STATE OF MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION

General Permit – Aquatic Pesticides for the Control of Mosquito-Borne Diseases

Maine Waste Discharge Program

Bureau of Land and Water Quality
Waste Discharge License #W008226-5G-A-N

September 30, 2005

GENERAL PERMIT – AQUATIC PESTICIDES FOR THE CONTROL OF MOSQUITO-BORNE DISEASES

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IN THE MATTER OF

GENERAL PERMIT		)	PROTECTION AND IMPROVEMENT
AQUATIC PESTICIDES FOR THE CONTROL		)	OF WATERS
OF MOSQUITO-BORNE DISEASES		)	
STATE OF MAINE		)	
#W008226-5G-A-N		)	WASTE DISCHARGE LICENSE
#MEG140000	**APPROVAL**	)	**NEW**

Pursuant to the provisions of Maine law, 38 M.R.S.A. §414-A *et seq.*, and applicable rules, the Department of Environmental Protection (Department) has considered the issuance of a waste discharge license for the APPLICATION OF AUTHORIZED AQUATIC PESTICIDES FOR THE CONTROL OF MOSQUITO-BORNE DISEASES (General Permit), with its supportive data, agency review comments, and other related materials on file, and FINDS THE FOLLOWING FACTS:

LICENSE SUMMARY

Pursuant to applicable laws and rules of the State's Waste Discharge Program, the Department's Bureau of Land and Water Quality, Division of Water Resource Regulation has developed a general permit for the application (discharge) of aquatic pesticides for the control of mosquito-borne diseases. This general permit covers discharges of authorized aquatic pesticides by a licensed applicator to Class B, C, SB or SC waters of the State that constitute breeding habitat for mosquito species known to be potential vectors of infectious diseases.

CONCLUSIONS

Based on the findings in the attached Fact Sheet, dated September 21, 2005, and subject to the conditions listed in Parts I and II of this general permit, the Department makes the following CONCLUSIONS:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.

3. The provisions of the State's antidegradation policy, 38 M.R.S.A. §464(4)(F), will be met, in that:

   (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;

   (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and

   (e) Where a discharge will result in lowering the existing water quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment as defined in Maine law, 38 M.R.S.A. §414-A(1)(D).

5. The discharge of authorized aquatic pesticides in accordance with the terms and conditions of this general permit will provide adequate protection of non-target species.

6. The discharge of authorized aquatic pesticides in accordance with the terms and conditions of this general permit will not have a significant adverse effect on receiving water quality or violate the standards of the receiving water's classification.

ACTION

Based on the findings and conclusions as stated above, the Department APPROVES this waste discharge license for the APPLICATION OF AUTHORIZED AQUATIC PESTICIDES FOR THE CONTROL OF MOSQUITO-BORNE DISEASES to Class B, C, SB, and SC waters that constitute breeding habitat for mosquito species known to be potential vectors of infectious diseases, SUBJECT TO THE ATTACHED CONDITIONS, including:

1. The attached Special Conditions included as Part I of this general permit.

2. The attached Standard Conditions included as Part II of this general permit.

3. The expiration date of this general permit is five (5) years from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE THIS 28 DAY OF September 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
DAWN R. GALLAGHER, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date filed with Board of Environmental Protection:_____.

This Order prepared by William F. Hinkel, BUREAU OF LAND & WATER QUALITY
#W008226-5G-A-N/MEG140000 September 30, 2005

PART I – SPECIAL CONDITIONS

A. Authority. A permit is required for the direct or indirect discharge of pollutants to waters of the State pursuant to Maine law, 38 M.R.S.A. §413. The Department of Environmental Protection (Department) may issue a general permit authorizing the discharge of certain pollutants may pursuant Chapter 529 of Department rules. The similarity of discharges from the application of aquatic pesticides for the control of mosquito-borne diseases has prompted the Department to issue this general permit for those receiving waters not otherwise prohibited by Maine law and which constitute breeding habitat for mosquito species known to be potential vectors of infectious diseases, such as West Nile virus and Eastern Equine Encephalitis. A violation of a condition or requirement of a general permit constitutes a violation of the State's water quality laws, and subjects the discharger to penalties under Maine law, 38 M.R.S.A. §349. Nothing in this general permit is intended to limit the Department's authority under the waste discharge and water classification statutes or rules. This general permit does not affect requirements under other applicable Maine statutes and Department rules.

B. Specialized Definitions. In addition to the definitions found in Department rule Chapter 520 and in the waste discharge and water classification laws, the following terms have the following meanings when used in this general permit.

1. **Authorized Aquatic Pesticide.** "Authorized aquatic pesticide" means granular, solid, powder, liquid, or other formulations of pesticides whose sole active ingredient is either the bacterium *Bacillus thuringiensis* subspecies *israelensis* ("*Bti*") or *Bacillus sphaericus* serotype H5a5b strain 2362 ("*Bs*") that are registered with both the United States Environmental Protection Agency and Maine Board of Pesticides Control and are applied in accordance with label use by a licensed applicator to inhibit the growth or control the existence of larval stage mosquitoes known to be potential vectors of infectious diseases, such as West Nile virus. Aerial spraying from fixed or rotary wing aircraft is not authorized under this general permit.

2. **Licensed Applicator.** "Licensed Applicator" means a commercial pesticide applicator licensed by the State of Maine Department of Agriculture, Board of Pesticides Control to apply aquatic pesticides for mosquito control.

3. **Mosquito Breeding Habitat.** "Mosquito breeding habitat" means Class B, C, SB, or SC waters of the State that serve as habitat for the larval stage of mosquito life cycles, are characterized by non-flowing (stagnant) water conditions and are devoid of predatory fish in sufficient numbers as to control the mosquito population at the time mosquito larvae are present. Examples of mosquito breeding habitats include stagnant waters found in river floodplains, freshwater wetlands, marshes, swamps, bogs, temporary or permanent woodland pools, and high elevation salt marsh pools. Examples of waters of the State that do <u>not</u> constitute mosquito breeding habitat for purposes of this general permit include flowing streams and brooks, great ponds, and coastal wetlands below the mean high tide elevation.

4. **Notice of Intent ("NOI").** "Notice of Intent" means a notification of intent to seek coverage under this general permit made by the applicant to the Department on a form provided by the Department.

PART I – SPECIAL CONDITIONS (cont'd)

C. Applicability and Coverage. Coverage under this general permit is limited to those receiving waters that conform with the Area of Coverage described below and that have had a completed NOI accepted by the Department. Applicability of this general permit is limited to activities described in the NOI that are in conformance with the terms and conditions of this general permit.

1. **Area of Coverage.** The geographic area covered by this general permit is the entire State of Maine. This general permit covers application of authorized aquatic pesticides by a licensed applicator to fresh and marine waters of the State classified by Maine's water classification laws as Class B, Class C, Class SB or Class SC and that constitute breeding habitat for mosquito species known to be potential vectors of infectious diseases. Waters classified by Maine's water classification program as Class AA, A, SA, GPA, or GW-A waters, waters having a drainage area of less than 10 square miles, and waters that have flowing current or do not otherwise exhibit characteristics of mosquito breeding habitat are not covered by this general permit.

2. **General Restrictions.** Liquid formulations of *Bti* or *Bs* may only be used where the waterbody proposed for treatment has no surface water connection to free-flowing waters of the State. Aerial spraying of aquatic pesticides from fixed wing or rotary wing aircraft is not authorized under this general permit.

3. **Timing Restrictions.** This general permit limits the application of authorized aquatic pesticides to a period when mosquito larvae are or will immediately be present and susceptible to mortality from biological pesticide treatments. Treatments should be timed to coincide with the presence of early-stage mosquito larvae when possible. For proposed treatments in high salt marsh pools, authorized aquatic pesticides must be applied immediately following flooding events (for example, spring high tides, storm tides, rainfall), when possible, to maximize efficacy and control of young mosquito larvae.

