact names & numbers in case of an emergency situation or if any questions arise:
 1. Police Dept. phone number for each town they are working in.
 2. Poison Control Center phone number.
 3. Home and cell phone numbers of the Executive Director and the Director of Operations of CMMCP.
 4. Cell phone numbers of other CMMCP employees on shift.
 5. Phone numbers for emergency spill response for Mass. Dept. of Environmental Protection and spill response contractors.
 - iii. All trucks are equipped with a 3-ring binder with laminated pesticide MSDS sheets & labels, as well as other fact sheets. This information is also available at the CMMCP headquarters, and from the CMMCP website. All trucks are equipped with an emergency spill response kit if a pesticide spill were to occur. All emergency phone numbers are included on the face of these kits.
 - iv. Chemical spill response plan:
 1. Contain spill then notify a supervisor.
 2. Isolate contaminated area.

3. Soak up spill with absorbent pads and/or absorbent granules. Collect material for disposal.
 4. Clean contaminated vehicles and equipment according to label instructions.
 5. Dispose of contaminated material according to label.
- CMMCP Chemical List and PPE Requirements attached.

c. Pesticide Application Equipment Procedures.

i. Backpack Sprayer - larviciding

1. Operations:

- a. Application equipment must be calibrated annually to confirm application rate is according to the label of the pesticide being used.
- b. A visual inspection of spray equipment for leaks or wear in the lines, tanks and nozzle is done prior to the start up of spray equipment.
- c. Routine cleaning and maintenance of the spray system must be performed to ensure system is operating properly.

2. Maintenance:

- a. Daily Checks - Visually check the sprayer each day before use and make any necessary adjustments and /or repairs.

ii. Ground Adulticiding

1. Operations:

2. Application equipment must be calibrated annually to confirm the Volume Median Diameter is according to the label of the pesticide being used.
3. A visual inspection of spray equipment for leaks or wear in the lines, tanks and nozzle is done prior to the start up of spray equipment.
4. Routine cleaning and maintenance of the spray system must be performed to ensure system is operating properly.
5. Maintenance:
6. Daily Checks - Visually check the fog generator each day before use and make any necessary adjustments and /or repairs. Before making any repairs ensure that required PPE is worn.
7. Check all gasoline hoses, insecticide lines and fittings for cracks, leaks or wear. Replace if needed.

8. Check all bolts and fasteners and tighten as necessary.
9. Ensure that pesticide tanks have sufficient chemicals for assigned spray mission.
10. Check all nozzle parts for wear or physical damage. Replace damaged parts.
11. Inspect blower air filter for cleanliness and serviceability.

d. Pest Surveillance Procedures.

i. Adult Surveillance

1. Service request inspections are taken during normal working hours from telephone messages or emails outside of the normal work day. Many of these are simple requests for treatments, although occasionally such calls lead to finding problems needing attention. Technicians generally will check for mosquito larvae and determine if adult populations warrant treatment during these inspections from observed densities.
2. Gravid trap collections are paramount to our WNV surveillance. This trap type is particularly effective in catching gravid *Culex pipiens/restuans*, which is our primary WNV vector. 30-50 gravid traps are deployed throughout the CMMCP service area each week during the mosquito season.
3. Carbon dioxide baited light trap collections are used for nuisance mosquito census. Currently, 30-50 CDC light traps are deployed on a weekly basis.
4. Resting boxes are used by our staff to aid in earlier detection of any possible EEE threat in the county. A resting box is a passive trap that attracts certain species of mosquitoes after they have taken a bloodmeal. All *Culiseta melanura*, *Cs. morsitans*, and *Oc. japonicus* captured from these traps are pooled based on location and sent for virus testing.

ii. Larval Surveillance

1. Service request inspections performed by our Field Technicians will check for mosquito larvae. Generally, these requests for service stem from localized, container-breeding species of mosquitoes that are easily remedied by simply dumping water from articles such as buckets, birdbaths, tarps, and other items that are holding water. Occasionally, service requests investigations uncover larger scale problems, like blocked drainage systems, leaking septic tanks, broken water lines, etc. that may require further action by either the land owner or other town departments to correct.

