The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, MA 02202

ARGEO PAUL CELLUCCI
GOVERNOR
TRUDY COXE
SECRETARY

Tel: (617) 727-9800
Fax: (617) 727-2754
http://www.magnet.state.ma.us/envir

December 18, 1998

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
GENERIC ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: Mosquito Control Program
PROJECT MUNICIPALITY	: Statewide
PROJECT WATERSHED	: Statewide
EOEA NUMBER	: 5027
PROJECT PROPONENT	: State Reclamation and Mosquito Control Board
DATE NOTICED IN MONITOR	: October 25, 1998

As the Secretary of Environmental Affairs, I hereby determine that the Generic Environmental Impact Report (EIR) submitted on this project adequately and properly complies with the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62H) and with its implementing regulations (301 CMR 11.00).

On September 23, 1996 the Secretary of Environmental Affairs issued a Certificate on a Notice of Project Change filed by the State Reclamation and Mosquito Control Board (SRMCB)[1] requiring that a Generic Environmental Impact Report (GEIR) be completed for mosquito control in the Commonwealth. The Certificate contained an extremely detailed scope for the GEIR, developed in coordination with SRMCB. This GEIR, by responding to all of the items in that scope, provides an extremely useful summary of current data, practices, and standards for mosquito control statewide. In particular, the GEIR establishes that Open Marsh Water Management (OMWM) shall serve as the preferred practice for physical controls in salt marshes. The GEIR also highlights certain areas in which further research will be necessary, and it

---

[1] - The State Reclamation and Mosquito Control Board (SRMCB) is comprised of one representative each from the Departments of Environmental Management, Environmental Protection and Food and Agriculture.

proposes a system of annual updates, offering continued opportunities for review and comment on new information and proposals.

Introduction

The SRMCB oversees nine organized mosquito control projects (Berkshire County, Bristol County, Cape Cod, Central Massachusetts, East Middlesex County Norfolk County, Plymouth County, Suffolk County and the North East Massachusetts Mosquito Control and Wetlands Management District) and appoints the Board of Commissioners for each project. These mosquito control projects have a total of 157 participating communities, primarily coastal. Thus, the focus of the GEIR and this Certificate are primarily upon salt marshes and their attendant pest mosquito problems. The remaining nonparticipating communities, mostly located in the central portion of the state, either practice no mosquito control, hire private contractors or have their own community-based mosquito control operations (e.g., the local public works department or health board).

The intent of the GEIR was to gather, in a single document, information on methods of mosquito control and eradication in Massachusetts, and the environmental impacts of those methods. The GEIR has accomplished the goal of disseminating information on current mosquito control practices, and it has established the basis for viewing OMWM as the preferred control technique in salt water marshes. Comments received from the Department of Environmental Protection (DEP) and the Division of Fisheries and Wildlife (DF&W), in particular, will provide a good basis for future GEIR updates.

However, the GEIR falls short of the ambitious goal of providing the basis for all future mosquito control projects implemented by the County Mosquito Control Projects. The SRMCB and the GEIR acknowledge that additional study and research work is necessary to truly document the effectiveness of mosquito control techniques and their impact on the environment,

particularly as they relate to freshwater projects. The report concludes that it will take a renewed and concerted effort, involving additional resources, to complete a mosquito control program "master guidance document" that best serves the public and protects the environment. To that end, the SRMCB plans to update the GEIR on a yearly basis as new ideas and approaches to mosquito control become known.

Saltwater Marsh Regulatory Issues and MEPA

Established mosquito control projects are generally exempt from the Massachusetts Wetlands Protection Act (MWPA). However, Section 401 of the Federal Clean Water Act requires applicants wishing to discharge dredged of fill materials to obtain a certification or waiver from their state water pollution control agency. A Section 401 water quality certification is treated as a state permit for the purposes of establishing MEPA jurisdiction. Therefore, for projects involving new ditching such as that required for Open Marsh Water Management (OMWM), the MC proponent has been obliged to file an Environmental Notification Form (ENF) for projects affecting at least 1,000 square feet (sf) of saltmarsh or 5,000 sf of bordering vegetated wetlands (BVW). The MEPA regulations require the filing of an Environmental Impact Report (EIR) for any particular work site that might require the alteration of one or more acres of saltmarsh or BVW.

