



*Suffolk County Vector Control & Wetlands  
Management Long Term Plan  
& Environmental Impact Statement*

**TASK 12: EARLY ACTION PROJECTS CAGED  
FISH EXPERIMENT**

**AIR CONCENTRATION MEASUREMENTS**

*Submitted to:*

**Suffolk County Department of Public Works  
Suffolk County Department of Health Services  
Suffolk County, New York**

*Submitted by:*

**CASHIN ASSOCIATES, P.C.  
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*July 2005*

**SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT  
LONG - TERM PLAN AND ENVIRONMENTAL IMPACT STATEMENT**

**PROJECT SPONSOR**

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This report was prepared by RTP Environmental, and was reviewed and edited by Cashin Associates, P.C. (CA).

**LIST OF ABBREVIATIONS AND ACRONYMS**

PBO	Piperonyl butoxide
PEHL	Public and Environmental Health Laboratory
RTP	RTP Environmental Associates, Inc.
SCDHS	Suffolk County Department of Health Services

Suffolk County (Department of Health Services [SCDHS], and the Department of Health Services Public and Environmental Health Laboratory [PEHL]) in conjunction with RTP Environmental Associates, Inc. (RTP) measured ambient air concentrations at one location in the vicinity of the Mastic-Shirley caged fish location during the August 18, 2004 aerial spray event. RTP recommended the collection of air concentration data to assist in model verification and calibration.

RTP requested sample media from the PEHL acceptable for measuring resmethrin and piperonyl butoxide (PBO) in ambient air. Resmethrin (18 percent) and PBO (54 percent) are the active ingredients of Scourge, which was used as the adulticide for this event. The PEHL provided the media, sample volumes, flow calibrations and analyses for all collected samples. Separate collection tubes were provided for pesticides (resmethrin) and organic compounds (PBO). Sample flow rates were maximized in an attempt to improve detection limits. Due to laboratory limitations, only two sets of media, one for organic compounds and one for pesticides, were available for use on August 18. Samplers were positioned next to the downwind meteorological tower near the caged organisms location. Each of the two sample sets ran for a total of 60 minutes. The meteorological conditions during the 8 to 10 PM test included winds from the southwest averaging five to 15 mph. The sample inlet was positioned approximately two feet above ground level. The media was collected at the end of the first and second hour and packaged for transport to the PEHL by SCDHS staff.

The measured air concentrations, as analyzed by the PEHL, were below instrument minimum detection limits for both resmethrin and PBO in both sample pairs. The detection limit was fixed at  $6 \mu\text{g}/\text{m}^3$  by the laboratory for resmethrin and PBO.

RTP used a combination of USEPA – approved air dispersion models to simulate the release and transport of pesticides. The AGDISP model was used to predict the release of the pesticide from the helicopter and then tracked the plume until ambient atmospheric conditions predominate. At this point, the solution is transferred to the ISCST3 dispersion model to predict impacts in the far field. It should be understood that no chemical or physical degradation of the pesticides were accounted for, and some physical properties such as impingement on trees or buildings were also discounted. This means that the simulations are conservative, and will tend to overestimate the actual concentrations that might affect receptors.

The model estimate of the average PBO air concentration during the spray event at the air concentration sampler location was 1.99 micrograms per cubic meter. Actual sample results were at or below the detection limit of 6.0 micrograms per cubic meter. Thus, model predictions were partially verified in that analytical data suggest the concentration was less than 6.0 micrograms per cubic meter.