New York State Department of Environmental Conservation

Division of Solid & Hazardous Materials

FINAL ANNUAL REPORT FOR NEW YORK STATE PESTICIDE SALES AND APPLICATIONS 1997

ACKNOWLEDGMENTS

The Department wishes to acknowledge the cooperation and assistance of the following institutions in the preparation and development of this Annual Report:

Cornell University
Suffolk County Department of Health
United States Geological Survey
New York State Water Resources Institute

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I. Introduction

This first Annual Report is submitted pursuant to the Environmental Conservation Law ("ECL") §33-1201(2), which requires the Department of Environmental Conservation (DEC) Commissioner to ". . .prepare an annual report summarizing pesticide sales, quantity of pesticides used, category of applicator and region of application. . . " "The report will be submitted to the governor, the temporary president of the senate and the speaker of the assembly. . . " "The first report will be submitted on July first, nineteen hundred ninety-eight and July first annually thereafter." See Appendix A. As required, the Department, in conjunction with Cornell University, herein summarizes for calendar year 1997 pesticide sales, the quantity of pesticides used, the category of applicator and region of application. This information is provided in the Data Summaries by county and zip code.

As required by law, this report excludes the name, address, or any other information that would otherwise identify a commercial or private applicator, any person who sells or offers for sale restricted use or general use pesticides to a private applicator, or any person who received the services of a commercial applicator.

The Pesticide Reporting Law was an effort partially driven by the desire to evaluate possible links between pesticide use and breast cancer. Both houses of the Legislature passed the Law unanimously and it was signed into law by Governor George E. Pataki on July 8, 1996, becoming effective on January 1, 1997. The Pesticide Reporting Law provides information to help researchers evaluate potential health risks from the use of pesticides. The information notifies communities about the applications and sales of pesticides in their locale. The Pesticide Reporting Law also established the Health Research Science Board to support and fund cancer research. The Public Health Law provisions were subsequently amended to include prostate and testicular cancer research and education.

II. Development and Implementation of the Pesticide Reporting Law, July 1996 - May 31, 1998

A. Department Staffing, Training and Guidance

The pesticide reporting program was provided with a $2.1 million budget for State Fiscal Year 1997-1998. The Department developed an initial fiscal plan for this budget and refined the fiscal plan as the program developed. To implement the program, 21 positions were created and filled. Eleven of these positions were placed in the Central Office in Albany, to handle program start-up and implementation. The remaining ten were geographically dispersed to regions across the state to provide direct assistance to the regulated community in meeting the requirements of this new Law.

During this first year of implementation, the Department, to enhance consistent statewide program delivery, developed and provided information on the Law's compliance issues to regional Department employees. As implementation issues were encountered, additional information was provided throughout the year to Department employees. Central Office staff also developed and provided regional Pesticide Control Specialists with outreach material to use during public presentations.

B. Reporting Form Design and Distribution

A Task Force composed of members representing a broad spectrum of the regulated community was established to provide input to the Department on the development of pesticide reporting forms. Task Force discussions resulted in several iterations of a reporting form being developed and circulated before finalization of the forms that were used. The final forms were developed to optimally consider the diverse needs of the regulated community and the mandated reporting requirements. Approximately 30,000 reporting forms were mailed in January 1997 to every New York State certified commercial applicator, registered pesticide business and commercial permit holder. Appendix B contains the forms for reporting pesticide use and sales for calendar year 1997 and Appendix C contains reporting forms for 1998.

C. Public Outreach and Education

The State Legislature passed the Pesticide Reporting Law with a requirement for prompt implementation. To assure the highest level of compliance possible in this short period of time, the Department placed a primary emphasis on the education of the regulated community about the requirements of the Law. The Department conducted nine workshops in various locations across the state that were attended by over 3,600 participants. The Department participated in 118 outreach opportunities across the state to pesticide user groups and associations, breast cancer advocacy groups, environmental advocacy groups, the public and others. These outreach opportunities reached thousands of interested parties. Also, the Department mass mailed information and forms to all known entities that were impacted by the Law. Appendix D has a listing of the groups addressed and copies of documents that were mailed.