In November 1995 the then-Essex County Mosquito Control Project (now the Northeast Massachusetts Mosquito Control and Wetlands Management District) filed an ENF requesting a waiver from the EIR requirement (EOEA #10567). Based on a number of "findings and conditions" discussed below, a waiver from the EIR requirement was granted in February 1996. The most significant of those findings was that the Essex County Mosquito Control Project established "Standards for Open Marsh Water Management" which were endorsed by the Environmental Protection Agency, the National Marine Fisheries Service, the Massachusetts Audubon Society and others. These standards are widely viewed as the

least harmful to the environment (of the various control techniques) and most efficient non-pesticidal method for controlling saltmarsh mosquitoes. The proponent also committed to conduct a review of ten years of OMWM in Essex County to provide a basis for comparison and evaluation of mosquito control effectiveness and impact to the environment. It is generally recognized that the principal concern associated with OMWM arises from the disposal of the dredge material on the marsh and the potential for invasion of upland plants (particularly Phragmites sp.) that can occur with even slight elevation increases (i.e., 1-2 inches).

Open marsh water management (OMWM) projects are now underway in Essex (EOEA #10567), Norfolk, and Plymouth counties and are being expanded to include all problem marshes in those counties. The need to convert grid ditch systems is likely to continue and the saltmarsh alterations will likely exceed the one acre EIR threshold at several locations. Based on the success of OMWM, the establishment of "Standards for Open Marsh Water Management," the conclusions of this GEIR, and the commitment to continue to monitor the effectiveness of OMWM on the control of mosquitos and its impact on the environment, I am proposing, in a forthcoming issue of the Environmental Monitor, to publish a Draft Record of Decision that would modify the ENF and EIR thresholds for OMWM projects[2], subject, at a minimum, to the following standards and conditions:

---

2 - The MEPA regulations at Section 11.01 (2)(b)(3) under "Review Thresholds" state, in part, that [t]he review thresholds do not apply to... "a project that is consistent with a Special Review Procedure review document, or other plan or document that has been prepared with the express purpose of assessing the potential environmental impacts from future Projects, has been reviewed under or approved by any Participating Agency, unless the filing of an ENF and an EIR was required by a decision of the Secretary on any such review document, plan or document."

* That the Northeast Massachusetts Mosquito Control and Wetlands Management District - "Standards for Open Marsh Water Management" be used as the statewide standard for OMWM projects.

* That the saltmarsh be inventoried for the presence of rare and endangered species as determined by the Natural Heritage and Endangered Species Program (NHESP) habitat maps. If a project falls within such an area, NHESP will then determine if the area to be altered is an actual wetland habitat for rare species.

* Compliance with Section 401 of the Federal Clean Water Act and Federal Coastal Zone Consistency.

* Improved record keeping with respect to treatment location, type, efficacy and post treatment monitoring. For example, there are old ditches which still effectively control mosquitoes therefore their effectiveness should be monitored prior to going ahead with OMWM.

MC Projects Impact on Freshwater Wetlands

Freshwater wetlands are the dominant system in which freshwater physical control take place. Typically, this work consists of maintaining (i.e., removing blockages from previously ditched areas) existing ditches designed to remove standing water from the wetland. Though reducing standing water reduces mosquito breeding, there has been little research concerning the overall effects of these alterations on the modified wetland. Therefore, increased efforts are necessary to examine the environmental effects of draining surface water from wetlands.

As stated above, most of the freshwater mosquito control projects are geared to removal of blockages, be they natural or influenced by man, in wetland areas earlier identified as significant mosquito breeding habitats. These projects usually are classified as maintenance projects and are therefore exempt from MEPA review pursuant to Section 11.01 (2)(b)(3). However, there is a significant amount of work that needs to be completed

in order to determine whether such work is cost effective, and whether a specific alternative is the one least damaging to the environment. As the report acknowledges there has been no study to date of the costs and benefits of Massachusetts mosquito control programs. However, this work has been done in other states, most notably New Jersey, which should be helpful in answering the following questions raised in the GEIR:

1) Establishing substantive human annoyance thresholds[3];
2) Documenting how human activity patterns relate to Human Annoyance Thresholds (HAT) and economic factors;
3) Determining the cost/benefit of control; and,
4) Correlating densities of immature mosquito (i.e., larvae) with future levels of biting annoyance.

