

## **Addendum to Fact Sheet**

On November 21, 2006, the Environmental Protection Agency (EPA) issued a final rule entitled “Application of Pesticides to Waters of the United States in Accordance with FIFRA.” This rule replaces a draft interpretive statement issued by EPA in 2003 concerning the use of pesticides in or around waters of the United States. The rule states that any pesticide meant for use in or near water that is applied in accordance with the EPA-issued FIFRA label, is not a pollutant under the Clean Water Act. Therefore such applications are not subject to NPDES permitting. The rule has now been appealed in 11 of the 12 federal circuit courts that are able to hear regulatory arguments.

After EPA issued the rule, Ecology met with stakeholders to seek input on how Ecology should regulate use of aquatic pesticides. Ecology also provided the public with a three week comment period. Stakeholders affiliated with each of the seven affected permits (mosquito, noxious weeds, aquatic plants, irrigation, oyster growers, fish management, and invasive moth) sent comments to Ecology. The majority of comments requested that Ecology continue to issue joint NPDES/state permits to regulate aquatic pesticide applications.

A pesticide applied to the water according to state law is a form of pollution. To apply a pesticide in the water, state law requires that the applicator obtain a short-term modification of the water quality standards from Ecology. Currently, the only legal vehicle for implementing that modification is a permit. State law only defines two types of permits for surface water discharges – National Pollutant Discharge Elimination System (federal) and State Waste Discharge (state). Until 2001, Ecology issued modifications using an administrative order. This process was challenged in court and is not a viable regulatory option at this time.

Ecology decided that Washington will continue to use NPDES permits to control the use of aquatic pesticides in and around Washington state waters until the federal courts make a decision on the appeal of the EPA rule. These permits help the state protect human health and the environment by:

- Ensuring pesticides with the lowest risk are used.
- Reducing amounts of pesticides applied.
- Tracking pesticide use.
- Requiring public notifications and postings when waters are treated.
- Monitoring levels of pesticides in the water after treatment.

Ecology believes that these permits provide the best protection of water quality, human health, and the environment at this time. Ecology has taken steps to minimize the regulatory and administrative burden on permittees while ensuring that the permits comply with federal and state laws and court decisions. We will continue to follow the court proceedings surrounding the EPA rule and respond accordingly.

**FACT SHEET FOR AQUATIC MOSQUITO CONTROL  
GENERAL NPDES PERMIT**



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## FACT SHEET FOR AQUATIC MOSQUITO CONTROL NPDES GENERAL PERMIT

### SUMMARY

The State of Washington Department of Ecology (Department) has decided to issue a general permit for the application of pesticides to control mosquitoes in surface waters of the State of Washington. The use of pesticides is subject to the provisions of integrated pest management plans (IPMs). Monitoring is required in certain situations as determined by Ecology. Any short term toxicity to aquatic organisms is allowed under the terms of the permit and the water quality modification provisions to perform essential activities that protect public health. The proposed terms, limitations and conditions contained herein are tentative and may be subject to change, subsequent to public comments and testimony provided at public hearings. Activities not accepted under the general permit may be required to apply for an individual permit. Any application of pesticides to surface waters of the state requiring NPDES permit coverage that is not covered under either the general permit or an individual permit will be considered to be operating without a discharge permit and subject to potential enforcement action.

In *Headwaters, Inc. v. Talent Irrigation District*, the Ninth Circuit Court held that applying an herbicide to navigable waters of the United States did not exempt the irrigation district from having to obtain an NPDES permit regardless of whether or not the irrigation district had applied the herbicide in accordance with the labeling requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

The EPA opened a public comment period in January 2005 on a proposed rule that would exempt the application of pesticides in aquatic settings from the Clean Water Act NPDES permitting requirements. However, the proposed rule has not been adopted. In September 2005, the Ninth Circuit Court issued its decision in *Fairhurst vs. Hager*. The Fairhurst decision did not reverse the Talent decision, but did conclude that an NPDES permit is not required if a pesticide is intentionally applied to waters of the United States in accordance with a FIFRA label and with no residue or unintended effect. Neither the Court nor EPA has offered any guidance regarding what applications will result in no residue or unintended effect. Given the rulings from the Ninth Circuit Court and EPA's failure to finalize its proposed rule, most, if not all, aquatic applications of pesticides within the jurisdiction of the Ninth Circuit Court require NPDES permits.

In February 2006, the Pollution Control Hearings Board (PCHB) issued a final order in case #05-101, *Northwest Aquatic Ecosystems vs. Ecology, WTC*. This case focused on a number of issues, one of which was whether or not an NPDES permit is required for the use of federally registered pesticides since the Ninth Circuit Court ruled in *Fairhurst vs. Hager*. The Board ruled that:

“Northwest Aquatic also renewed its summary judgment argument that the Board should rule NPDES permit coverage is not needed for the application of aquatic pesticides, when they are applied in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Northwest Aquatic bases this argument on the recent federal court decision in *Fairhurst v. Hagener*, 422 F.3d 1146 (9th Cir. 2005). The Board ruled on summary judgment that the *Fairhurst* decision does not provide a blanket exemption for the application of aquatic pesticides. Identified conditions must be met before a pesticide can be considered outside the category of a pollutant under the Clean Water Act. The pesticide must: (1) be applied for a beneficial purpose, (2) be applied in compliance with FIFRA, (3) produce no pesticide residue, and (4) produce no unintended effects. *Fairhurst*, 422 F.3d at 1150.

Northwest Aquatic failed to provide any evidence specifically addressing how the use of diquat and endothall on the proposed sites would meet the four factors identified in *Fairhurst*. In the absence of such evidence, *Fairhurst* provides no basis for the Board to conclude a NPDES permit is not required for the proposed pesticide applications.”

## INTRODUCTION

This fact sheet is a companion document that provides the basis for issuance of the Aquatic Mosquito Control National Pollutant Discharge Elimination System (NPDES) State Waste Discharge General Permit. The Department of Ecology (Ecology) is proposing to issue this permit, which will allow discharge of wastes from aquatic pesticide applications to control mosquitoes in surface waters of the State of Washington, which are also waters of the United States, pursuant to the provisions of chapters 90.48, 90.52, and 90.54 Revised Code of Washington (RCW) and the Federal Water Pollution Control Act (FWPCA) as amended. This fact sheet explains the nature of the proposed discharges, Ecology's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for these decisions.

The Federal Clean Water Act (FCWA, 1972), and later modifications (1977, 1981, and 1987), established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The establishment of a general permit for Aquatic Mosquito Control is appropriate due to the similar environmental fate specific to each permitted pesticide, the uniform discharge conditions to which all applications would be subject, the statewide scope of aquatic mosquito control, and the significant reduction of resources necessary for permit handling. However, individual permits will still be considered in those instances where a proposed activity requires more detailed guidance, or when an individual applicator so desires and Ecology approves.

The regulations adopted by the State include procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface waters (Chapters 173-201A WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastes to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the draft permit, public hearings, comment periods, and public notice of issuance are all required before the general permit is issued (WAC 173-226-130).

The fact sheet and draft permit have been reviewed by representatives of the potential permittees and other members of a permit advisory group. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, Ecology will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of Ecology's response. The original fact sheet will not be revised after the public notice is published. Comments and the resultant changes to the permit will be summarized in [Appendix C--Response to Comments](#).



Larviciding with a backpack sprayer

## BACKGROUND INFORMATION

A March 12, 2001 decision by the Ninth Circuit Court in *Headwaters, Inc. v. Talent Irrigation District* found that the applicator should have obtained coverage under a National Pollutant Discharge Elimination System (NPDES) permit prior to application of aquatic pesticides to an irrigation canal in Oregon. The canal discharged water into a creek where a fish kill occurred. The decision addressed residues and other products of aquatic pesticides.

Headwaters, Inc. and Oregon Natural Resources Council filed a Clean Water Act citizen suit against the Talent Irrigation District (TID) for applying aquatic herbicide into a system of irrigation canals. Reversing a district court's opinion, the Ninth Circuit held that application of

the pesticide in compliance with the labeling requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) did not exempt TID from having to obtain a NPDES permit, and that the irrigation ditches were "waters of the United States" under the Clean Water Act.