2. Larval habitat site inspections are conducted by our Field Technicians following flooding events caused by rain or in permanent water habitats. Larval surveillance entails locating the larval source (if not already known), sampling for larvae and estimating larval density, determining larval developmental stage(s), and collecting larvae for identification purposes in some instances. Other factors considered during larval inspections include the water depth at the specific location, current extended forecast, water temperature, and if any natural predators are present.

iii. Disease Surveillance

1. Mosquito pool analysis is a most useful indicator of the presence of WNV (and occasionally EEE) in our service area. Up to 50 adult *Culex sp.*, *Oc. japonicus*, *Cs. morsitans* or *Culiseta melanura* mosquitoes are grouped to form a single sample for WNV or EEE virus analysis, respectively.

2. Dead bird lab work during our early history with WNV played a role in the initial detection of areas of high concern. However, this aspect of viral detection has been diluted over the years as we have become more familiar with the ecology of this virus and our local bird populations. More recent work conducted throughout the US has established that three groups of birds (crows, blue jays, and raptors) are more susceptible to WNV than others. Herd immunity is assumed to be a factor in this data type.

e. Assessing Environmental Conditions Procedures.

i. Larval mosquito treatments. Two major environmental considerations are tree canopy and the amount of aquatic vegetation present within the treatment site. Tree canopy may deflect or otherwise prevent the penetration of pesticide from reaching the target area. Heavy vegetation within a wetland can interfere with the migration of the larviciding agent through the water column.

ii. Adult mosquito treatments. Treatments for adult mosquitoes occur in both urban and rural areas of the county. Applicators are always aware of listed exclusion areas, and turn spray equipment off when necessary to avoid drift into such areas. Similarly, equipment is also turned off when approaching large bodies of water, such as lakes and ponds to avoid any adverse reactions to non-target organisms in these environments. Exclusion areas are outlined in a binder carried by each technician, and also loaded on GPS units in each spray vehicle. Exclusion areas are updated as needed.

1. Ground Adulticiding Procedures
2. Apply when insects are most active and meteorological conditions are conducive to keeping the spray cloud in the air column close to the ground. Applications are done after astronomical sunset per a State Reclamation & Mosquito Control Board (SRMCB) policy dated August 20, 2007 but can be performed before astronomical sunrise if conditions warrant and a waiver has been granted by the SRMCB.
3. Do not apply when ambient temperature is less than 50F, unless otherwise specified on the pesticide label.
4. Apply when ground wind speeds are equal to or greater than 1 mph but less than 20 mph, unless otherwise specified on the pesticide label.
5. Do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body unless otherwise specified on the pesticide label.
6. Pesticide is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply product or allow drift when bees are actively visiting the treatment area, except when applications are made to prevent or control a threat to public and/or animal health determined by a state, tribal or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes, or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort unless otherwise specified on the pesticide label.
7. No spray exclusion areas are maintained on a list with all applicators and are also placed on a GPS unit for a visual and audible reminder when the sprayers are in use.
8. To help minimize adverse incidents, CMMCP applicators turn off spray equipment when approaching areas with high human activity, such as outdoor sport practices, games, or other events. Technicians look for open windows and doors in residential areas and will turn off the spray equipment to minimize exposure to residents.

2. Pertaining to Other Actions Necessary to Minimize Discharges.

- a. Spill Response Procedures.
 - i. Chemical Spill Response training is required for staff handling, loading or applying pesticides.
- b. Adverse Incident Response Procedures.
 - i. Procedures for responding to any incident resulting from pesticide applications
 - ii. Procedures for notification of an incident:
 - 1. Operator notifies supervisor of incident.
 - 2. Supervisor will notify town where incident occurred to coordinate any needed remediation.
- c. Pesticide Monitoring Schedules and Procedures.
 - i. For application by, or under the supervision of, personnel certified/trained in public health pest control or mosquito control. For each application, a record must be kept of:
 - 1. Date, time and areas where application occurred.
 - 2. Name and EPA registration number for the product being applied.
 - 3. Type and size of spray nozzle used.
 - 4. Dilution and application rate.
 - 5. Employees involved in mixing, loading and applying larvicide.
 - 6. These records must be kept by the responsible public agency or their designee for a minimum of three years using storage methods that will allow the records to be easily retrieved.