In addition, the Department established communication links with regulated entities through our e-mail address prl@dec.ny.gov and a toll-free hot line telephone number 1-888-457-0110. This hot line received 8,877 telephone calls between January 1997 and April 1998. Customers could contact the Department, have questions answered, receive forms or conduct other business associated with the pesticide program. Work is progressing on the development of a World Wide Web site that will provide Internet access to Pesticide Reporting Law information, including a copy of the statute, forms that can be printed, a copy of this Annual Report and general guidance materials.

The Department also published, on December 17, 1997, a Technical Administrative Guidance Memorandum (TAGM) that provides guidance and clarifies program issues for Department staff, the public and the regulated community. Additional TAGMs will be written and published as necessary to enhance understanding of and compliance with the Law (See Appendix D, p.D-6).

D. Pilot Projects

Hand-Held Computer (HPC) Data Collection - Pilot Project

The Department conducted a pilot project in the Syracuse area beginning in summer of 1997 to evaluate the use by commercial pesticide applicators and commercial permittees of hand-held data collection computers to collect Pesticide Reporting Law information. The Department, in consultation with the Governor's Office for Technology, conducted this project in order to evaluate the potential benefit to the State and regulated community from direct electronic transfer of pesticide use data into the main Pesticide Reporting Law data base.

On June 30, 1997, a request for bid was published in the New York State Contract Reporter. Seven companies responded to the bid request. After review of the proposed cost amounts and company references, a vendor was selected to conduct the project. The vendor provided the data collection devices, programming services, training and support.

Eight pesticide firms were selected from a list of volunteers to participate in the project. The firms represented a cross-section of the businesses required to report information under the Pesticide Reporting Law.

Pesticide use data recorded on the hand-held devices by the selected firms was brought back to personal computers in their office and uploaded to a data collection site operated by the vendor.

Initial results of the pilot project were promising. Data was successfully uploaded by participants from the hand-held computers into their PC's and then by modem to the data collection site. The majority of participants found the application useful and they provided us with recommendations that would be valuable if such a program

were implemented on a statewide basis. Based on these suggestions, the Department will explore this option in greater detail in the future.

Scannable Form Pilot (Intelligent Character/Optical Character Recognition)

The Department also conducted a pilot project in the Buffalo area to evaluate the use of scannable report forms to collect Pesticide Reporting Law information. This pilot was also pursued in consultation with the Governor's Office for Technology, to evaluate the benefits of this method of data capture.

A notice was published in the State Contract Reporterrequesting a vendor to design a scannable pesticide reporting form and run a pilot project to test the feasibility of using these forms. The selected vendor prepared a draft scannable form for the Department's approval.

Six pesticide firms agreed to participate in testing this new scannable report form. An initial meeting was held on October 23, 1997 in East Aurora, New York. The forms and instructions were handed out to the participants with minimal information so that a true test of the forms and instructions could be obtained. A meeting was held on November 6, 1997 in East Aurora to conclude the pilot program and receive comments on the forms (i.e.; design of the form, likes and dislikes, how the new scannable forms compared to existing paper forms, how they compared to electronic reporting methods, would the forms be more useful in a loose form or in bound pads, etc.). The completed forms were then shipped to the vendor for scanning.

The pilot confirmed that use of the new scannable forms would improve readability and accuracy and would provide a level of automation for processing 1998 data. The pilot also demonstrated this reporting method as cost-effective for the state.

Based on comments received, the form was substantially revised. The final form was approved by the Department and two million forms were printed and distributed to New York State registered pesticide businesses for use during the 1998 reporting year. The response to the new forms has been favorable. It is likely that the number of entities using these scannable forms will continue to increase throughout 1998. The scannable form is contained in Appendix C.

E. Data Base Development and Data Entry

The Pesticide Reporting Law requires the Department to ". . .develop a pesticide sales and use computer data base in conjunction with Cornell University. . .Such data base shall consist of all information compiled from reports submitted to the department pursuant to §§33-1205 and 33-1207 of this title. Such reports shall be entered into and maintained on a computerized data base and shall be updated annually." [ECL §33-1201, 1205 and 1207.] (See Appendix A).

On September 9, 1997, a Memorandum of Agreement was executed between Cornell University and the Department for the development of a pesticides sales and use computerized data base.

In compliance with the Law, Cornell University, in conjunction with the Department, developed a computerized pesticide sales and use data base. Consistent with the present legislation, the data base will track the quantities and locations of pesticides applied by commercial applicators. It will also track quantities and application locations of restricted use and agricultural general use pesticides purchased by private applicators and quantities of restricted use pesticides sold by manufacturers in New York State.