The Federal Insecticide, Fungicide, and Rodenticide Act of 1979 (FIFRA), as administered by the United States Environmental Protection Agency (EPA) and the Washington State Department of Agriculture, requires that all persons who apply pesticides classified as restricted use be certified according to the provisions of the act or that they work under the supervision of a certified applicator. Commercial and public applicators must demonstrate a practical knowledge of the principles and practices of pest control and safe use of pesticides, which will be accomplished by means of a "core" examination. In addition, applicators using or supervising the use of any restricted use pesticides purposefully applied to standing or running water (excluding applicators engaged in public health related activities) are required to pass an additional exam to demonstrate competency as described in the code of federal regulations as follows:

"Aquatic applicators shall demonstrate practical knowledge of the secondary effects which can be caused by improper application rates, incorrect formulations, and faulty application of restricted pesticides used in this category. They shall demonstrate practical knowledge of various water use situations and the potential of downstream effects. Further, they must have practical knowledge concerning potential pesticide effects on plants, fish, birds, beneficial insects and other organisms which may be present in aquatic environments. Applicants in this category must demonstrate practical knowledge of the principles of limited area application."  
(40 CFR 171.4)

Any person wishing to apply pesticides to waters of the state must either be licensed as an aquatic pesticide applicator by the Washington State Department of Agriculture, or operating under the supervision of a licensed applicator. For information on licensing requirements and testing, please visit <http://www.agr.wa.gov/PestFert/LicensingEd/Licensing.htm>.

## MOSQUITO LIFE CYCLE

There are several species of mosquito that readily attack people, and some species are capable of transmitting microbial organisms that cause human diseases such as malaria and encephalitis. Mosquitoes from six genera are found in Washington and include *Aedes*, *Anopheles*, *Culex*, *Culiseta*, *Coquilletidia*, and *Ochlerotatus*.

Mosquitoes are classified as Insects of the Diptera order. They undergo a complete metamorphosis, which involves four stages of development, egg, larva, pupa and adult. The first three stages occur in water, but the adult female is an active flying insect that feeds upon the blood of humans and/or animals. The female mosquito lays the eggs directly on water or on moist substrates that may later be flooded with water. The egg later hatches into the larva. This is the stage when most mosquito districts tend to focus control programs. During the larval stages it continues to feed and grow in size. The larvae go through four growth stages called instars. Once the larvae has developed to the fourth instar it stops feeding and pupates. This is a resting period. At this point the biological control (larvicide) no longer works as a control measure

because it requires ingestion by the organism. Pupae can be killed by draining or emptying the water body, or using a monomolecular surface film or larvicidal oil.

The larva transforms into the pupa where internal changes occur and the adult mosquito takes form. After a few hours to a few days in the pupal stage, the adult mosquito emerges from the water surface and seeks shelter in shady, moist areas. Adult mosquitoes must find shelter during the heat to avoid dehydration and most species are active during the hours from dusk to dawn. After a brief period of rest the adult female goes in search of a blood meal and the cycle continues. The time frame for this is highly variable anywhere from one to three weeks, depending on factors such as water temperature and food resources. The warmer the water the quicker the development will be. A very small amount of water in a container in warm weather can produce a batch of adult mosquitoes very quickly.

Mosquito biology can follow two general scenarios. The first involves those species that lay their eggs in masses or rafts on the water's surface. Some of these species, which are found throughout the U.S., often lay their eggs in natural or artificial water-holding containers found in the domestic environment, or in naturally occurring pools. In summer the entire life cycle, from egg to adult, may be completed in a week or less.

The second scenario involves *Aedes* mosquitoes that lay their eggs on moist soil or other substrates in areas that will be flooded with water later. After about two days, these eggs are ready to hatch, but if not flooded, can withstand drying for months and longer. In inland areas of the U.S. where these mosquitoes breed, heavy rains and flooding can produce millions of mosquitoes in a short time. Similar situations occur along coastal areas with mosquitoes adapted to salt marsh habitats. Some salt marsh mosquitoes are strong fliers and can sometimes travel up to 50 miles from the breeding site.

### **PUBLIC HEALTH IMPACTS**

Female mosquitoes of nearly all species require blood from vertebrate animals to develop eggs, and many species bite people, pets, and livestock for this purpose.

Mosquitoes are found throughout the world and many transmit pathogens which may cause disease. These diseases include mosquito-borne viral West Nile virus fever, encephalitis, dengue, yellow fever, malaria, and filariasis. Most of these diseases have been prominent as endemic or epidemic diseases in the United States in the past, but today, only the insect-borne (arboviral) encephalitides and West Nile virus fever occur annually and dengue occurs periodically in this country. The most important consequence of this is the transmission of microorganisms that cause diseases such as western equine encephalitis and St. Louis encephalitis. Both of these diseases can cause serious, sometimes fatal neurological ailments in people. (Western equine encephalitis virus also causes disease in horses.) Western equine encephalitis infections tend to be more serious in infants while St. Louis encephalitis can be a problem for older people.

These viruses are normally infections of birds or small mammals. During such infections, the level of the virus may increase in these infected animals facilitating transmission to humans by

mosquitoes. The West Nile virus, which can also cause encephalitis, was found in the northeastern United States for the first time in 1999, and is a good example of this mode of transmission. Over 20,000 human cases of West Nile virus have been reported in the U.S. Symptoms of human illness can range from mild flu-like symptoms to severe encephalitis, meningitis, or acute flaccid paralysis. Over 800 people have died from West Nile virus since its emergence here 7 years ago.

Other pathogens transmitted by mosquitoes include a protozoan parasite which causes malaria, and *Dirofilaria immitis*, a parasitic roundworm and the causative agent of dog heartworm. Disease carrying mosquito species are found throughout the U.S., especially in urban areas and coastal or in inland areas where flooding of low lands frequently occurs.

Even when no infectious diseases are transmitted by mosquitoes, they can be a health problem to people and livestock. Mosquito bites can result in secondary infections, allergic reactions, pain, irritation, redness, and itching.

## **MANAGEMENT**

Mosquitoes are best managed on an area wide basis by public agencies that are either components of, or collaborating with, local health departments or are independent districts organized specifically for mosquito control. In Washington, there are approximately 16 mosquito control districts. Some are small and have responsibility for mosquito abatement in a few hundred square miles, while the activities of others may encompass one entire county or more. Mosquito control is accomplished by searching out mosquito larvae in standing water and treating the water with a material that kills the larvae. Many materials currently in use are biological in origin and are highly specific for mosquitoes, with little or no effect on other organisms.

On occasion, mosquito abatement agencies may also apply chemical pesticides to kill adult mosquitoes, but ordinarily only when adult populations become so large that they cause extreme annoyance to many people or when the threat of disease transmission to people is high. Control of irrigation water in agricultural areas to avoid excess runoff is an important mosquito control method, but in recent years elimination of small bodies of water that can serve as wildlife habitat has ceased to be a mosquito control option because of habitat preservation concerns.

## **INTEGRATED PEST MANAGEMENT**

Mosquito control activities are important to the public health, and responsibility for carrying out these programs rests with state and local governments, health departments, and vector or mosquito control districts. The federal government assists states in emergencies and provides training and consultation in vector and vector-borne disease problems when requested by the states. The current interests in ecology and environmental impact of mosquito control measures, and the increasing problems that have resulted from pesticide resistance emphasize the need for "integrated" pest management programs (IPM). IPM is an ecologically based strategy that relies heavily on natural mortality factors and seeks out control tactics that are compatible with or disrupt these factors as little as possible. IPM includes the use of pesticides, but only after

monitoring of mosquito populations indicates a need. Ideally, an IPM program considers all available control actions, including no action, and evaluates the interaction among various control practices, cultural practices, weather, and habitat structure. This approach thus uses a combination of resource management techniques to control mosquito populations with decisions based on surveillance. Fish and game specialists and natural resources biologists should be involved in planning control measures whenever delicate ecosystems could be impacted by mosquito control practices.

A good integrated pest management (IPM) program -- featuring monitoring for high mosquito populations and disease, resident education and action to maximize natural controls and minimize mosquito breeding sites, and larvaciding (killing immature mosquitoes) when necessary -- can control mosquitoes more effectively while reducing pesticide exposure to humans and the environment. Pesticides are dispersed in areas prone to mosquito larvae rather than being dispersed more widely, which has less environmental impact than adulticiding.