Pesticides and Required PPE*

| Pesticide | EPA Registration Number | PPE Requirement |
|-------------------|--------------------------------|---|
| Agnique MMF | 53263-28 | All prudent precautions |
| Altosid WSP | 2724-448 | Under ordinary use conditions, no special protection is required. |
| Anvil 10+10 | 1021-1688-8329 | All prudent precautions |
| FourStar briquets | 83362-3 | Under ordinary use conditions, no special protection is required. |
| Suspend SC | 432-763 | Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. |
| VectoBac G | 62637-3 | Dust Mask (N-95, R-95,P-95) |
| VectoLex WSP | 73049-20 | Air purifying respirator with dust/mist filter (N95), if needed. |



U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
 (NPDES)
 PESTICIDE GENERAL PERMIT (PGP) FOR DISCHARGES
 REPORT



A. Notice of Intent Status

Mark whether this is the first time you are requesting coverage under this General Permit or if this is a change of information for a discharge already covered under this General Permit. If this is a change of information, supply the NPDES permit tracking number for the discharge.

- Original NOI Submission NOI Change of Information

(NPDES Permit Tracking #): MAG87A023

Status: Submitted to EPA

B. Operator Information

1. Operator Name: Central Massachusetts Mosquito Control Project

2. IRS Employer Identification Number (EIN):

3. Operator Type (check one):

- Federal government
- State government
- Local government
- Mosquito control district (or similar)
- Irrigation control district (or similar)
- Weed control district (or similar)
- Other: If other, provide brief description of type of operator:

4. Are you a large entity as defined in Appendix A of the PGP? (check one):

- Yes No

Please note: If you answer "Yes" to question 4 you are required to develop a PDMP and submit an Annual Report reflecting all pesticide uses for which you are requesting permit coverage.

5. In what state are your pest management areas located? Please specify only one state per NOI: Massachusetts

6. Mailing Address:

- a. Street: 111 Otis St.
- b. City: Northborough c. State: Massachusetts d. ZIP Code: 01532
- e. Telephone: 5083933055 f. Fax: 5083938492
- g. Contact Name: Tim Deschamps
- h. E-mail: deschamps@cmmcp.org

C. Operator Information: Complete Section C for each Pest Management Area for which coverage under EPA's Pesticide General Permit is desired. Copy this section for non-electronic submissions.

Pest Management Area # 1 #of ## 1

1. Pest Management Area Name: CMMCP Service Area

Provided a map of the location of the Pest Management Area for this use (attach map), or describe the location of the Pest Management Area in detail.



CMMCP Service Area

2. Are any of your activities for which you are requesting coverage under this NOI occur on Indian Country Lands?

Yes No

If yes, identify the reservation or otherwise describe those areas:

3. Are any of your activities (in this pest management area) for which you are requesting coverage under this NOI considered "federal facilities" as defined by the PGP?

Yes No

4. Mailing address and contact information (or check here 0 if same as provided in Section B):

a. Street: 111 Otis St.

b. City: Northborough

c. State: Massachusetts

d. ZIP Code: 01532

e. Telephone: 5083933055

f. Fax: 5083938492

g. Contact Name: Tim Deschamps

h. E-mail: deschamps@cmmcp.org

5. Pesticide Use Patterns to be included in this Pest Management Area (check all that apply):

Mosquitoes and Other Flying Insect Pests Animal Pest Control
 Weeds and Algae Forest Canopy Pests

6. Receiving Waters (check one):

Coverage requested for all waters of the United States within the Pest Management Area identified above.
 Coverage requested specifically for the following waters of the United States within the Pest Management Area identified above.
 Coverage requested for all waters of the United States within the Pest Management Area identified above except for:

7. Tier 3 Waters

Is coverage requested for discharge to a Tier 3 (Outstanding National Resource Water) water of the United States?