4. **Applicability and Requirements of Applicant.** A person seeking coverage under this general permit must demonstrate to the Department that proposed applications of authorized aquatic pesticides shall be performed in conjunction with the implementation of a specific written management plan for the control of mosquito species known to be potential vectors of infectious diseases. In approving NOI applications, preference will be given to those applications that represent area-wide control strategies and make use of integrated control methods. The Department may deny applications within an area when the Department determines that proposed aquatic pesticide treatments are duplicative or ineffective in controlling the target species. Individual property owners seeking coverage under this general permit shall demonstrate to the Department their efforts to coordinate mosquito treatments with local governments, tribal governments, or state public health

PART I – SPECIAL CONDITIONS (cont'd)

agencies. For purposes of this general permit, an acceptable mosquito management plan must be developed and implemented for specific geographic areas, such as municipalities and neighborhoods, or specific areas with a high density of humans considered to be at a higher risk of infection, such as hospitals, elderly housing complexes, child daycare facilities or elementary schools, and must include provisions for the implementation of best management practices to reduce or eliminate mosquito breeding habitat (stagnant waters) formed by structures and coordination of control efforts to prevent or minimize isolated treatments.

D. Notification and Acceptance.

1. **Notice of Intent (NOI) Required.** A person meeting the requirements and seeking coverage under this general permit shall submit a completed NOI with the appropriate initial permit fee to the Department for review and approval. NOI forms may be obtained from, and completed forms must be sent by certified mail (return receipt requested) to:

Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Resource Regulation
Permitting Section
17 State House Station
Augusta, ME 04333-0017

Alternately, a person may hand-deliver completed NOI forms to the Department's Augusta office. The Department reserves the right to request additional information from the applicant, such as mosquito management plans, to determine if the application of authorized aquatic pesticides is warranted and justified. Permitting information, forms, and Augusta office directions may be obtained by contacting the Department's Waste Discharge Licensing Unit at (207) 287-3901 or toll-free at 1-800-452-1942.

2. **Required NOI Information.** A complete NOI must contain the following information for each individual waterbody or for each group of waterbodies having similar physical and hydrologic characteristics the applicant seeks to treat. A separate NOI is required for each civil jurisdiction (for example, each city, town, plantation, reservation, unorganized township), unless otherwise determined by the Department. Applicants seeking coverage under this general permit shall submit the following NOI information for each waterbody or group of waterbodies with similar characteristics.

   a. The legal name, mailing address and telephone number (e-mail address optional) and signature of the owner of the property on which the aquatic pesticide treatment is proposed.

   b. The legal name, mailing address, telephone number (e-mail address optional) and affiliation of any agents assisting, in full or in part, with the completion of the NOI form.

PART I – SPECIAL CONDITIONS (cont'd)

c. The legal name, mailing address, telephone number and Maine Board of Pesticides Control license number (e-mail address optional) of the licensed applicator to perform the aquatic pesticide treatment.

d. A statement demonstrating a significant need to control the target species and why application of the authorized aquatic pesticides is the most effective means of mosquito control. The statement must provide reasonable justification for the proposed treatment. Significant need to control the target species includes, but is not limited to: demonstration that an affected waterbody provides preferred breeding habitat for mosquito species known to be vectors of infectious diseases, such as West Nile virus; positive identification of the presence of mosquito species known to be vectors of infectious diseases; or documentation by the Maine Department of Health and Human Services of mosquitoes, birds or humans testing positive for infectious diseases within a 20-mile radius of the civil jurisdiction in which the proposed treatment site is located.

e. A statement demonstrating that the proposed aquatic pesticide application(s) shall be performed in conjunction with a specific written management plan for the control of mosquito species known to be potential vectors of infectious diseases. For individual property owners seeking coverage, a statement demonstrating efforts to coordinate mosquito treatments with local governments, tribal governments, state public health agencies, or other appropriate organizations must be submitted.

f. A topographic or similar type map (or copy thereof) extending approximately one mile beyond each individual treatment site and specific detailed written directions to each proposed treatment site. The applicant shall indicate the approximate location of the waterbody on the map.

g. A minimum of three color photographs showing the area(s) within each waterbody (or group of waterbodies having similar physical and hydrologic characteristics) to be treated and the name of each waterbody, if known. The photographs must be taken during a period when the waterbody and surrounding area is free of snow cover, and each must be labeled with the applicant's name and the civil jurisdiction in which the waterbody exists. The photographs must provide visual demonstration that the proposed treatment areas constitute viable mosquito breeding habitat.

h. A description of each area to be treated, including, but not limited to, identification of any intermittent or permanent inlets to or outlets from the waterbody, presence or absence and characterization (herbaceous, woody) of vegetation within the waterbody, and a description of the land cover and use in the area immediately surrounding the waterbody (for example, forested, field, marsh, urban, rural, undeveloped).

i. The estimated size of the area to be treated reported in square feet or acres.

PART I – SPECIAL CONDITIONS (cont'd)

j. Indication of the average water depth (surface to substrate), at the time of treatment, of the portion of the waterbody (or group of waterbodies) to be treated based on the following depth ranges: (0-6"), (6-12"), (12-24"), (24-48"), (>48"). Where it is reasonably practical to measure the waterbody to be treated, average depth must be based on a minimum of five measurements taken from locations that are representative of the treatment area.

k. A statement as to whether the proposed waterbody has been treated for mosquito control in the past, and if so, dates and identification of the aquatic pesticide(s) applied.

l. The USEPA registration number, formulation, concentration (percent active ingredient), maximum application rate, and frequency of application for all authorized aquatic pesticide proposed for use.

m. For any treatment activity occurring within a habitat of threatened or endangered species, or that may violate protection guidelines, submit written approval of the activity from the Maine Department of Inland Fisheries and Wildlife (IF&W). The applicant must follow any conditions stated in the IF&W approval. Note: Maps showing areas of essential habitat are available from IF&W regional headquarters, municipal offices, the Land Use Regulation Commission and Department regional offices. If the treatment site is located within an essential habitat, the applicant must contact IF&W to obtain a "certification of review and approval" for the proposed treatment(s).

Failure to submit all required NOI information may result in finding the NOI incomplete for processing and may delay processing or result in denial of the NOI.

3. **Filing of a NOI.** A copy of the NOI must be filed with the civil jurisdiction (for example, municipal office, County Commissioners' office) in which the facility is located at the time it is submitted to the Department.

4. **Review of NOI and Other Information.** Upon review of a NOI for determination of coverage under this general permit, the Department may, at its discretion, require an applicant to apply for an individual permit for any proposed treatment. In making such a determination, the Department may consider factors including, but not limited to, the location of the waterbody and water quality issues particular to that area, expressed comments from state or federal agencies or the general public, and consideration of area-wide mosquito control strategies in or surrounding the proposed treatment sites.

5. **Effective Date of Coverage.** The Department shall notify an applicant of coverage under this general permit within 14 days of receipt of each complete NOI as to whether or not coverage for the specific discharge is permitted. If the Department does not notify the applicant within 14 days, the NOI is accepted and coverage is granted. In the event coverage is not granted, the Department shall notify the applicant of the reason(s) for not granting coverage. A person may apply for issuance of an individual waste discharge license if the proposed discharge(s) is not acceptable for coverage under this general permit.

PART I – SPECIAL CONDITIONS (cont'd)

6. **Transfer of Ownership.** In the event that ownership of a property is transferred to a new owner, coverage under this general permit may be transferred by way of the new owner notifying the Department in writing, provided the new owner proposes no significant changes in the treatment protocol or waterbody, no later than two weeks after the transfer of property. The notice must include documentation that the new owner has title, right or interest in the property. If significant changes in the size of the area to be treated or inclusion of any areas not previously covered by a valid general permit are proposed, a new NOI must be submitted for review and approval.

7. **Changed Conditions.** In the event that a person covered by this general permit proposes to make significant changes in the nature or scope of the aquatic pesticide treatment(s) described in a NOI previously submitted and approved, the permit holder shall notify the Department as soon as becoming aware of and before implementing such changes. Based on its evaluation of proposed changes, the Department may require the submission of a new NOI or application for an individual waste discharge license. Significant changes include, but are not limited to, changes in the waterbody to receive treatments, changes in the size of area to be treated, changes in the hydrology in and surrounding the treatment area such that stagnant water conditions are permanently eliminated, or changes in facts or information described in the NOI previously submitted and approved.