The underlying philosophy of larval mosquito control is based on the fact that control is effective on *concentrated*, *immobile* and *accessible* larvae populations. This emphasis focuses on habitat management and controlling the immature stages before the mosquitoes emerge as adults. This policy reduces the need for widespread pesticide application in urban areas.

## **DESCRIPTION OF MOSQUITO CONTROL ACTIVITIES**

### **MOSQUITO CONTROL PROGRAMS**

In response to these potential disease carrying pests, communities organized the earliest mosquito control programs in the eastern U.S. in the early 1900s. Eventually, other communities created similar programs throughout the country in areas where mosquito problems occurred and where citizens demanded action by local officials. Modern mosquito control programs in the U.S. are multifaceted and include surveillance, source reduction, and a variety of larval and adult mosquito control strategies.

Surveillance methods include studying habitats by air, aerial photographs, and topographic maps, and evaluating larval populations. Mosquito control officials also monitor mosquito traps, and complaint reports from the public. Seasonal records are kept in concurrence with weather data to predict mosquito larval occurrence and adult flights. Many mosquito control programs and local health jurisdictions monitor mosquito-borne diseases by having wild birds, mosquito pools, and/or sentinel chickens tested for disease.

Source reduction involves eliminating the habitat or modifying the aquatic habitat to prevent mosquitoes from breeding. This measure includes sanitation measures where artificial containers, including discarded automobile tires, which can become mosquito habitats, are collected and properly disposed. Habitat modification may also involve management of impounded water or open marshes to reduce production and survival of the flood water mosquitoes. If habitat modification is not feasible, biological control using fish may be possible. Mosquito control officials often apply biological or chemical larvicides, with selective action and moderate

residual activity, to the aquatic habitats. To have the maximum impact on the mosquito population, larvicides are applied during those periods when immature stages are concentrated in the breeding sites and before the adult forms emerge and disperse.

### CRITERIA FOR COVERAGE UNDER THE GENERAL PERMIT

Applicants for the general permit will be screened based on information in the application. Ecology will consider whether the applicant has a qualified licensed applicator on staff, familiarity with FIFRA and state requirements, and willingness to comply with any monitoring and/or IPM requirements.

TABLE 1. PERMITTED PESTICIDES USED FOR MOSQUITO CONTROL

Active Ingredient	Use
<i>Bacillus sphaericus</i> (H-5a5b)	Control for first through third instar larvae. Higher rates are needed for late third and fourth instar larvae. Can have extended residual control even in highly organic aquatic environments.
<i>Bacillus thuringiensis</i> subsp. <i>israelensis</i> (Bti)	Control for first, second, and third instar larvae. Higher rates are needed for late third and fourth instar larvae.
Methoprene	First, second, third, and fourth instar larvae control.
Monomolecular surface film POE isooctadecanol	Larvae and pupae control. Okay for potable water.
Petroleum and mineral based oil	Larvae and pupae control. State restricted use. Consult with WDFW before using.
Temephos	State restricted use.
Malathion	State restricted use. Emergency use only.

\*For a guide to registered aquatic mosquito control products, go to the Washington State Department of Agriculture's Web page at [http://www.kellysolutions.com/WA/showproductsbypest2.asp?Pest\\_ID=IOAMAA04](http://www.kellysolutions.com/WA/showproductsbypest2.asp?Pest_ID=IOAMAA04).

### BACILLUS THURINGIENSIS ISRAELENسيس (BTI):

*Bacillus thuringiensis* subsp. *israelensis* (Bti) is a naturally occurring soil bacterium that can effectively kill mosquitoes during the larvae stage of development in water. Bti is an endospore-forming bacterium that is ingested by the actively feeding larvae. When the bacteria Bti encysts, it produces a protein crystal toxic to mosquito larvae. Once the bacteria have been ingested, the toxin disrupts the lining of the larvae's intestine causing it to stop eating and die. Bti is the primary material used for mosquito control because of its low toxicity to non-target species. Bti is highly pathogenic against Culcidae (mosquitoes) and Simuliidae (blackflies) and has some virulence against certain other Diptera, especially Chironomidae (midges). Bti is highly selective for the first through third instars of mosquito larvae.

Bti has been extensively studied for effects on non-target organisms and environmental consequences of use with no reported adverse effects. It is not toxic to bees. According to several

studies, when applied at field application rates, Bti has no reported effect on fish and amphibians. Several studies have found no effect on warm-blooded mammals. Labels indicate that direct contact with the products may cause mild eye or skin irritation.

Bti products are available in liquid, pellet, granular, and briquette formulations. The type of Bti formulation influences the activity of the product. Generally Bti does not persist long after application, with toxicity persisting from 24 hours to over one month when the longer lasting formulations are used.

Larval toxicity can depend on the species, its feeding activity and other possible factors such as UV light, water quality, pH, temperature, agitation, and sedimentation. Commercially available Bti strains are sold under several names, including Aquabac, Bactimos, Bonide Mosquito Beater "Plunks", Healthy Ponds, Sentry, Summit Bti Briquets, Teknar and Vectobac. A number of Bti products are available for residential use in water bodies, such as lined ornamental ponds, and are sold under various trade names such as Bayer Advanced Garden Mosquito Preventer, Beckett Skeeter Stopper, Mosquito Depth Charges, Mosquito Dunks, Mosquito Bits Quick-Kill, and Spectracide Mosquito Stop.

### **BACILLUS SPHAERICUS:**

*Bacillus sphaericus* is a naturally occurring, spore-forming bacterium, which produces a protein endotoxin at the time of sporulation. The toxin is only active against the larval stage and must be ingested and digested before it becomes activated. *B. sphaericus* has the unique property of being able to control mosquito larvae in highly organic aquatic environments such as waste lagoons and storm water catch basins.

*B. sphaericus* was first registered for the control of *Culex* mosquitoes but its uses have been expanded to include control of several *Aedes*, *Anopheles*, *Ochlerotatus*, *Psorophora* and *Coquilettidia* species. *B. sphaericus* is not acutely toxic to freshwater and saltwater invertebrates, honeybees, mayfly larvae, does not appear to be harmful to fish and other marine life, and is not toxic to birds on a sub chronic basis. In tests, *B. sphaericus* was not pathogenic, infective nor toxic in laboratory animals by the oral, dermal, pulmonary or intra-venous routes of exposure. In humans, mild skin and eye irritation can occur with direct contact

Vectolex, the trade name for *B. sphaericus*, is available in corn cob granule, water dispersible granule, and water dispersible pouch formulations. *B. sphaericus* can offer up to six weeks of control in many habitats because the protoxins and spores can remain suspended in the water column for extended periods and due to the recycling of bacteria in dead larvae. Duration of control will depend upon habitat factors such as water depth, flushing, water chemistry and frequency of oviposition to maintain the recycling process.

### **METHOPRENE**

Methoprene is a compound that mimics the action of an insect growth-regulating hormone and prevents the normal maturation of insect larvae. Unable to metamorphose, the mosquitoes die in the pupal stage. Methoprene is classified as a biochemical pesticide because it controls mosquito larvae by interfering with the insect's life cycle rather than through direct toxicity. Methoprene comes in numerous formulations and is sold under the product names Zoecon Altosid, Biosid, and Strike. Formulations labeled for residential use are sold under the names Pre-Strike and Vet-Kem.

Studies indicate that methoprene is of low toxicity and poses little risk to people when used according to label instructions. Methoprene was not shown to have any significant toxicological effects in the standard battery of toxicity studies used to assess human health effects. The pesticide has very low acute oral and inhalation toxicity potential and is not an eye or skin irritant. Methoprene is also of low acute dermal (skin) toxicity and is not a human skin sensitizer.

In laboratory tests, the toxicity of methoprene to birds and fish is low, and it is nontoxic to bees. Field studies involving methoprene have shown that it has no lasting adverse effects on populations of invertebrates or other non-target aquatic organisms when used according to label instructions for mosquito control. Methoprene mosquito control products present minimal acute and chronic risk to freshwater fish, freshwater invertebrates, and estuarine species.