Yes No

If yes, answer 1) and 2):

1) Name of Tier 3 water(s):

2) Provide rationale for determination that pesticide discharge is necessary to protect water quality, the environment, and/or public health and that any such discharge will not degrade water quality or will degrade water quality only on a short-term or temporary basis:

8. Water Quality Impaired Waters

Operators are not eligible for coverage under this permit for any discharges from a pesticide application to Waters of the United States if the waters are identified as impaired by a substance which is either an active ingredient the pesticide designated for use or is a degradate of such an active ingredient. See Part 1.1.2.1 of the PGP.

Waters are NOT impaired by any substance which is either an active ingredient of a pesticide to be discharged or a degradate of such an active ingredient
 Waters are on a current state list as being impaired by a substance which is either an active ingredient of a pesticide to be discharged or a degradate of such an active ingredient; however, evidence is attached documenting that the waters are no longer impaired.

D. Endangered Species Protection: Complete Section D for each Pest Management Area for which coverage under EPA's Pesticide General Permit is desired. Copy this section for non-electronic submissions.

1. Federally Listed Threatened or Endangered Species (i.e., Species) and/or Federally Designated Critical Habitat

- A. Pesticide application activities will not result in a point source discharge to any receiving water identified in Appendix XXX as containing NMFS-listed resources of concern for this permit.
- B. Pesticide application activities for which permit coverage is being requested will discharge to one or more receiving waters containing NMFS-listed resources of concern, but consultation with NMFS under section 7 of the ESA has been concluded for pesticide application activities covered under this permit. Consultations can be either formal or informal, and would have occurred only as a result of a separate federal action. The consultation addressed the effects of pesticide discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat, and must have resulted in either:
 - i. A biological opinion finding no jeopardy to federally-listed species or destruction/adverse modification of federally-designated critical habitat; or
 - ii. Written concurrence from NMFS with a finding that the pesticide discharges and discharge-related activities are not likely to adversely affect federally-listed species or federally-designated critical habitat.
- C. Pesticide application activities for which permit coverage is being requested will discharge to one or more receiving waters containing NMFS-listed resources of concern, but pesticide application activities are authorized through the issuance of a permit under section 10 of the ESA, and authorization addresses the effects of the pesticide discharges and discharge-related activities on federally-listed species and federally-designated critical habitat.
- D. Pesticide application activities were, or will be, performed in areas with NMFS-listed resources but only in response to a declared pest emergency situation.
- E. Pesticide application activities for which permit coverage is being requested will discharge to one or more receiving waters containing NMFS-listed resources of concern. Eligible discharges include those from pesticide application activities performed consistent with appropriate measures to avoid or eliminate the likelihood of adverse effects as provided in writing from NMFS, and the Operator provides EPA with the required relevant supporting information from NMFS.
- F. Pesticide application activities for which permit coverage is being requested will discharge to one or more receiving waters containing NMFS-listed resources of concern. Eligible discharges include those from pesticide application activities that are demonstrated not likely to adversely affect federally-listed species or their designated critical habitat.

E. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. On the basis of my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that the applicant has sufficient title, right, or interest in the property where the proposed activity occurs.

Printed Name: Timothy D. Deschamps

Title: Executive Director

E-Mail: cmmcp@cmmcp.org

Signature/Responsible Official: Timothy D. Deschamps

Date: 2012-01-12

NOI Preparer (Complete if NOI was prepared by someone other than the certifier)

Prepared by: Timothy D Deschamps

Organization: Central Massachusetts Mosquito Control Project

Phone: 5083933055

Date: 2012-01-08

E-Mail: cmmcp@cmmcp.org