8. **Notice of Termination (NOT).** The person holding a general permit may submit a Notice of Termination (NOT) on a form provided by the Department at any time to voluntarily terminate coverage. Authorization to discharge under this general permit terminates on the day the signed NOT is received by the Department.

E. Continuing Coverage and Termination

1. **Notices By Applicant and Payment of Fees.** The term of this general permit is five years, and coverage under this general permit lasts for a period of 12 months from the date the NOI is approved by the Department or though the expiration date of this general permit, which ever period is shorter. An individual may continue coverage under this general permit from one year to the next, provided payment of an applicable annual fee pursuant to 38 M.R.S.A. §353-B, and that there are no significant changes in the discharge as described in the NOI, including, but not limited to, demonstration of a continued significant need to control the target species and coordination with an area-wide control strategy. A statement demonstrating a significant need to control the target species and coordination with a management strategy must accompany an applicant's annual fee for continuing coverage. Failure to pay the annual fee within 30 days of the anniversary date of previous NOI coverage is sufficient grounds for revocation or suspension of coverage. If changes occur or are proposed, the permit holder shall notify the Department as specified in Part I.D.7 of this general permit.

PART I – SPECIAL CONDITIONS (cont'd)

2. **Individual Permit Coverage.** The Department may require that a person covered under this general permit apply for an individual permit to apply aquatic pesticides for the following reasons:

    a. The aquatic pesticide application project is not in compliance with the conditions of this general permit.

    b. The aquatic pesticide application project is a significant contributor of pollutants. In making this determination, the Department may consider the following factors:

        i. The location of the project with respect to waters of the State;
        ii. The size of the discharge;
        iii. The quantity and nature of the pollutants discharged to waters of the State; or

    c. Any other factors the Department determines are relevant.

3. **Exclusion from Coverage.** When an individual waste discharge license is issued to a person otherwise subject to this general permit, the applicability of this general permit to that person is automatically terminated on the effective date of the individual waste discharge license.

PART II – STANDARD CONDITIONS

The application of authorized aquatic pesticides for mosquito control under this general permit must, at all times, comply with the State's water quality laws, including, the following restrictions, limitations and conditions.

A. Narrative Effluent Limitations

1. The discharge shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated by the classification of the receiving waters.

2. The discharge shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life (except for the target mosquito species), or which would impair the usages designated by the classification of the receiving waters.

3. The discharge may not impart color, taste, turbidity, radioactivity, settleable materials, floating substances or other properties that cause the receiving water to be unsuitable for the designated uses ascribed to its classification.

4. Notwithstanding specific conditions of this general permit, the discharge must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

PART II – STANDARD CONDITIONS (cont'd)

B. Monitoring Requirement. The Department may require, following approval of a NOI, monitoring of an individual discharge as may be reasonably necessary in order to characterize the nature, volume or other attributes of that discharge or its sources.

C. Other Information. When a permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall promptly submit such facts or information.

D. Other Applicable Conditions. The conditions applicable to all permits in Department rule Chapter 523 sections 2 and 3 also apply to discharges pursuant to this general permit and are incorporated herein as if fully set forth.

E. Accessibility. Employees and agents of the Department may enter any property at reasonable hours in order to determine compliance with water quality laws or this general permit.

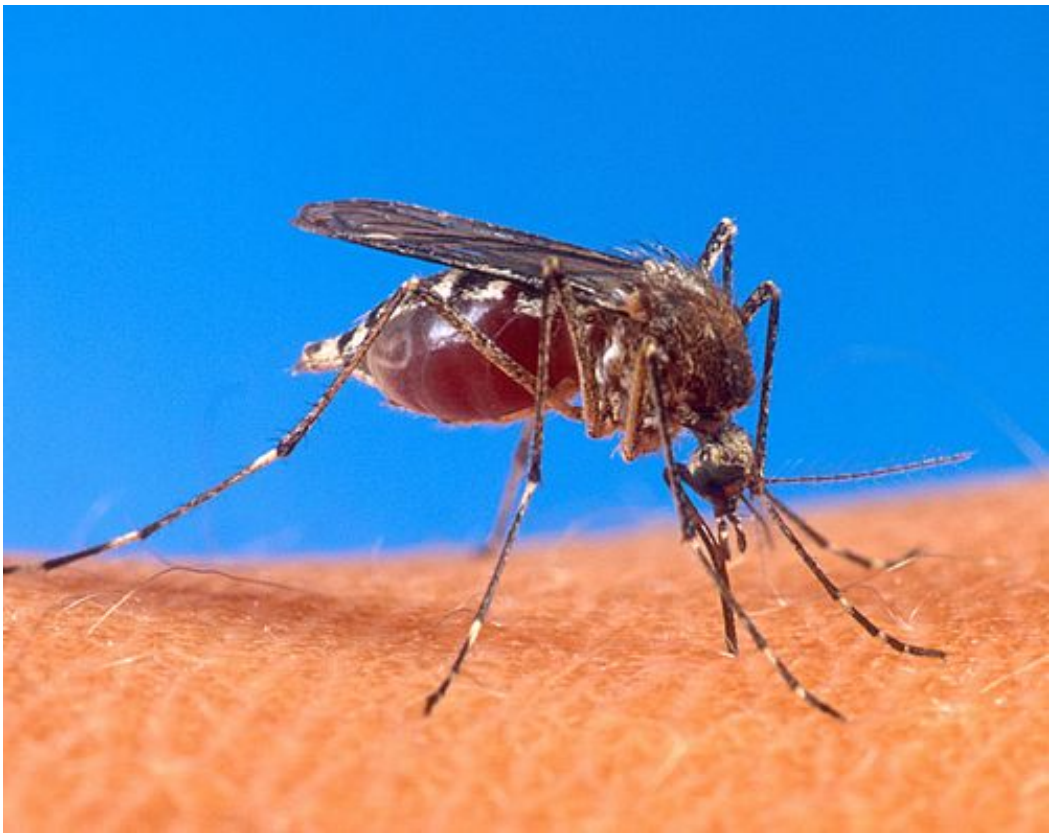
F. Severability. In the event that any provision, or part thereof, of this general permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remain in full force and effect, and shall be construed and enforced in all respects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

FACT SHEET

GENERAL PERMIT – AQUATIC PESTICIDES FOR THE CONTROL OF MOSQUITO-BORNE DISEASES

Maine Department of Environmental Protection
Bureau of Land and Water Quality

September 30, 2005



GENERAL PERMIT – AQUATIC PESTICIDES FOR THE CONTROL OF MOSQUITO-BORNE DISEASES

FACT SHEET

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MAINE WASTE DISCHARGE LICENSE

GENERAL PERMIT –AQUATIC PESTICIDES FOR THE CONTROL OF MOSQUITO-BORNE DISEASES

FACT SHEET

DATE: **SEPTEMBER 30, 2005**

WASTE DISCHARGE LICENSE (GENERAL PERMIT): **#W008226-5G-A-N**
PERMIT COMPLIANCE SYSTEM TRACKING: **#MEG140000**

1. AREA OF COVERAGE AND RECEIVING WATER CLASSIFICATION

The area of coverage under this general permit is the entire state of Maine. This general permit covers the direct discharge of authorized aquatic pesticides, as defined in Part I.B.1. of the general permit, to fresh and marine (salt and brackish) waters classified by Maine law as Class B, C, SB, or SC that constitute mosquito breeding habitat. This general permit does not cover discharges to receiving waters classified as Class AA, A, SA, GPA, GW-A, or to waters having a drainage area of less than 10 square miles.

2. APPLICATION SUMMARY

The Maine Department of Environmental Protection (Department) has issued this general permit authorizing direct discharges of authorized aquatic pesticides to certain waters of the State. Each person seeking coverage under this general permit shall file a separate Notice of Intent (NOI), and a separate NOI is required for each civil jurisdiction (for example, each city, town, plantation, reservation, or unorganized township), unless otherwise determined by the Department. Coverage under this general permit is dependent upon the ability to meet the eligibility, and the general, standard, and special conditions of the general permit. Continuing coverage is contingent upon compliance with the terms and conditions of the general permit, payment of an annual fee, and provided there are no changes in the discharge as described in the NOI, including, but not limited to, a continuing significant need to control the target species and coordination with area-wide control strategies. Coverage for an individual person or waterbody may be terminated in the event of non-compliance with the terms and conditions of the general permit or based on a Department determination that the discharge is having an adverse impact on receiving water quality. Persons may apply for an individual waste discharge license for waterbodies or activities that are not covered by this general permit.