Information compiled from reports submitted to the Department was entered into this data base. It was necessary for the Department to contract with a company with expertise in this field to keypunch the reports' data.

The Department released a Request for Proposal (RFP), seeking a firm to enter the data on more than 10 million pesticide reporting forms that the Department expected to receive. This number was an estimate arrived at after discussions with representatives of the regulated community. At the time bids were being received for the work, annual report forms were being received from the regulated community. It became apparent that the 10 million estimate was excessive and a new estimate of 2.2 million forms was determined to be more realistic. Because of these disparate numbers, the RFP was declared void and the project was reissued as an Invitation for Bid (IFB). The IFB expressed the Department's expectation to receive information on as many as 17.6 million regulated pesticide actions on approximately 2.2 million copies of three different hard copy paper forms. Lason, Inc., a national data entry firm, was the low bidder and a contract for the data entry work was signed on April 6, 1998. As required by the contract, all of the reports received by the Department as of May 1 were provided to Lason and the information contained on them is included in this report. Information from reports received by the Department after May 1 was not included in this report, but will be included at a later date in the data base where it will used by health researchers, the public, the Department and other groups and associations.

F. Electronic Reporting

The Pesticide Reporting Law allows regulated entities to file ". . .a report or reports . . . with the department on computer diskette or in printed form . . ." [ECL §33-1205]. To assist those entities that desired to submit their pesticide reporting information on computer diskette or via other electronic methods, Cornell University developed draft electronic filing specifications. Numerous discussions were held with Department staff to provide comments on the draft specifications. The Governor's Office for Technology also commented on the draft specifications. Final electronic specifications were submitted by Cornell University on January 15, 1997 and the Department approved these specifications for reporting 1997 data.

The Department sent survey cards to approximately 500 commercial permit holders and 5,000 registered pesticide businesses inquiring as to their interest and capability of reporting 1997 or 1998 data electronically. Cornell University mailed a letter and a copy of their electronic filing specifications to all 168 entities that responded to that survey stating their interest in electronic reporting. The Department refers entities wishing to submit their data electronically to Cornell University for registration, specifications and additional information. Cornell University developed a registration system for those entities wishing to submit data electronically.

Some entities submitted their report forms on computer diskettes. This presented a major challenge to both the Department and Cornell University. The reports were provided using a large variety of software such as Microsoft Excel, Lotus123, ASCII text files, Microsoft Works, Microsoft Access, etc. In order to read each disk, Cornell University needed to have the same software applications as those used by the regulated community. This took an enormous amount of staff time. Even then some files were not accessible. Once the report was opened, it had to be reformatted to the Department's approved electronic specifications so that it could be downloaded into the data base.

G. Forms Revisions

As indicated earlier, three annual report forms were distributed to the regulated community in January 1997 (See Appendix B). Comments were received concerning their format, utility and suggestions for improving the form for the 1998 reporting year. As a result, the Department revised the three annual report forms. A format change occurred with the following two report forms: "Commercial Applicator Annual Report- Pesticides Used" 44-15-26 and "Commercial Permittee Restricted or Agricultural Pesticides Sales Report" 44-15-27. These two reports were reduced to 8.5" x 11", thus standardizing the size of all three reports. (See Section D for discussion on scannable forms). The "Restricted Pesticides Annual Report for Commercial Permittees (Including Importers, Manufacturers and Compounders)" 44-15-25 was originally released in this size format. Also, a larger border was added to the left of these reports to facilitate their use on clipboards. Revisions were made to the titles of all three

forms based on review of the draft documents by Department legal counsel. These changes will help clarify the regulatory requirements of the annual reports. To facilitate the reporting of multiple Commercial Applicators by registered pesticide businesses, a new form entitled "List of Commercial Applicators" 44-15-26A has been developed. This form, which gets attached to the "Commercial Applicator Pesticide Use Annual Report" form, lists the names and certification numbers of all of the certified applicators for which the business is reporting.

H. NYSDOH and Health Research Science Board

The Department held many meetings with the State Department of Health in order to ensure a smooth interface between the two Departments regarding the collection and use of the pesticide data for health research purposes. This effort involved the resolution of a number of key issues such as ensuring the confidentiality of the information as it is transferred between the two departments and determining who is a "qualified health researcher."