Methoprene is not persistent in the environment. It degrades rapidly in water, being susceptible to transformation by sunlight and microorganisms.

## **MONOMOLECULAR SURFACE FILMS**

Monomolecular surface film (MSF) is a non-petroleum surface oil that acts as a physicochemical agent by altering the mosquito's habitat. It belongs to the alcohol ethoxylate group of surfactants (products meant to increase product efficacy), which are used in detergent products. MSF disrupts the cohesive properties, which allow mosquitoes to use the water's surface as an interface for breeding. By making the surface "wetter," MSF in effect drowns mosquitoes.

MSF kills larvae and pupae by making it impossible for them to keep their breathing tubes above the water's surface. Mosquitoes that require little or no surface contact for breathing, such as *Coquillettidia* species, require properly timed applications at surface contacting stages—the pupae to emerging adult—for maximum impact. Since MSF kills mosquitoes with a physical mechanism (rather than a toxic mechanism), it is not effective in habitats with persistent unidirectional winds of greater than ten miles per hour, or in areas with very choppy water.

Some species such as the midge, and some arthropods that require attachment to the water surface have been shown to be affected. MSF is non-toxic to most non-target wildlife. According to [EPA](#), MSF poses minimal risks to the environment when used as directed. The green tree frog progressed normally from tadpole to adult through several generations after being exposed to a constant film presence for six months. MSF is not a skin irritant, is only a mild eye irritant on prolonged or repeated contact, and is considered to be non-toxic by animal tests. As with all pesticides, direct contact should be avoided.

The film persistence is dependent on temperature, water flow, amount of bacteria in the water, and the duration and strength of the wind following application. MSF typically persist on the water's surface for 5-22 days.

## **LARVICIDAL OILS**

Oils, like films, are pesticides used to form a coating on top of water to drown larvae, pupae, and emerging adult mosquitoes. Oils are petroleum or mineral based and are typically used as a product of last resort for the control of mosquito pupae, since this stage does not feed but does require oxygen. Oils can persist for 12 to 15 hours and then evaporate within a few days. Larvicide oils, if misapplied,

can be toxic to fish and other aquatic organisms. Studies have shown that aquatic invertebrates, amphibians, waterfowl, furbearers and fish may be deleteriously affected. Please consult with WDFW prior to using these products.

### **CHEMICAL LARVICIDES (RESTRICTED OR EMERGENCY USE ONLY)**

The application of malathion and temephos, which are organophosphate pesticides, to water are restricted use larvicides under the Department of Ecology's aquatic mosquito control permit. Temephos is only allowed in highly polluted and high organic waters with no surface water runoff and may be used in response to the development of pest resistance or a public health emergency. Malathion may only be used for control of mosquito larvae under agreement between Ecology and DOH in response to a public health emergency.

#### **The primary application methods in aquatic mosquito larvae and pupa control are:**

**1. Hand application:** Broadcast spreaders, backpack granulators and liquid sprayers are used to spread control materials either mounted on ATVs or carried by the applicator.

**2. Aerial applications:** Aerial applications normally use a conventional spray boom to improve coverage with the smaller volume of spray solution applied per acre. The spray produces a large droplet size at low pressure and low volume. The pilot monitors the flow rate to minimize pressure and controls drift additionally through application during lower air temperatures and low wind speed.

### **ENDANGERED SPECIES**

EPA has implemented The Endangered Species Protection Program to identify all pesticides whose use may cause adverse impacts on threatened/endangered species and to implement mitigation measures that will mitigate identified adverse impacts. When an adverse impact is identified this program will require use restrictions to protect endangered/threatened species at the county level. These use restrictions will be specified on the product label or through the distribution of a county specific Endangered Species Protection Bulletin specified on the product label.

### **REGULATORY POLLUTION REDUCTION REQUIREMENTS**

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology or water quality-based. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern.

## TECHNOLOGY BASED WATER QUALITY PROTECTION REQUIREMENTS

Sections 301, 302, 306, and 307 of the FWPCA established discharge standards, prohibitions, and limits based on pollution control technologies. These technology-based limits are "best practical control technology" (BPT), "best available technology economically achievable" (BAT), and "best conventional pollutant control technology economically achievable" (BCT). Compliance with BPT/BAT/BCT may be established using a "best professional judgment" (BPJ) determination.

The State has similar technology-based limits which are described as: "all known, available and reasonable methods of control, prevention, and treatment" (AKART) methods. AKART is referred to in State law under RCW 90.48.010, RCW 90.48.520, 90.52.040 and RCW 90.54.020. The Federal technology-based limits and AKART are similar but not equivalent. AKART: (1) may be established for an industrial category or on a case-by-case basis; (2) may be more stringent than Federal regulations; and (3) includes not only treatment, but also BMPs such as prevention and control methods (i.e. waste minimization, waste/source reduction, or reduction in total contaminant releases to the environment). Ecology and the Federal Environmental Protection Agency (EPA) concur that, historically, most discharge permits have determined AKART as equivalent to BPJ determinations.

The pesticide application industry has been regulated by EPA under the terms of the Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA). The use of pesticides is regulated by label use requirements developed by the EPA. In developing label use requirements, EPA requires the pesticide manufacturer to register each pesticide, provide evidence that the pesticide will work as promised, and that unacceptable environmental harm will be minimized. The standards for environmental protection are different between the Clean Water Act and FIFRA.

It is the intent of this general permit to authorize mosquito control in a manner that also complies with federal and other state requirements.

All waste water discharge permits issued by Ecology must incorporate requirements to implement reasonable prevention, treatment and control of pollutants.

The Washington Pesticide Control Act states that "the formulation, distribution, storage, transportation, and disposal of any pesticide and the dissemination of accurate scientific information as to the proper use, or nonuse, of any pesticide, is important and vital to the maintenance of a high level of public health and welfare both immediate and future, and is hereby declared to be a business affected with the public interest. The provisions of this chapter are enacted in the exercise of the police powers of the state for the purpose of protecting the immediate and future health and welfare of the people of the state." The pesticides allowed for use under this permit are regulated both by the state and by the federal government.

Treatment of the pollutants addressed in this permit is difficult due to the diffuse nature and low concentrations that exist after the pesticides have become waste. The Talent decision established that aquatic pesticides become waste in the water after the pesticide has performed its intended action and the target organisms are controlled. Treatment of waters where pesticide residues

threaten to cause unacceptable environmental harm may be needed in some situations, but not routinely.

## **WATER QUALITY BASED REQUIREMENTS**

The mosquito control activities affect surface waters of the State. These waters are protected by chapter 173-201A WAC, Water Quality Standards for Surface Waters of the State of Washington. The purpose of these standards is to establish the highest quality of State waters, through the reduction or elimination of contaminant discharges to the waters of the State, consistent with:

- public health;
- public enjoyment;
- the propagation and protection of fish, shellfish, and wildlife; and
- existing and future beneficial uses.

This purpose is reached, in part, by compliance with the limitations, terms and conditions of the General Permit.

The mosquito control activities that discharge, directly or indirectly, to surface waters shall be required to meet the State water quality standards for Class A and Class AA surface waters as given in chapter 173-201A WAC. The characteristic beneficial uses of Class AA and A surface waters include, but are not limited to, the following:

- domestic, industrial and agricultural water supply;
- stock watering;
- the spawning, rearing, migration and harvesting of fish;
- the spawning, rearing and harvesting of shellfish;
- wildlife habitat;
- recreation (primary contact, sport fishing, boating, aesthetic enjoyment of nature); and
- commerce and navigation.

RCW 90.48.035 authorizes establishment of water quality standards for waters of the State. The State has implemented water quality standards in chapter 173-201A WAC. All waste discharge permits issued pursuant to NPDES or SWD regulations are conditioned in such a manner that all authorized discharges shall meet State water quality standards. Standards include an "antidegradation" policy which states that beneficial uses shall be protected.

Ecology has deemed that, when properly applied and handled in accordance with the terms and conditions of the general permit, mosquito control activities will comply with State water quality standards, will maintain and protect the existing characteristic beneficial uses of the surface waters of the State, and will protect human health. New information regarding previously unknown environmental and human health risks may cause reopening of the general permit.