3. REGULATORY SUMMARY

A permit is required for the discharge of aquatic pesticides pursuant to Maine law, 38 M.R.S.A. §413(1) and Department rule Chapter 514. A general permit authorizing the discharge of certain pollutants may be issued pursuant to Department rule Chapter 529. The similarity of discharges resulting from the application of authorized aquatic pesticides for the control of mosquito-borne diseases has prompted the Department to issue this general permit for those receiving waters not otherwise prohibited by Maine law and that constitute breeding habitat for mosquito species known to be vectors of infectious diseases.

A violation of a condition or requirement of a general permit constitutes a violation of the State's water quality laws, and subjects the discharger to penalties under Maine law, 38 M.R.S.A. §349.

Pursuant to Maine law, 22 M.R.S.A. §1471-A, the Maine Board of Pesticides Control within the Maine Department of Agriculture regulates the sale and application of chemical insecticides, fungicides, herbicides and other chemical pesticides. Maine law, 22 M.R.S.A. §1471-D requires certification of commercial and private applicators for the use of any pesticide within the State.

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine, excluding areas of special interest to Maine Indian Tribes. On October 30, 2003, after consultation with the U.S. Department of Justice, the USEPA extended Maine's NPDES program delegation (referred to as the Maine Pollutant Discharge Elimination System or MEPDES permit program) to all but tribally owned discharges. In those areas, the Department maintains the authority to issue state waste discharge licenses (WDL) pursuant to Maine law.

Pursuant to a proposed rulemaking and notice of interpretative statement (Federal Register Vol. 70, No. 20) issued on February 1, 2005, the USEPA has determined that the application of pesticides directly to waters of the United States consistent with all relevant requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (in other words, those relevant to protecting water quality) and for the purpose of controlling mosquito larvae does not require a NPDES permit pursuant to the federal Clean Water Act, 33 U.S.C. 1251, *et seq.* The USEPA proposes to codify the interpretative statement at 40 CFR Part 122.3(h)(1). This general permit is issued pursuant to applicable Maine laws and Department rules rather than under MEPDES rules.

Nothing in this general permit is intended to limit the Department's authority under the waste discharge and water classification statutes or rules. This general permit does not affect requirements under other applicable Maine statutes and Department rules.

4. ADMINISTRATIVE REQUIREMENTS

The administrative procedures and requirements associated with this general permit are based on the following Department rules: Chapter 2, *Rules Concerning the Processing of Applications and Other Administrative Matters*; Chapter 514, *Regulations Concerning the Use of Aquatic Pesticides*; Chapter 529, *General Permits for Certain Wastewater Discharges*, and applicable Maine laws. Individuals seeking coverage under this general permit must file a Notice of Intent (NOI) containing sufficient information and facts to describe all proposed aquatic pesticide treatments and waterbodies as to allow the Department to determine if the proposed activities are anticipated to comply with the general permit terms and conditions. Once a completed NOI is received, the Department has a maximum of 14 days in which to act on it. If no other action is taken within that 14-day period, the NOI is considered approved at the close of business (5:00 p.m. Eastern Time Zone) on the fourteenth day following the Department's receipt of the NOI.

In the event that an activity covered by this general permit occurs on property that is sold or otherwise transferred, Maine law 38 M.R.S.A. §413(3), Department rule Chapter 2(21)(C), and Part I.D.6. of this general permit govern the transfer of permits.

This general permit is valid for a five-year term, and coverage under an approved NOI lasts for a period of 12 months from the date the NOI is approved by the Department, or though the expiration date of this permit, whichever period is shorter. An individual may continue coverage under this general permit from one year to the next, provided payment of an applicable annual fee pursuant to 38 M.R.S.A. §353-B, and that there are no significant changes in the discharge as described in the NOI, including, but not limited to, demonstration of a continued significant need to control the target species and coordination with an area-wide control strategy. In the event that any individual aquatic pesticide application project is not in compliance with this general permit, the Department may require that the individual apply for an individual waste discharge license or cease discharge. Examples of significant changes in activities include, but are not limited to, increases in the number or size of waterbodies to be treated and changes in the pesticide products or application rates.

5. AREA-WIDE CONTROL STRATEGIES

General Condition I.C.4. of this general permit requires any person seeking coverage for the application of authorized aquatic pesticides for mosquito control to demonstrate to the Department that proposed treatments shall be performed in conjunction with a specific written management plan for the control of mosquitoes known to be potential vectors of infectious diseases. Preference in approving NOIs will be given to those applications that propose treatments as a component of a written management plan and area-wide control strategy making use of integrated control methods. Applications shall be considered for approval based on the Department's determination of the applicant's ability to effectively control mosquito species known to be potential vectors of infectious diseases. <u>The Department does not consider isolated, sporadic, uncoordinated treatments by individual property owners to be an effective means of controlling mosquito vectors and has preference towards applicants operating under management plans implemented at a municipal or other area-wide geographic level.</u> Applicants representing areas with a high density of humans considered to be at a higher

5. AREA-WIDE CONTROL STRATEGIES (cont'd)

risk of infection than the general population, such as hospitals, elderly housing complexes, child daycare facilities and elementary schools shall also be given preference, provided these institutions are operating under a local management plan and have coordinated their efforts, to the extent possible, with municipal, local, state or other officials.

For purposes of this general permit, acceptable management plans for the control of mosquito species known to be potential vectors of infectious diseases must include methods and techniques (for example, best management practices, "BMPs") to minimize or eliminate "artificial" breeding habitats, such as stagnated waters in roof gutters, discarded tires, containers and toys stored outside, and must also consists of an educational component to inform people of measures that can be taken to minimize the risk of mosquito bites, such as avoiding outdoor activity during periods of peak mosquito activity, use of insect repellents, and sealing holes or other openings in door and window screens. In many cases, following these BMPs may greatly reduce the risk of exposure to mosquitoes, thus, to mosquito bites and diseases transmitted by mosquito vectors. For more information about measures than can be taken to reduce risk, please visit the Department's website on West Nile virus at: http://www.maine.gov/dep/blwq/topic/westnile/index.htm and the Maine Bureau of Health's website at: http://www.maine.gov/dhhs/boh/index.htm.

6. DESCRIPTION OF AUTHORIZED ACTIVITIES

This general permit authorizes the discharge (application) of authorized aquatic pesticides whose sole active ingredient is the bacteria *Bacillus thuringiensis* subspecies *israelensis* (*Bti*) or *Bacillus sphaericus* serotype H5a5b strain 2362 (*Bs*) that are registered with both the USEPA and the Maine Board of Pesticides Control and are applied in accordance with label use to inhibit the growth or control the existence of mosquitoes known to be vectors of infectious diseases, such as West Nile virus. This general permit requires the use of a licensed applicator who has been licensed by the Maine Board of Pesticides Control for applications of the authorized aquatic pesticides to waters of the State. Authorized aquatic pesticides should be applied at the lowest appropriate labeled rates whenever possible (for example, when applied to waters containing early-stage mosquito larvae). This general permit does not authorize applications of authorized aquatic pesticides by aerial spraying.