These issues should be addressed and reported on in future GEIR updates. EOEA is prepared to help in this regard.

Standards for Freshwater Wetland Physical Control

The GEIR indicates that the SRMCB still needs to determine the appropriate control measure standards for MC projects in freshwater wetlands (described in the report as Upland Water Management operational procedures). These standards will need to

---

3 - The current provocations for execution of mosquito control techniques are generally as follows:

1. Larval Populations - by dip count (up to 20 per sampling area) and based on the population #s/10 or 5 dips then a decision is made to either use a pesticide or water management strategy.

2. Adult Populations - No adulticiding is to take place at a regularly scheduled or prescribed time or place. Instead spraying is done based on annoyances, such as five bites per night; more than one landing per minute; or two complainant calls per square mile of area.

be coordinated with the DEP's Stormwater Policy Handbook and Stormwater Technical Handbook. In addition, many physical control projects lack adequate records, both with respect to the justification of a specific project, and with respect to site plans. Therefore, the SRMCB should work toward requiring better record keeping and notification practices, as discussed in the DEP comment (and the Coastal Zone Management letter for salt marsh alterations).

Integrated Pest Management (IPM)

The GEIR indicates that the strengths of the Massachusetts mosquito control IPM include the availability of and willingness to use least-toxic materials and willingness of existing control programs to try new strategies. In addition, a successful IPM program requires strong control programs and good pretreatment monitoring. The weaknesses of the IPM have been linked to a lack of funds for research and implementation and a lack of basic ecological data on the effects of control strategies in use or being planned.

I do note that all of the pesticides (larvicides and pesticides) used by MC projects have been approved by and are registered with the US Environmental Protection Agency. Given the rigorous process to gain market approval for a pesticide as well as the evolving nature of pesticide development, I agree with the conclusions of the GEIR that, for now, advances in reducing the risk of chemical use must come from improved targeting and increased use of water management and/or biological control techniques as encouraged by the IPM technique.

Eastern Equine Encephalitis (EEE)

The Massachusetts Department of Public Health (DPH) is responsible for surveillance for EEE Virus, risk assessment, public information and education on EEE disease. DPH is also responsible for recommendations for wide aerial vector control interventions. DPH published its "Vector Control Plan to Prevent

Eastern (Equine) Encephalitis" on (August 7, 1991). That protocol will govern when the next EEE outbreak occurs. The DPH has also developed a monitoring program that should bring EEE into the IPM framework. I urge that this work continue in order to avoid the adversity that accompanied the 1990 aerial spraying.

GEIR Recommendations and Conclusions

In addition to the issues discussed above, GEIR updates should emphasize how MC programs will incorporate the IPM strategy of keeping human annoyance below specified thresholds. Standards for control methodology should favor source reduction (e.g., OMWM in salt marshes) whenever possible, and employ larvicide control only when source reduction is not effective. Projects should work closely with the DEP water quality certification program and the NHESP to improve notices and documentation, and to minimize negative impacts of source reduction.

It is clear that the SRMCB and the MC projects have a good handle on their data and research needs. The stumbling block to successful completion of the analysis appears to be primarily fiscal in nature. I am pleased with the SRMCB's commitment to provide yearly updates, and I expect that issues brought forward in this Certificate, as well as the comments from the DEP and DF&W, will be addressed in the first yearly update. The SMRCB should meet with MEPA prior to finalizing the content of the GEIR update.

December 18, 1998
Date

Jan H. Reitsma

Comments received:
Massachusetts Division of Fisheries & Wildlife (11/13/98)
Boston water and sewer Commission (11/23/98)
Massachusetts Coastal Zone Management (11/24/98)
Edward S. Syrjala (11/24/98)
Massachusetts Audubon Society (11/25/98)
City of Boston Environmental Department (11/30/98)
Massachusetts Department of Environmental Protection (12/10/98)

TC/DEV/dv