The short term water quality modification provisions of the permit will allow the discharges authorized by the general permit to cause a temporary diminishment of some beneficial uses while the water body is altered to protect public health and promote public enjoyment and quality of life. The short term modification will be short in that the actual impairment will be short lived, while the overall availability of authorization extends through the term of the permit. The integrated pest management plan to be developed as part of the Permittee's permit coverage satisfies the regulatory requirement for a long term plan that allows short term modifications to extend for five years.

The activities authorized by this general permit do not have a reasonable potential to cause a violation of state water quality standards (WAC 173-201A) so long as the activities are allowed under the short term water quality modification. The water quality modification provides for an exception to meeting certain provisions of the state water quality standards, such as meeting all beneficial uses all the time. Activities covered under this permit are allocated a temporary zone of impact on beneficial uses, but the impact must be transient, and must allow for full restoration of water quality and protection of beneficial uses upon project completion. The conditions of this permit constitute the requirements of a short term water quality modification.

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

Ecology has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

### **SEDIMENT QUALITY**

Ecology has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that Ecology may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

Ecology has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

### **SEPA COMPLIANCE**

Mosquito control activities have undergone numerous environmental impact evaluations. The use of pesticides are conditioned to mitigate environmental impacts of concern noted in these evaluations. The conditions of this permit should satisfy any water quality related SEPA concerns.

### **RECEIVING WATER IDENTIFICATION**

## **Eligibility and Geographical Area of Coverage**

For the purposes of the general permit, the mosquito control activities for which the general permit is valid include surface waters of the entire State. Mosquito control activities are scattered throughout the state. Mosquito Control Districts (MCD) are located in the following counties or areas: Adams County, Benton County, Camano Island, Clark County, Cowlitz County, Curlew (Ferry County), Franklin County, Grant County, Skamania County, Latah, Rosalia, Waverly, Tekoa (Spokane and Whitman County), Leavenworth (Chelan County), Columbia and Touchet-Lowden area (Walla Walla County), and Yakima County. Other areas may be treated by government or private operators.

More MCDs may be formed and more places may be treated by contract or a government entity, especially in urban areas. This could occur rapidly if mosquito-borne diseases begin showing up in the state.

Mosquito control districts and other pesticide applicators are required to be covered by the general permit for the following pre-adult life stage pesticide activities which occur in surface waters of the state:

- 1) Into waterbodies that are contiguous with rivers, creeks, and lakes, or
- 2) Into navigable waters, or
- 3) In other situations as determined by Ecology.

Some mosquito larvacide applications are a low priority because of minimal environmental impact, particularly when compared with the desirability of mosquito control. These situations are derived in part from exclusions to the definition of “waters of the United States” in 33CFR Part 328.3. These include:

- 1) On land which is in agricultural use where the mosquito control is performed in inconsequential areas such as puddles, hoof prints, or intermittent wet areas, where treatment would have little or no environmental impact except to mosquito larvae, or
- 2) In man-made retention or detention ponds for wastewater or stormwater treatment.

These situations are described so that Ecology and the mosquito control industry are not burdened by oversight and permit requirements in situations where a permit would add no additional environmental protection of beneficial uses. Ecology prefers to focus on the more significant water quality threats for permitting as opposed to the less significant ones that won't adversely affect water quality or related habitat. Much of the mosquito control work consists of applying larvacides in seasonal, isolated, and shallow ponds and agricultural land where no fish are present and the larvacide has no impact on wildlife other than mosquitoes.

## **BEST MANAGEMENT PRACTICES**

The industry should continue to examine the possibility of alternatives to reduce the need for aquatic pesticides. Such methods include:

- 1) Applying pesticide only when mosquito larvae are present or expected to develop at a level that will constitute a nuisance or a public health threat.
- 2) Using the least intrusive method of pesticide application.
- 3) All errors in application and spills are reported to the proper authority.
- 4) No spraying of adult mosquitoes over surface waters of the state.
- 5) Informing the public of planned spray activities.
- 6) Public education efforts to reduce potential mosquito breeding habitat.
- 7) Choosing the most appropriate pesticide formulation according the Permittee's Ecology-approved Integrated Pest Management Plan.
- 8) Staff training in the proper application of pesticides and handling of spills.

Labels specify some additional BMPs.

An important goal of the first permit cycle is to reinforce the concept of reduction in pesticide residuals. A reduction in the discharge of pollutants to waters of the State can be achieved by using proper BMPs, which include integrated pest management and alternative pest control procedures.

## **OTHER PERMIT CONDITIONS**

### **MONITORING**

Monitoring requirements for the purposes of this permit are met through annual reporting. There is currently no coordinated monitoring program for mosquito control, but any open accessible treatment areas must be dipped and show larvae present prior to treatment taking place, unless the product is specifically labeled for use prior to flooding, or as a pre-treatment tool.

### **REPORTING AND RECORDKEEPING**

The conditions of Section 8 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090).

### **LAB ACCREDITATION**

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

## **SMALL BUSINESS ECONOMIC IMPACT ANALYSIS**

The general permit requires compliance with federal and state laws and regulations and places no disproportionate burden on small business. The monitoring is met through annual reporting and meeting pesticide label requirements is already required under FIFRA.

## **PERMIT MODIFICATIONS**

Ecology may modify this permit to impose new or modified numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, or Department approved engineering reports. Ecology may also modify this permit as a result of new or amended state or federal regulations.

## **WHEN COVERAGE IS EFFECTIVE**

Unless Ecology either responds in writing to any facility's Application for Coverage or obtains relevant written public comment, coverage under this general permit of such a facility will commence on the later of the following:

- The sixtieth day following receipt by Ecology of a completed and approved Application for Coverage;
- The thirty-first (31<sup>st</sup>) day following the end of a thirty (30) day public comment period; or
- The effective date of the general permit.

If Ecology responds in writing to any facility's Application for Coverage or obtains relevant written public comment, coverage under this general permit of such a facility will not commence until Ecology is satisfied with the results obtained from written correspondence with the individual facility and/or the public commentor.

## **RESPONSIBILITY TO COMPLY WITH OTHER REQUIREMENTS**

Ecology has established, and will enforce, limits and conditions expressed in the general permit for the discharge of wastes containing various pesticides registered for use by the EPA and the Washington State Department of Agriculture. These agencies will enforce the use, storage and disposal requirements expressed on pesticide labels. The Permittee must comply with both the pesticide label requirements and the general permit conditions. The general permit does not supersede or preempt Federal or State label requirements or any other applicable laws and regulations. General permit Condition G15 reminds the Permittee of this fact.

## **GENERAL CONDITIONS**

General Conditions are based directly on State and Federal law and regulations and are included in all aquatic pesticide general permits.

**RECOMMENDATION FOR PERMIT ISSUANCE**

The general permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. Ecology proposes that the general permit be issued for three (3) years.

## APPENDIX A – PUBLIC OPPORTUNITY TO COMMENT

### PUBLIC COMMENT AND INFORMATION

A Public Notice of Draft (PNOD) was published in the State Register on November 1, 2006. Two public hearings on the draft General Permit will be held:

- On December 12, 2006 at the Department of Ecology headquarters in Olympia, and
- On December 13, 2006 in the city of Pasco at Columbia Basin College

A one hour workshop to explain proposed changes and answer questions will be held immediately preceding the hearings.

Interested persons are invited to submit comments regarding the proposed re-issuance of this General Permit. Comments on the general permit may be delivered at the public hearings as either written or oral testimony. Written comments may also be submitted to the Ecology Office at the address below:

Washington State Department of Ecology  
Water Quality Program  
Attention: Kelly McLain, Aquatic Pesticide Permits Manager  
PO Box 7600  
Olympia, WA 98504-7600

All comments must be submitted by 5 p.m. on December 20, 2006 to be considered in the final permit determination. A responsiveness summary will be prepared and available for public review. It will be sent to all parties who submitted comments by the deadline.