This general permit authorizes applications of authorized aquatic pesticides to those waterbodies specified in Section 1 of this fact sheet only and during periods when larval stage mosquitoes species known to be vectors of infectious diseases are or will immediately be present. The active ingredients *Bti* and *Bs* are not effective on egg, pupa and adult stage mosquitoes; thus, application of aquatic pesticides *Bti* and *Bs* during these life stages will not inhibit the growth or control the existence of mosquitoes. This general permit is not intended to serve as a mechanism for general mosquito eradication. Rather, it is intended to control populations of mosquitoes known to be vectors of infectious diseases to alleviate public health concerns associated with mosquito-borne diseases. It is noted, however, that certain waterbodies may contain several species of mosquito, including species that have not been documented as vectors of infectious diseases. Mosquito larvae are susceptible to effects from *Bti* and *Bs* for a short period following their hatch from the egg stage and prior to pupation. The Department encourages individuals to identify mosquito species present in affected waters,

6. DESCRIPTION OF AUTHORIZED ACTIVITIES (cont'd)

but this is a difficult task, especially at the larval stage, and should be performed by a qualified entomologist (insect biologist) to ensure correct identification. The Department recognizes that the availability and scheduling of a professional entomologist or other qualified professional may severely restrict one's ability to effectively treat waterbodies for mosquito species that are vectors of infectious diseases. Thus, this general permit does not require positive identification of mosquito species present to obtain coverage. For further information and additional discussion on mosquito biology, see Section 8 of this fact sheet.

7. DESCRIPTION OF AUTHORIZED AQUATIC PESTICIDES

This general permit authorizes the application (discharge) of granular, solid, powder, liquid or other formulations of pesticides whose sole active ingredient is either the bacterium *Bacillus thuringiensis* subspecies *israelensis* (*Bti*) or *Bacillus sphaericus* serotype H5a5b strain 2362 (*Bs*).

A. *Bacillus thuringiensis* subspecies *israelensis*.

i. Characterization and Mode of Action. *Bacillus thuringiensis* subspecies *israelensis* is a biological component of commonly used pesticides that are applied to mosquito breeding habitats for the purpose of causing mortality to larval stage mosquitoes. *Bti* is a gram-positive, rod-shaped, endospore-forming aerobic or facultatively anaerobic bacterium that has been isolated globally from soil, insects, and plant surfaces. *Bti* was first registered in the United States in 1961 for use as an insecticide and was re-registered with the U.S. Environmental Protection Agency, Office of Pesticide Programs as Chemical Code #006401 in 1998. As of July 2005, 16 *Bti* and *Bs* products had been registered for use with the Maine Board of Pesticides Control.

Bti is not a contact pesticide; it must be ingested by the target insect to be effective. During sporulation (formation of spores), *B. thuringiensis* produces one or more parasporal protein crystals, which are delta endotoxins (δ-endotoxins) that are toxic to mosquitoes and other insects in the taxonomic order Diptera. The δ-endotoxins produced by the subspecies *israelensis* are pathogenic against members of the families Culicidae (mosquitoes) and Simuliidae (black flies), and has some virulence against certain other Diptera, especially Chironomidae (midges). *Bti* δ-endotoxins, however, are not pathogenic against other insect species, such as butterflies and moths (Order Lepodoptera) or bees and ants (Order Hymenoptera). In order for the δ-endotoxins to be effective, they must be ingested by the target insect and exposed to appropriate digestive enzymes at a pH of 9.0 to 10.5 standard units. The parasporal protein crystals are solubilized, and the δ-endotoxins thereby activated, by enzymes in the insect midgut. The δ-endotoxins binds to receptor cells on the midgut cell membrane (midgut epithelium) and creates pores (ion channels in the midgut epithelium) which disrupt cellular osmotic balance and lead to starvation and ultimate death of the larvae. Chilcott, *et al*. report that *Bti* treated mosquito larvae generally cease feeding within one hour, demonstrate reduced activity after two hours, extreme sluggishness by four hours and general paralysis by six hours after ingestion. Insects that do not ingest the

7. DESCRIPTION OF AUTHORIZED AQUATIC PESTICIDES (cont'd)

spores are not affected by its presence in the water, nor are organisms with acidic digestive enzymes, such as humans.

ii. Target Species Control. Department rule Chapter 514 contains criteria for approving a license to discharge aquatic pesticides, which state, in part, that a permit will only be issued if the applicant provides *"adequate protection for non-target species."* Scientists have identified several different isolates (subspecies) of *B. thuringiensis* based on differently shaped δ-endotoxins that affect different groups of insects. The application of *B. thuringiensis* subspecies *israelensis*, as used in the context of this general permit, is intended to target mosquito species known to be potential vectors of infectious diseases, notably West Nile virus. This general permit only authorizes use of the subspecies *israelensis* and restricts its use to waters serving as mosquito breeding habitat to ensure adequate protection for non-target species. Available literature indicates that black fly and midge species are the only other aquatic species known to exhibit significant adverse affects from ingesting *Bti*. Since the toxic proteins (δ-endotoxins) formed by the *Bti* bacterium require exposure to alkaline conditions typical of mosquito guts, it is a highly target-specific pesticide and is not pathogenic to other non-target species when applied in accordance with label instructions. Mosquitoes occupy a different niche in the environment than black flies. Mosquitoes utilize stagnate waters, such as palustrine wetlands, woodland pools and high salt marsh (marine) pools, while black flies utilize moving waters, such as streams and rivers in their reproduction cycles. This characteristic of mosquito reproductive biology physically separates mosquito larvae from black fly larvae. Midge species occupy habitats that also provide mosquito breeding habitat and may be susceptible to mortality from aquatic pesticide treatments. The Department is making a best professional judgment determination that *Bti* and *Bs* represent the most effective larvicides currently available for mosquito control while minimizing the risk to non-target organisms. In consideration of the biological and ecological characteristics of mosquitoes and the properties of the active ingredients in the authorized aquatic pesticides, the Department concludes that applicants proposing treatments in compliance with the terms and conditions of this general permit will provide adequate protection of non-target species.

iii. Toxicology and Ecological Effects. Microbial pesticides must undergo extensive short-term (acute) and long-term (chronic) laboratory testing prior to registration with the USEPA. In March 1998, the USEPA issued Reregistration Eligibility Decision (RED) – *Bacillus thuringiensis* (Document #EPA738-R-98-004). In general, the USEPA concluded that the usage of *B. thuringiensis* as a microbial pest control agent will not cause unreasonable risks to humans or the environment. The USEPA considered information in its historical toxicology database and reviewed ecological toxicity studies performed on terrestrial and aquatic animals as part of the reregistration process, and concluded that, *"toxicity and infectivity risks due to delta-endotoxin effects to nontarget avian, freshwater fish, freshwater aquatic invertebrates estuarine and marine animals, arthropod predators/parasites, honey bees, annelids and mammalian wildlife will be minimal to nonexistent at the label use rates of registered B. thuringiensis active ingredients."*

7. DESCRIPTION OF AUTHORIZED AQUATIC PESTICIDES (cont'd)

The USEPA further concluded, with regard to human health, that no adverse effects to the endocrine or immune systems are expected from the labeled use of *Bti*. The USEPA requires carcinogenicity (ability to cause cancer) studies and reproductive and teratogenic (ability to cause malformations of an embryo or fetus) studies for microbial pesticides that demonstrate significant adverse health effects in acute toxicity studies. Acute studies using *Bti* did not identify significant health effects; therefore, carcinogenicity and reproductive and teratogenic studies were not performed for *Bti*. The USEPA further concluded in its 1998 RED that a review of plant toxicity data indicates that *Bti* and its byproducts do not cause detrimental effects on terrestrial, semi-aquatic or aquatic plant life.

iv. Environmental Fate, Persistence and Behavior. Environmental fate and ground water effect studies are not required by the USEPA unless significant human health or ecological effects arise during the first round of studies. Studies using *Bti* did not identify significant human health or ecological concerns; therefore, federal regulations do not require testing for environmental fate and ground water effects. However, the behavior of *B. thuringiensis* has been thoroughly studied and is well known.

Generally, *Bti* persists in the environment for periods measured in days as compared to some alternative chemical-based insecticides that may persist for weeks. Factors that affect persistence and efficacy of *Bti* in the environment may include, but are not limited to, the formulation of the *Bti* product, agitation of the waterbody, receiving water quality and temperature. Solid and granule formulations, which act through a slow release action, generally persists for longer periods than liquid formulations. Agitation of sediments in the water column acts to resuspend *Bti* and, therefore, causes the bacterium to persist as an available pesticide for longer periods. Waters with higher organic content generally require higher doses of *Bti* due to lower ingestion rates by mosquito larvae. Similarly, lower water temperatures reduces the feeding rate of mosquito larvae and, therefore, may result in a longer persistence of the solid and granule formulations.