The proposed and final general permit, fact sheet, application form, and other related documents are on file and may be inspected and copied from Ecology WebPages:

[http://www.ecy.wa.gov/programs/wq/herbicides/npdes\\_develp.html](http://www.ecy.wa.gov/programs/wq/herbicides/npdes_develp.html) and between the hours of 8:00 a.m. and 4:30 p.m. weekdays at the following Department locations:

Washington State Department of Ecology  
Central Regional Office  
15 West Yakima Avenue, Suite 200  
Yakima, WA 98902 (509) 575-2807  
3515  
TDD (509) 454-7673  
FAX (509) 575-2809  
Contact: Ray Latham

Washington State Department of Ecology  
Eastern Regional Office  
North 4601 Monroe, Suite 202  
Spokane, WA 99205 (509) 329-  
TDD (509) 458-2055  
FAX (509) 456-6175  
Contact: Ken Merrill

Washington State Department of Ecology  
Northwest Regional Office

Washington State Department of Ecology  
Southwest Regional Office

3190 - 160th Ave. SE  
Bellevue, WA 98008-5452  
(425) 649-7288  
TDD (425) 649-4259  
FAX (425)649-7098  
Contact: Tricia Shoblom

PO Box 47775  
Olympia, WA 98504-7775  
(360) 407-7269  
TDD (360) 407-6306  
FAX (360) 407-6305  
Contact: Deborah Cornett

## APPENDIX B -- GLOSSARY

### DEFINITIONS

"**Administrator**" means the administrator of the EPA.

"**Antidegradation Policy**" is as stated in WAC 173-201A-070.

"**Authorized representative**" means:

1. If the entity is a corporation, the president, secretary, treasurer, or a vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operation facilities, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
2. If the entity is a partnership or sole proprietorship, a general partner or proprietor, respectively; and
3. If the entity is a federal, state or local governmental facility, a director or the highest official appointed or designated to oversee the operation and performance of the activities of the government facility, or his/her designee.

The individuals described in paragraphs 1 through 3, above, may designate another authorized representative if the authorization is in writing, the authorization specifies the individual or position responsible, and the written authorization is submitted to Ecology.

"**Best management practices (BMPs)**" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State and their sediments. BMPs also include, but are not limited to, treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"**Certified applicator**" means any individual who is licensed as a commercial pesticide applicator, commercial pesticide operator, public operator, private-commercial applicator, demonstration and research applicator, or certified private applicator, or any other individual who is certified by the director to use or supervise the use of any pesticide which is classified by the EPA or the director as a restricted use pesticide.

"**Code of Federal Regulations (CFR)**" means a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. Environmental regulations are in Title 40.

"**Conveyance**" means a mechanism for transporting water or wastewater from one location to another location including, but not limited to, pipes, ditches, and channels.

**"Department"** means the Washington State Department of Ecology.

**"Detention"** means the collection of water into a temporary storage device with the subsequent release of water either at a rate slower than the collection rate, or after a specified time period has passed since the time of collection.

**"Director"** means the director of the Washington State Department of Ecology or his/her authorized representative.

**"Discharger"** means an owner or operator of any "facility", "operation", or activity subject to regulation under Chapter 90.48 RCW.

**"Effluent limitation"** means any restriction established by the local government, Ecology, and EPA on quantities, rates, and concentrations of chemical, physical, biological, and/or other effluent constituents which are discharged from point sources to any site including, but not limited to, waters of the state.

**"Environmental Protection Agency (EPA)"** means the U.S. Environmental Protection Agency or, where appropriate, the term may also be used as a designation for a duly authorized official of said agency.

**"Erosion"** means the wearing away of the land surface by movements of water, wind, ice, or other agents including, but not limited to, such geological processes as gravitational creep.

**"Existing operation"** means an operation which commenced activities resulting in a discharge, or potential discharge, to waters of the state prior to the effective date of the general permit for which a request for coverage is made.

**"Facility"** means the actual individual premises owned or operated by a "discharger" where process or industrial wastewater is discharged.

**"FWPCA"** means the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), as now or as it may be amended.

**"General permit"** means a permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

**"Ground water"** means any natural occurring water in a saturated zone or stratum beneath the surface or land or a surface water body.

**"Hazardous waste"** means those wastes designated by 40 CFR Part 261, and regulated by the EPA.

**"Individual permit"** means a discharge permit for a single point source or a single facility.

**"New operation"** means an operation which commenced activities which result in a discharge, or a potential discharge, to waters of the state on or after the effective date of an applicable general permit.

**"NPDES"** means the National Pollutant Discharge Elimination System under section 402 of FWPCA.

**"Operation"** is synonymous with "facility".

**"Party"** means an individual, firm, corporation, association, partnership, co-partnership, consortium, company, joint venture, commercial entity, industry, private corporation, port district, special purpose district, irrigation district, trust, estate, unit of local government, state government agency, federal government agency, Indian tribe, or any other legal entity whatsoever, or their legal representatives, agents, or assignee.

**"Permit"** means an authorization, license, or equivalent control document issued by Ecology to implement Chapter 173-200 WAC, Chapter 173-216 WAC and/or Chapter 173-226 WAC.

**"Person"** is synonymous with "party".

**"pH"** means the logarithm of the reciprocal of the mass of hydrogen ions in grams per liter of solution. Neutral water, for example, has a pH value of 7 and a hydrogen-ion concentration of  $10^{-7}$ . pH is a measure of a substance's corrosivity (acidity or alkalinity).

**"Point source"** means any discernible, confined and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

**"Pollutant"** means any substance discharged, if discharged directly, would alter the chemical, physical, thermal, biological, or radiological integrity of the waters of the state, or would be likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare, or to any legitimate beneficial use, or to any animal life, either terrestrial or aquatic. Pollutants include, but are not limited to, the following: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, pH, temperature, TSS, turbidity, color, BOD<sub>5</sub>, TDS, toxicity, odor and industrial, municipal, and agricultural waste.

**"Reasonable times"** means at any time during normal business hours; hours during which production, treatment, or discharge occurs; or times when Ecology suspects occurrence of a violation.

**"Regional administrator"** means the regional administrator of Region X of the EPA or his/her authorized representative.

**"Retention"** means the collection of water into a permanent storage device, with no subsequent release of water.

**"Shall"** is mandatory.

**"Significant"** is synonymous with "substantial".

**"Site"** means the land or water area where any "facility", "operation", or "activity" is physically located or conducted, including any adjacent land used in connection with such facility, operation, or activity. "Site" also means the land or water area receiving any effluent discharged from any facility, operation, or activity.

**"State"** means the State of Washington.

**"Substantial"** means any difference in any parameter including, but not limited to, the following: monitoring result, process characteristic, permit term or condition; which Ecology considers to be of significant importance, value, degree, amount, or extent.

**"Surface waters of the state"** means all waters defined as "waters of the United States" in 40 CFR 122.2 within the geographic boundaries of the state of Washington. This includes lakes, rivers, ponds, streams, inland waters, salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**"Toxic amounts"** means any amount, i.e., concentration or volume, of a pollutant which causes, or could potentially cause, the death of, or injury to, fish, animals, vegetation or other desirable resources of the state, or otherwise causes, or could potentially cause, a reduction in the quality of the state's waters below the standards set by Ecology or, if no standards have been set, causes significant degradation of water quality, thereby damaging the same.

**"Toxics"** means those substances listed in the federal priority pollutant list and any other pollutant or combination of pollutants listed as toxic in regulations promulgated by the EPA under section 307 of the FWPCA (33 U.S.C. 1317 et seq.), or Ecology under Chapter 173-200 WAC, Chapter 173-201A WAC, or Chapter 173-204 WAC.

**"Unirrigated"** means any lands having not been irrigated within 10 days prior to, or within 60 days after the application of any wastestream.

**"Waters of the state"** means all waters defined as "surface waters of the state" and all waters defined as "waters of the state" in RCW 90.40.020.

**"Water quality"** means the chemical, physical, biological characteristics of water, usually in respect to its suitability for a particular purpose.

**"Water quality standards"** means the state of Washington's water quality standards for ground waters of the state (Chapter 173-200 WAC) and the state of Washington's water quality standards for surface waters of the state (Chapter 173-201A WAC).

**In the absence of other definitions as set forth herein, the definitions as set forth in 40 CFR Part 403.3 shall be used for circumstances concerning the discharge of wastes.**

**AQUATIC MOSQUITO CONTROL GENERAL PERMIT**

**FACT SHEET  
APPENDIX C – RESPONSE TO COMMENTS**

National Pollutant Discharge Elimination System (NPDES) and  
State Waste Discharge General Permit

March 7, 2007

## **Introduction**

The Department of Ecology (Ecology) published the draft Aquatic Mosquito Control General Permit on November 1, 2006 for public comment. The public comment period ended at 5:00pm on Wednesday, December 20, 2006. During the comment period, Ecology conducted two public hearings to provide background on the permit and take oral testimony. Ecology also took public comment via letter and email.