Toxins produced by *Bti* degrade rapidly in sunlight as a result of exposure to ultraviolet radiation. The National Pesticide Telecommunications Network's technical fact sheet entitled, *Bacillus thuringiensis* indicates that the typical half life for *Bti* products on foliage is 1-4 days, and that the bacterium is moderately persistent in soil with a half life of four months. The δ-endotoxins produced by *Bti* degrade by soil microorganisms with soil half lives of 3-6 days. *Bti*, as with other soil microbes, does not percolate through the soil and readily binds to sediments within the water column, and is, therefore, not available to contaminate ground water.

7. DESCRIPTION OF AUTHORIZED AQUATIC PESTICIDES (cont'd)

B. *Bacillus sphaericus.*

i. Characterization and Mode of Action. *Bacillus sphaericus* serotype H5a5b strain 2362 is a biological component of commonly used pesticides that are applied to mosquito breeding habitats for the purpose of causing mortality to larval stage mosquitoes. *Bs* is similar in characterization and mode of action as *Bti*. *Bs* is a gram-positive, endospore-forming aerobic or facultatively anaerobic bacterium common to soil and aquatic environments. As with *Bti*, *Bs* produces unique delta endotoxins (δ-endotoxins) that target and are toxic to specific mosquito species, including those in the genera *Culex*, *Anopheles*, *Aedes, Psorophora*, and *Coquillettidia*, of which several species are known West Nile vectors. *Bs* was first registered in the United States in 1991 for use as an insecticide, and *Bs* is currently registered with the USEPA, Office of Pesticide Programs as Chemical Code #119801. Inert ingredients for both *Bti* and *Bs* are held by manufactures as trade secrets. There are currently five products registered for use with the Maine Board of Pesticides Control.

ii. Target Species Control. Target species control is similar to that of *Bti* described above. The toxic proteins (δ-endotoxins) formed by the *Bs* bacterium require exposure to alkaline conditions typical of mosquito guts, therefore, *Bs* is a highly target-specific pesticide. In consideration of the biological and ecological characteristics of mosquitoes and the properties of the active ingredients in the authorized aquatic pesticides, the Department concludes that applicants proposing treatments in compliance with the terms and conditions of this general permit will provide adequate protection of non-target species.

iii. Toxicology and Ecological Effects. Available literature indicates that *Bs* is not acutely toxic to non-target species, including birds, mammals, fish and invertebrates. A 1999 USEPA fact sheet entitled, *Bacillus sphaericus* serotype H5a5b strain 2362 (128128) Fact Sheet, summarized that *"various tests revealed no expected harm to non-target organisms"* and the State of Washington, Department of Ecology concluded in its Fact Sheet for Aquatic Mosquito Control General National Pollutant Discharge Elimination System Permit, issued April 10, 2002 (modified June 8, 2004), that *"in tests, B. sphaericus was not pathogenic, infective or toxic in laboratory animals by the oral, dermal, pulmonary or intra-venous routes of exposure."* The Material Safety Data Sheets for *Bs* further indicate that the bacterium is not toxic to non-target organisms when applied in doses consistent with label instructions.

iv. Environmental Fate, Persistence and Behavior. Dormant *Bs* spores may persist in the environment for several weeks to months; however, the δ-endotoxins generally persist for two to four weeks following application. Factors affecting its persistence are similar to those as described for *Bti* above, including the formulation of the *Bs* product, agitation of the waterbody, receiving water quality and temperature. As described for *Bti* above, the δ-endotoxins produced by *Bs* degrade rapidly in sunlight as a result of exposure to ultraviolet radiation and are degraded by soil microorganisms. *Bs*, as with other soil microbes, does not percolate through the soil and readily binds to sediments within the water column, and is, therefore, not available to contaminate ground water.

7. DESCRIPTION OF AUTHORIZED AQUATIC PESTICIDES (cont'd)

Based on available scientific literature, and conclusions drawn by the USEPA and other reputable sources, *Bs* is among the most environmentally sound insecticides available on the market. As compared to many alternative chemical-based insecticides, *Bs* has a lower persistence in the environment, does not pose a threat to ground water, and is non-toxic to non-target species.

8. OVERVIEW OF MOSQUITO BIOLOGY AND BEHAVIOR

Mosquitoes are classified into a taxonomic order of insects called Diptera, or "true flies." All mosquito species are members of the taxonomic family Culicidae and are further segregated by genus and species. Worldwide, there are approximately 3,000 species of mosquito and Maine hosts roughly 40 individual species in nine different genera. Currently, the Maine Department of Conservation, Maine Forest Service, Forest Health and Monitoring Division maintains a list of mosquito species occurring in Maine and identifies those known to be vectors of West Nile virus. As of August 2005, this information is available through the Forest Service's website: http://www.state.me.us/doc/mfs/mosquito2.htm.

All mosquitoes undergo a complete metamorphosis, which includes four stages of development: egg, larva, pupa, and adult. All mosquitoes require aquatic environments for the first three stages of development. The adult is a flying insect that obtains food from plants and animals.

Female mosquitoes lay eggs in or on water, in moist depressions or in mud, or on vegetation that will later become flooded by snow melt water, rain, or extreme high tides. Females lay between 30 and 300 eggs at a time which can be laid singly or stuck together in floating rafts, depending on the species. Once the eggs hatch (usually in April or May in Maine), the larvae grow incrementally in four different stages known as instars. With each instar, the size of the larvae increases, from approximately 1.5 mm in length at the first instar to about 8-10 mm in the fourth. Larvae may be predacious or feed on organic debris present in the waterbody. Yeast, bacteria and small aquatic organisms are typical food sources. The larval stage is the target development stage for controlling mosquitoes through application of aquatic pesticides because they are confined within a particular waterbody and are actively feeding. The larval stage can last for several days to weeks depending on the species, availability of food and ambient water temperature. Once the larvae have developed into the fourth instar, they cease feeding and metamorphose (pupate) into a stage called pupae, which typically occurs in May or June in Maine.

Pupae are comma-shaped and can generally can be found at the water surface. The pupal stage can last for a few hours to a few days, depending on the species. During pupation, physiological changes occur in which the pupae take the form of the flying adult. Once the pupa reaches maturity, the pupal skin splits and a fully developed adult mosquito emerges. Adults typically emerge in late May or early June in Maine, and the flying adults must then actively seek food to sustain life.

8. OVERVIEW OF MOSQUITO BIOLOGY AND BEHAVIOR (cont'd)

After copulation and feeding, females develop and lay eggs and the cycle begins again. The majority of woodland mosquito species in Maine overwinter (period of dormancy during winter) as eggs or larvae and produce only one hatch of adults per year; however, in wet years, some species have been known to have more than one hatch. Most woodland mosquitoes remain within a few miles of their larval habitat in search of food. Mosquito species adapted to life in salt marsh habitats, however, produce many generations of adults per year and may fly up to 20 miles from their larval habitat in search of food. Eggs of coastal mosquito species hatch after being flooded by heavy rains and high tides. For mosquito species that rely on high tides to flood pools (for example, high salt marsh pools), the frequency of flood events (for example, storm tides, spring high tide, heavy rainfall) determines the number of hatches. Another subset of mosquitoes are those adapted to, or that have a preference for, urban areas. Urban mosquitoes breed in water which has collected in a variety of items typically found in urban settings, such as tires, roof gutters, buckets, dumpsters and birdbaths. Three of the more common West Nile vector mosquitoes, *Ochleratatus japonicus*, *Culex pipiens*, and *C. restuans*, are typically found in urban settings, especially street catch basins. A permit from the Department is not necessary for application of aquatic pesticides to these types of structures, unless the treatment results in a discharge to a water of the State. However, certain restrictions and permitting requirements of the Maine Board of Pesticides Control (BPC) may apply, and the BPC should be contacted prior to any application of insecticides, either chemical or biological-based. A permit from the Department is required for the application of aquatic pesticides to urban structures, such as stormwater retention ponds, that have a direct or indirect connection to waters of the State.

Both adult male and female mosquitoes obtain food from the nectar of flowers; however, females of most species must acquire additional nutrition and protein from the blood of other animals (vertebrates) in order to produce eggs. Most species demonstrate a preference for particular animals or for humans, or for both wildlife and humans. Herein lies the potential for the spread of diseases, such as West Nile virus and Eastern Equine Encephalitis, and cause for the recent rise in public health concerns regarding mosquitoes.

9. PUBLIC HEALTH CONCERNS AND RISK REDUCTION

The Maine Department of Health and Human Services, Bureau of Health, Division of Disease Control published, Reportable Infectious Diseases in Maine 2003 Summary, which contains a summary of vector-borne diseases occurring in Maine between 1999 and 2003. The summary concludes that there were no reported human cases of mosquito-borne diseases, including West Nile virus and Eastern Equine Encephalitis, in Maine during that time period. However, the summary concludes that 98 birds tested positive for West Nile virus in 2003. The presence of West Nile virus infected birds in Maine and reports of human West Nile virus infections from other states have been catalysts for the general public's growing public health concern related to the presence of mosquitoes, transmission of mosquito-borne diseases and actions that can be taken to minimize the risk of contracting mosquito-borne infectious diseases.

9. PUBLIC HEALTH CONCERNS AND RISK REDUCTION (cont'd)

The majority of mosquito species indigenous to Maine are known to bite humans for a source of blood, and several of those are known to be potential vectors of West Nile virus. West Nile virus is a mosquito-borne virus maintained in nature through biological transmission between susceptible vertebrate hosts (for example, birds) and blood-feeding arthropods (for example, mosquitoes). Human infections of West Nile virus can cause a condition known as encephalitis, or inflammation of the brain. West Nile virus was first detected in the United States during an encephalitis outbreak in New York City in late August and September of 1999. Since then, detection of the virus in birds and humans has spread across the country, although no human cases have been confirmed in Maine as of August 2005. The majority of human infections are asymptomatic or may produce a mild fever and other flu-like symptoms, but the virus can cause severe and fatal infections in a small percentage of patients – mostly those who are at an increased risk of infection due to age and suppressed immune systems. People, horses and other mammals are not known to develop infectious-level virus very often and are more commonly "dead-end" or incidental hosts, according to the Federal Department of Health and Human Services' Center for Disease Control, Division of Vector-Borne Infectious Diseases West Nile virus website.

Persons concerned about contracting mosquito-borne diseases should visit the Department's and the Maine Bureau of Health's websites at the addresses provided in Section 5 of this fact sheet for best management practices to reduce the risk of West Nile virus. Additional information on human health and environmental risks of West Nile virus mosquito control products may be found at the Bureau of Pesticides Control website: http://www.maine.gov/agriculture/pesticides/wnv/index.htm.

10. CONDITIONS OF PERMITS

Discharges of authorized aquatic pesticides under this general permit are subject to provisions and conditions of Maine's Water Classification Program at 38 M.R.S.A. §§ 464(4), 465, 465-A, and 465-B and Department rules Chapters 514 (Regulations Concerning the Use of Aquatic Pesticides), 523(2) (Waste Discharge License Conditions Applicable to All Permits), and 529 (General Permits for Certain Wastewater Discharges).

In addition, Maine law, 38 M.R.S.A. §420 and Department rule Chapter 530.5, *Surface Water Toxics Control Program*, require the regulation of toxic substances at the levels set forth for Federal Water Quality Criteria as published by the USEPA pursuant to the Clean Water Act.

11. RECEIVING WATER QUALITY STANDARDS

This general permit authorizes discharges to Class B, C, SB and SC waters. Maine law, 38 M.R.S.A. §465 describes the standards for Class B and C waters and 38 M.R.S.A. §465-B describes the standards for Class SB and SC waters.

12. RECEIVING WATER QUALITY CONDITIONS

The active ingredients in the aquatic pesticides authorized for use under this general permit are generally characterized as microbial insecticides. Further discussion on the basic identification and information about *Bti* and *Bs* is included in Section 7 of this fact sheet. The bacterial standards established for Class B, C, SB and SC waters are based on *Escherichia coli* (fresh waters) and enterococcus (marine waters) bacteria of human and domestic animal origin. Therefore, the discharge of authorized aquatic pesticides in accordance with the terms and conditions of this general permit will not cause or contribute to non-attainment of bacteria standards for any of the authorized receiving water classifications covered by this general permit. This general permit does not authorize the use of other compounds; thus chemical toxicity is not a concern related to the use and discharge of the authorized pesticides.

The Department has no information at this time that the discharge of the authorized aquatic pesticides in accordance with the terms and conditions of this general permit will cause or contribute to non-attainment of standards of classification for Class B, C, SB, or SC waters. Further, the Department has not identified any significant geographical areas of concern that should be excluded from coverage under this general permit.

13. ANTIDEGRADATION

The State's antidegradation policy is set forth in Maine law at 38 M.R.S.A. §464(4)(F). The Department has determined that the discharge of the authorized aquatic pesticides in accordance with the terms and conditions of this general permit will not violate the provisions of the antidegradation policy.

14. PUBLIC COMMENTS

Public notice of this general permit was made in the Bangor Daily, Morning Sentinel, Kennebec Journal, Sun-Journal, Portland Press Herald and The Times Record newspapers on or about August 5th and August 7, 2005. The Department receives public comments on an application until the date a final agency action is taken on the application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

15. RESPONSE TO COMMENTS

During the period of August 8, 2005 through September 9, 2005, the Department solicited comments on the proposed draft Waste Discharge license to be issued for the application of aquatic pesticides for the control of mosquito-borne diseases. The Department received no significant comments during the public comment period; therefore, a response to comments was not prepared.

16. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from, and written comments sent to:

William F. Hinkel
Division of Water Resource Regulation
Bureau of Land & Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone: (207) 287-7659

17. REFERENCES

1. Australian Pesticides and Veterinary Medicines Authority. (2004) Public Release Summary on: Evaluation of the new active *Bacillus sphaericus* STRAIN 2362 in the product VECTOLEX WG BIOLOGICAL LARVACIDE. http://www.apvma.gov.au/publications/prsBS2362.pdf.

2. Chilcott, C. N., Knowles, B. H., Ellar, D. J., Drobniewski, F. A. (1990) "Mechanism of action of *Bacillus thuringiensis israelensis* parasporal body." Bacterial Control of Mosquitoes and Black Flies. Pp 45-65. London: Unwin Hyman Ltd.

3. Glare, T.R. and M. O'Callaghan. (1998) "Report for the Ministry of Health: Environmental and health impacts of *Bacillus thuringiensis israelensis*." http://www.moh.govt.nz/moh.nsf/0/FF3B628D67E34963CC256BA3000D8476/$File/bti.pdf.

4. Maine Board of Pesticides Control. "Human Health and Environmental Relative Risks of WNV Mosquito Control Products. (2004) http://www.maine.gov/agriculture/pesticides/wnv/index.htm

5. Maine Department of Conservation, Maine Forest Service, Forest Health and Monitoring Division. (2005) "Mosquitoes." http://www.state.me.us/doc/mfs/mosquito.htm.

6. Maine Department of Conservation, Maine Forest Service, Forest Health and Monitoring Division. (2005) "Mosquito Species Occurring in Maine." http://www.state.me.us/doc/mfs/mosquito2.htm.

7. Maine Department of Health and Human Services, Bureau of Health. (2005) "Maine West Nile Virus Avian Testing Results – as of 09/23/04." http://www.maine.gov/dhhs/boh/ddc/wnvtestresults.htm.

8. Maine Department of Health and Human Services, Bureau of Health, Division of Disease Control. (2003) "Reportable Infectious Diseases in Maine 2003 Summary." http://www.maine.gov/dhhs/boh/2003%20ME_Annual%20Summary%20full.pdf.

17. REFERENCES (cont'd)

9. Material Safety Data Sheet: VectoLex® CG, G, and WSP. (2003) MSDS# BIO-0042. Valent Biosciences™ Corporation. http://www.moh.govt.nz/moh.nsf/0/FF3B628D67E34963CC256BA3000D8476/$File/bti.pdf.