Ecology considered all the comments in preparing the final permit. This Response to Comments documents Ecology's response to each commenter. The document is divided into four sections: General Comments, Specific Comments, Comments on the Fact Sheet, and Testimony Comments. This document becomes part of the permanent administrative record of issuance of the Aquatic Mosquito Control General Permit.

Written comments were received on the draft permit from the following individuals or organizations:

1. Seattle Public Utilities
2. Benton County Mosquito Control District #1
3. Grant County Mosquito Control District #1
4. Washington State Department of Fish and Wildlife
5. Washington State Department of Transportation
6. Snohomish County

Oral testimony was received from the following individuals at the public hearings; a transcript is available from Ecology upon request.

### **December 13, 2006 Hearing in Pasco, Washington**

1. Jim Thompson, Grant County Mosquito Control District #1
2. Ben Hamilton, Washington Department of Health
3. Kevin Shoemaker, Benton County Mosquito Control District #1

## **Comments**

### **General Comments on the Draft Permit**

Commenter #6 requests that in light on the new EPA rule on aquatic pesticides and the Clean Water Act, Ecology eliminate the need for both NPDES and state waste discharge permits when performing mosquito control activities.

**Response:** Ecology reviewed the final rule issued by EPA on November 21, 2006, regarding EPA's interpretation that NPDES permits are not required for aquatic pesticide applications. This rule has now been appealed by both environmental groups and industry representatives. Cases are pending in 11 of the nation's 12 federal circuit courts eligible to hear regulatory issues.

EPA specifically states that a pesticide applied in accordance with the FIFRA label is not a point source; therefore it cannot be regulated under the Clean Water Act. They do note, however, that there is most likely residue from these types of pesticide applications. The rule states that these residues are no longer point source pollutants, and Clean Water Act permitting is not required.

A pesticide applied to the water according to state law is a form of pollution. To apply a pesticide in the water, state law requires that the applicator obtain a short-term modification of the water quality standards from Ecology. Currently, the only legal vehicle for implementing that modification is a permit. State law only defines two types of permits for surface water discharges – National Pollutant Discharge Elimination System (federal) and State Waste Discharge (state). Until 2001, Ecology issued modifications using an administrative order. This process was challenged in court and is not a viable regulatory option at this time. State law does not distinguish between point source and non-point sources of pollution. Washington State law requires that any substance put into the water that has the potential to alter the chemical, physical, or biological characteristics of a water body must obtain a permit prior to discharge.

At this time, Ecology has determined that the best interests of the public and the environment are served by continuing to issue permits for mosquito control activities. These permits help the state protect human health and the environment by:

- Ensuring pesticides with the lowest risk are used.
- Reducing amounts of pesticides applied.
- Tracking pesticide use.
- Requiring public notifications and postings when waters are treated.
- Monitoring levels of pesticides in the water after treatment.

Commenters #2 and #3 request that the current NPDES and state waste discharge permit be changed into a state waste discharge permit only.

**Response:** At this time, Ecology has decided to reissue this permit as a joint NPDES and state waste discharge general permit. Ecology will continue to watch the pending court cases related to the final rule issued by EPA on the use of aquatic pesticides.

Commenter #2 requests that Ecology use some sort of tracking system for various drafts permits during the permit development process. They have seen problems in the past with new drafts coming out, and no indications of what, if anything, was changed or modified.

**Response:** This comment refers to internal drafts of the permits that are provided to the external stakeholder group as a courtesy during the process. Each individual permit writer usually has their own tracking system for changes from one draft to another.

Commenter #2 requests that Ecology provide a list of the “residues or unintended effects” when *Bacillus thuringensis israelensis*, *Bacillus sphaericus*, or methoprene are applied according to the FIFRA label.

**Response:** The court cases and EPA have both used the terms “residues and unintended effects” without defining them, leaving Ecology in a place of uncertainty. At this time, Ecology does not intend to define residue or unintended effect. Ecology recognizes that there are residues and unintended effects when *Bacillus thuringensis israelensis*, *Bacillus sphaericus*, or methoprene are applied to water of the state.

Commenter #4 (WDFW) has concerns about the use of methoprene in areas where state candidate or listed threatened or endangered species are found. WDFW requests that the restrictions on methoprene use in these areas be carried over from the expiring permit. They also request that if an emergency health declaration allows for methoprene use in these sensitive areas, the following BMP’s be added to minimize its potential effects:

- Applicators will consult with WDFW (Regional Wildlife Program Manager) during annual pre control season planning and as needed in-season when anticipating methoprene application in restricted areas to affirm/update areas and define any areas of highest sensitivity.
- Applicator will use BMP’s to minimize potential impacts and unnecessary entry of methoprene into waters in restricted areas. (e.g. control to the extent possible with Bti before using methoprene; use drift control methods, minimize application rates, use backpack application in areas of highest sensitivity, etc.)

**Response:** Ecology agrees and has added language to reflect the requests of WDFW.

## **Specific Permit Comments on the Draft Permit**

### **Condition S1. Permit Coverage**

Commenter #6 requests that Ecology delete Condition S1.A.3 from the permit because it is unreasonably vague and unenforceable. If not deleted, they request that Ecology at least modify the condition to include parameters or criteria that Ecology would consider when determining what “other situations” may require coverage under the permit.

**Response:** Ecology choose to include the statement “and other situations as approved by Ecology” because there may be extenuating circumstances not thought of at this time that would warrant permit coverage in the future. The permit language remains the same.

Commenter #1 requests clarification of the language in S1.B2 as it relates to larviciding ponds covered under already existing NPDES permits.

**Response:** Ecology has removed S1.B.2 as it relates to larviciding man-made stormwater or wastewater detention or retention ponds covered by other NPDES permits. The main reason for removing this condition was the inclusion of a short-term modification of the water quality standards. The mosquito permit contains this modification, but the municipal stormwater permits do not contain this same language. There could possibly be legal issues if larvicides were applied without this modification language.

### **S3. Compliance with Standards**

Commenter #6 requests that the language in S3 be rewritten to include language consistent with the language addressing short-term modifications in the Fact Sheet (pages 17-18).

**Response:** Ecology does not believe that these two sections are drastically different. The language in the Fact Sheet explains in detail Ecology’s legal basis for permit decisions. The short-term modification language included in the permit is the same as that found in other aquatic pesticide NPDES permits. This permit language has been challenged and upheld by the courts.

Commenter #6 requests that the sentence in S3.A.3 stating that the “application of products authorized under this permit shall not cause long-term harm to the environment” be deleted.

**Response:** One purpose of the permit is to protect the environment. Condition S3.A.3 helps fulfill that purpose.

### **S4. Restrictions on the Application of Products**

Commenter #2 requests clarification on S4.B.e.2, and the requirements for consulting with WDFW. Specifically, is this a one time consultation or repeating event? How long does WDFW have to respond? Can sites be pre-approved? Would it be acceptable for WDFW to provide a list of sites where Paraffinic white mineral oil cannot be used and all other sites would be allowed? They also request the addition of an exemption from consultation for sites that are known to not have fish or are obviously uninhabitable for fish.

**Response:** This consultation is intended to be a one time consultation between the permittee and WDFW. There has been no conversation with WDFW regarding

the length of time they have to respond, or about the possibility of developing a list of sites where Paraffinic white mineral oil cannot be used. The language in S4.B.e.2 remains unchanged.

Commenter #1 suggests adding a semi-colon at the end of the sentence in S4.C.3 and adding “coverage under this General Permit is not required.”

**Response:** Ecology agrees and has made these changes to S4.C.3.

#### **S5. Public Notification Procedures**

Commenter #6 requests that S5 “Public Notice” include an exemption from notice requirements in the event of a declared public emergency or public health threat.

**Response:** Ecology agrees and has added language to S5 addressing this issue.

Commenter #6 states that a sentence should be added up front to S5 explaining that it only applies to the use of products with water-use restrictions.

**Response:** Ecology agrees and has added a sentence addressing this issue.

Commenter #1 suggests rewriting S5.A.3 to read “The Permittee shall continue notification to the public regarding mosquito control activities throughout the treatment season if pesticide applications occur. After the initial newspaper notice, notification may include methods other than notices in the newspaper, such as website postings, mailings, or other measures.”

**Response:** Ecology agrees and has modified the language in S5.A.3 to match this.

Commenter #6 requests that S5.A.3 be revised to read “The Permittee shall continue to notify the public regarding mosquito control activities throughout the treatment season if additional pesticide applications occur...”

**Response:** Ecology agrees to this language change and has changed the permit to reflect that.

#### **S8. Reporting and Recordkeeping Requirements**

Commenter #1 suggests changing the language in S8.A. from “City of Tacoma storm drain” to “City of Tacoma storm drain system.” This would make it clear that Ecology does not require submittal of individual larvicide amounts for each catch basin, but instead requires total amounts used in all catch basins.

**Response:** Ecology agrees and has modified the language as suggested.

#### **S9. Best Management Practices/Integrated Pest Management**

Commenter #6 requests that S9.A contain a reference to the compliance schedule for Integrated Pest Management Plan approval found in S10.

**Response:** Ecology agrees and has added language to make the connection between these sections.

Commenter #1 suggests replacing “evaluate” with “consider use of” in S9.A.2.

**Response:** Ecology disagrees, believing that “evaluate” and “consider use of” have different connotations in this instance. The language in S9.A.2 remains the same. Ecology believes an evaluation is necessary because each of these chemicals work slightly differently in the environment. Each one should be evaluated for potential use in a specific area of the state.

Commenter #1 suggests adding “as necessary” at the end of the sentence in S9.A.3.

**Response:** Ecology agrees and has added the suggested language to S9.A.3.

S9.B. Commenter #5 suggests that “Open Accessible Areas” be rewritten to read, “During a mosquito season if larvae are found in an open accessible area and the site is treated, continued pre-emptive larviciding should be allowed without dipping for the remainder of that year.”

**Response:** Ecology has changed the language in S9.B.

Commenter #1 requests that Ecology be more specific in S9.B.1 about the number of larvae needed in three dips prior to pesticide application.

**Response:** Ecology agrees and has added the words “at least one” in front of larvae/pupae in S9.B.1.

Commenter #6 states that for consistency, S9.C should refer back to Special Condition S1.B.2 that excludes from permit coverage man-made detention ponds for wastewater or stormwater treatment or control where those ponds are covered by a separate individual or general NPDES permit. This would include catch basins, storm drains, and vaults.

**Response:** Ecology has removed the previous permit language exempting pesticide applications to man-made stormwater or waste water detention or retention ponds covered under other NPDES permits from needing this permit. The main reason for removing this condition was the inclusion of a short-term modification of the water quality standards. The mosquito permit contains this modification, but the municipal stormwater permits do not contain this same language. There could possibly be legal issues if larvicides were applied without this modification language.

Commenter #1 requests that the language in S9.C.5 be changed to state that “A public health emergency is declared.”

**Response:** Ecology agrees and has changed S9.C.5 to reflect the comment above.

### **S10. Compliance Schedule**

Commenter #1 requests that language be added to S10 allowing for pesticide application when an Integrated Pest Management (IPM) plan has been resubmitted to Ecology for approval.

**Response:** Ecology agrees and has added the following sentence: “If Ecology requires the Permittee to resubmit the IPMP, and the planned treatment season has started, treatments may occur during the review period.”

### **S11. Conditional Approval for the use of Products**

Commenter #1 suggests deleting “all available” in S11.A.2.b.v and adding the sentence: “Every effort should be made to include a broad range of available information.”

**Response:** Ecology disagrees and the language in this section remains unchanged. It is the intent of any risk assessment to include all available scientific information on the chemical. The intent of this language in the permit is that every effort will be made to include any available information. Changing the permit to read as suggested could allow for the selective inclusion of data, which defeats the entire purpose of the project.

### **S12. Appendix**

Commenter #6 states that S12 should not say Appendices but Appendix.

**Response:** Ecology added a second appendix; therefore the comment no longer applies.

Commenter #1 suggests that Appendix A, definition of “range” be changed to read “A specific series of dates that anticipates the months of planned treatment.”

**Response:** Ecology agrees and has made the suggested change.

### **General Condition Comments**

Commenter #6 requests that “or sponsor’s” be deleted from G3.A.

**Response:** Ecology left this language in because in certain circumstances, private commercial pesticide applicators are contracted to do work on someone else’s property under this general permit. This gives Ecology access to the property of the “sponsor” of the treatment if necessary.

Commenter #1 would like G4 to read “The Permittee shall submit a Change in Activities form to Ecology when a project activity changes significantly from activities described in the Permittee’s permit application.”

**Response:** Comment noted.

Commenter #6 requests that Condition G13 be deleted from this permit.

**Response:** Federal law requires Condition G13 be included in the permit.

### **Comments on Fact Sheet**

Commenter #1 requests that Ecology update the third paragraph of page 5 to reflect the issuance of the EPA rule on aquatic pesticides.

**Response:** Ecology has added an addendum regarding the issuance of the EPA rule, and Ecology’s current position.

### Page 10, Integrated Pest Management

Commenter #1 requests that the first sentence be edited to read: “Mosquito control activities can be important to protect public health. Historically, mosquito and vector control districts, and some state and local governments and health departments nationwide have engaged in or helped to coordinate mosquito control activities.”

**Response:** Ecology does not make changes to the fact sheet after the permit has been sent out for public comment.

### Page 20, Monitoring

Commenter #1 notes that this section does not reflect the exemptions from dipping open accessible areas. Suggest rewriting the sentence as follows: “There is currently no coordinated monitoring program for mosquito control but any open accessible treatment areas must be dipped and show larvae present prior to treatment taking place. Permittees are only exempted from this dipping requirement if they have implemented an Ecology-approved large site sampling protocol, the site is located in or adjacent to a county in which disease cases are suspected or confirmed within the current treatment season, or they are using a product specifically labeled for use prior to flooding, or as a pre-treatment tool.”

**Response:** Ecology does not make changes to the fact sheet after the permit has been sent out for public comment.

### Page 21, Responsibility to Comply with other Requirements

There appears to be a typo in the last sentence. “G15” should read “G11.”

(Commenter #1)

**Response:** Ecology does not make changes to the fact sheet after the permit has been sent out for public comment.

Page 22, Recommendation for Permit Issuance

In consideration of administrative workload and cost-effectiveness, we recommend a five-year permit term as opposed to the proposed reduction to a three-year term. The permit provides a generous allowance for the state to modify the permit if developments warrant such action. (Commenter #1)

**Response:** Ecology is choosing to issue this permit on a three-year term rather than a five-year term in order to stagger the reissuance schedule of the general aquatic pesticide permits. Because the original permits were issued in 2002, they are currently set to expire at the same time every five years. By issuing this permit for three years rather than five, it makes it easier for Ecology to reissue the permits on time with current resources.

## Oral Testimony

### Testimony From Public Hearing in Pasco, Washington

Jim Thompson, Grant County Mosquito Control District. I think that we should forgo the NPDES permits and go to a state permit.

**Response:** At this time, Ecology has decided to reissue this permit as a joint NPDES and state waste discharge general permit. Ecology will continue to watch the pending court cases related to the final rule issued by EPA on the use of aquatic pesticides.

This is Ben Hamilton of the Washington State Department of Health. I'm assuming that we're still going to be operating either under a NPDES or a state permit. I'm hoping that if the Department of Health continues to be involved with permitting that we can try to streamline the application process for potential permittees. I hope that we can create a more user-friendly application system. This would make it easier for the users to apply and to report their annual records.

**Response:** Ecology has developed a new online application and reporting system, which is more user-friendly and complies with the new streamlined permit requirements.

Kevin Shoemaker, Benton County Mosquito Control. I would like to request that the wording for the posting requirements under section S.5 public notification procedures that was previously in draft two be added back in that reads quote "bodies that are used for water supply, fish, and shellfish harvesting or water contact activities" end quote.

**Response:** Ecology agrees and this language was added to the permit.