10. National Pesticide Telecommunications Network. (2000) "*Bacillus thuringiensis* Technical Fact Sheet." http://npic.orst.edu/factsheets/BTtech.pdf.

11. Orme, S, and S. Kegley. (2004) PAN Pesticides Database, Pesticides Action Network, North America. "*Bacillus sphaericus*." http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35454.

12. Orme, S, and S. Kegley. (2004) PAN Pesticides Database, Pesticides Action Network, North America. "*Bacillus thuringiensis* (Berliner) subsp. *Israelensis*, serotype H-14. http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC33801.

13. Pesticide Education Management Program at Cornell University. (2003) "*Bacillus thuringiensis* (var. *israelensis*) Chemical Profile 4/85." http://pmep.cce.cornell.edu/profiles/insect-mite/abamectin-bufencarb/bt-israelensis/insect-prof-bt-israel.html.

14. Raval-Nelson, Palak; Soin, Ketki Tolerud, Suzy. (2005) "Analysis of *Bacillus sphaericus* in Controlling Mosquito Populations in Urban Catch Basins." Journal of Environmental Health. Vol. 67, No. 7, Pp 28-31.

15. Rose, R.I. (2001) "Pesticides and Public Health: Integrated Methods of Mosquito Management." Emergent Infectious Diseases. Vol. 7, No. 1. http://www.cdc.gov/ncidod/eid/vol7no1/rose.htm.

16. Smith, A.W., Camara-Artigas, A., Allen, J.P. (2004) "Crystallization of the mosquito-larvicidal binary toxin produced by *Bacillus sphaericus*." Acta Crystallogoraphy Section D: Biological Crystallography. D60: Pp 952-953.

17. Swadener, C. (1994) "*Bacillus thuringiensis* (B.T.)." Journal of Pesticide Reform. Vol. 14, No. 3, Pp. 13-20. http://www.eap.mcgill.ca/MagRack/JPR/JPR_22.htm.

18. United States Department of Health and Human Services, Center for Disease Control and Prevention, Division of Vector-Borne Infectious Diseases. (2005) "West Nile Virus Vertebrate Ecology." http://www.cdc.gov/ncidod/dvbid/westnile/birds&mammals.htm.

19. United States Environmental Protection Agency. (2002) "Larvicides for Mosquito Control." http://www.epa.gov/pesticides/factsheets/larvicides4mosquitos.htm.

20. United States Environmental Protection Agency, Office of Pesticides Program, Biopesticides and Pollution Prevention Division. (1998) "Reregistration Eligibility Decision (RED) *Bacillus thuringiensis*." http://www.epa.gov/oppsrrd1/REDs/0247.pdf.

17. REFERENCES (cont'd)

21. United States Environmental Protection Agency, Office of Pesticides Program, Biopesticides and Pollution Prevention Division. (1999) "*Bacillus sphaericus* serotype H5a5b strain 2362 (128128) Fact Sheet." http://www.epa.gov/pesticides/biopesticides/ingredients/factsheets/factsheets_128128.htm.

22. United States Environmental Protection Agency, Office of Pesticides Program, Biopesticides and Pollution Prevention Division. (1999) "*Bacillus thuringiensis* subspecies *israelensis* strain EG2215 (006476) Fact Sheet." http://www.epa.gov/pesticides/biopesticides/ingredients/factsheets/factsheets_006476.htm.

23. Valent Biosciences™ Corporation. (2005) "VectoBac® and VectoLex®: Some Commonly Asked Questions on the Use of VectoBac and VectoLex." http://www.valentbiosciences.com/docs/pdfs/learning_center/LC_VectoBac_VectoLex.pdf.

24. Washington State Department of Ecology. (2002) Aquatic Mosquito Control National Pollutant Discharge Elimination System Waste Discharge General Permit. Permit No. WAG – 992000.

25. Washington State Department of Ecology. (2004) Best Management Practices for Mosquito Control. Publication No. 03-10-023 revised.

26. Washington State Department of Health. (2005) "West Nile Virus: Larvicide: *Bacillus thuringiensis israelensis* (Bti)." http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Pesticides/Bti.html.

Form DEPLW0724

Maine Department of Environmental Protection
General Permit Notice of Intent (NOI)

Aquatic Pesticides for the Control of Mosquito-Borne Diseases

NOTE: A copy of this NOI Form must be filed with the municipal or County Commissioners office in which the discharge is located at the time it is submitted to the Department.

1. Property Owner Information

Name: _____

Mailing address: _____
Street Address

_____
Town State ZIP

Telephone: _____ E-mail: _____

2. Agent Information (if applicable)

Name/Affiliation: _____

Mailing address: _____
Street Address

_____
Town State ZIP

Telephone: _____ E-mail: _____

3. Licensed Applicator Information

Name/Affiliation: _____

Mailing address: _____
Street Address

_____
Town State ZIP

Telephone: _____ E-mail: _____

Maine Board of Pesticides Control License Number: _____

4. Waterbody Information (Provide the following information for each waterbody having different physical or hydrologic characteristics. Use additional sheets as necessary.)

Name of waterbody: _____

Size of area to be treated (indicate in square feet or acres): _____

Average Water Depth (circle all that apply): 0-6" 6-12" 12-24" >48"

Has the waterbody been treated before for mosquito control? YES__ NO___

If YES, provide dates and pesticides used: _____

_____

5. Aquatic Pesticide Information

Bti. Formulation:_____ Concentration:_____ Max. Application Rate_____
(granule, liquid, power, etc.) (% active ingredient) Frequency_____

Bs. Formulation:_____ Concentration:_____ Max. Application Rate_____
(granule, liquid, power, etc.) (% active ingredient) Frequency_____

6. Statement of Significant Need to Control Target Species

On a separate piece of paper, please provide a statement demonstrating a significant need to control the target species and an explanation as to why application of the authorized aquatic pesticide is the most effective means of mosquito control. The statement must provide reasonable justification for the proposed treatment. (See General Permit Section I.D.2.d.)

7. Statement of Coordinated Area-Wide Control Strategy

On a separate piece of paper, please provide a statement demonstrating that the proposed aquatic pesticide application(s) will be performed in conjunction with a specific written management plan for the control of mosquito species known to be potential vectors of infectious diseases. For individual property owners seeking coverage, a statement demonstrating efforts to coordinate mosquito treatments with local governments, tribal governments, state public health agencies, or other appropriate organizations must be submitted.

8. Required Attachments

The following attachments are required for consideration of coverage under this general permit. Failure to attach the following items will result in a delay in processing and possible denial of a coverage.

- Topographic or similar map (or copy thereof) extending at least one mile beyond each waterbody to be treated with proposed treatment areas indicated.

- Specific detailed written directions to each proposed treatment site.

- A minimum of three color photographs of each waterbody (or representative photos for a group of waterbodies having similar physical and hydrologic characteristics) to be treated. The photographs must be taken during a period when the waterbody and surrounding area is free of snow cover, must be labeled with the applicant's name and the civil jurisdiction (for example city, town, territory) in which the waterbody exists, and must relate to the location map submitted as part of this NOI form.

- A description of each area to be treated, including, but not limited to, identification of any intermittent or permanent inlets to or outlets from the waterbody, presence or absence and characterization (herbaceous, woody) of vegetation within the waterbody, whether the area in and around the waterbody is forested, open (field), marsh, etc.

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. Based on 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.

9. Signature of Applicant

Signature:_____ Date:_____

Printed Name:_____

Assisting Parties. If the applicant has been assisted in preparing this NOI Form, the person(s) assisting must sign below.

Signature:_____ Date:_____

Printed Name:_____

Keep a copy as record of permit. Send the form with attachments via certified mail to the Maine Department of Environmental Protection, 17 SHS, Augusta, ME 04333-0017. A copy of this NOI must be provided to the municipal or County Commissioners office. Authorization to discharge is valid for one year. Work carried out in violation of any applicable standard is subject to enforcement action.

This area for office use only.

NOI #	Date Received	Date Approved	Date Returned	Staff
#MEG				