In addition, these meetings were used to identify issues and prepare briefing documents which the Health Research Science Board (Board) might need when it became operational. Many of these briefings consisted of background documents which described the program's implementation and operation prior to the creation of the Board. These briefings also outlined the issues that the Board could expect to be raised. Additionally, preparatory work was done regarding the duties that the Board was assigned under the Pesticide Reporting Law. The Law requires all State agencies to review their programs and determine whether they have valuable information for researchers engaged in breast, prostate and testicular cancer research. A listing of State agencies with potentially relevant material was developed, as well as a draft survey to be sent to those agencies for use by the Board. These actions enabled the Board to begin their work immediately upon appointment, with very little start up time required.

III. Reporting Data

A. Discussion of Summaries

In conjunction with Cornell University, the Department has summarized for calendar year 1997 pesticide sales, the quantity of pesticides used, the category of applicator and region of application.

For calendar year 1997, there were 336 different restricted use pesticides sold by Commercial Permittees (Including Importers, Manufacturers and Compounders) to other Commercial Permit Holders for Resale totaling 242,807.00 gallons and 2,387,795.85 pounds.

For calendar year 1997, there were 531 different restricted use pesticides sold by Commercial Permittees (Including Importers, Manufacturers and Compounders) to certified Commercial Applicators for End Use totaling 229,812.10 gallons and 1,073,511.39 pounds.

For calendar year 1997, there were 781 different restricted use pesticides and general use agricultural pesticides sold by Commercial Permittees to certified Private Applicators totaling 475,723.08 gallons and 2,938,233.71 pounds.

Detailed information is provided in eight data summaries. These summaries can be found at the Pesticide Sales and Use Reporting: 1997 Report Year Web Site.

Data Summary 1 provides the data for 1997 Commercial Applicator pesticide applications in New York State (summarized by product).

Data Summary 2 provides the data for 1997 Commercial Applicator pesticide applications in New York State (summarized by county).

Data Summary 3 provides the data for 1997 Commercial Applicator pesticide applications in New York State (summarized by zip code) (Parts 1-9).

Data Summary 4 provides the data for 1997 Commercial Permittees (Including Importers, Manufacturers and Compounders) Restricted Use Pesticide Sales to Commercial Permit Holders for Resale (summarized by product). These are data summaries of sales made by pesticide sales distributors that are licensed to sell restricted use pesticides, to other pesticide sales distributors who are also licensed to sell restricted use pesticides. The data are summarized by pesticide product.

Data Summary 5 provides the data for 1997 Commercial Permittees (Including Importers, Manufacturers and Compounders) Restricted Use Pesticide Sales to Commercial Applicators for End Use (summarized by product). These are data summaries of sales made by pesticide sales distributors that are licensed to sell restricted use pesticides, to commercial pesticide applicators who are licensed to purchase and apply restricted use pesticides. The data are summarized by pesticide product.

Data Summary 6 provides the data for 1997 Commercial Permittees Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Private Applicators (summarized by product). These are data summaries of sales, to certified private applicators, of restricted use pesticides and general use pesticides used in agricultural crop production. These sales were made by pesticide sales distributors that are licensed to sell both restricted use pesticides and general use pesticides identified as being used in agricultural crop production. The data are summarized by pesticide product.

Data Summary 7 provides the data for 1997 Commercial Permittees Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Private Applicators (summarized by county).

Data Summary 8 provides the data for 1997 Commercial Permittees Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Private Applicators (summarized by zip code).

As required by law, these summaries exclude the name, address or any other information that would otherwise identify a commercial or private applicator, any person who sells or offers for sale restricted use or general use pesticides to a private applicator, or any person who received the services of a commercial applicator.

B. Data Qualifications

The Department has developed a pesticide sales and use computer data base in conjunction with Cornell and compiled the information from reports pursuant to ECL §§33-1205 and 33-1207. This data base was used to prepare this annual report summarizing pesticide sales, quantity of pesticides used, category of applicator and regions of application. The data summarizes the information received regarding pesticide sales and usage as reported to the Department by the regulated community. The Department cannot attest to the accuracy of the information contained in these data summaries.

Users of the data are cautioned against the use of the data to draw specific conclusions regarding pesticide sales and use in New York State. Many of the pesticide reports were filed after the February 1, 1998 deadline. Due to the time required to enter and process these data, any reports received after May 1, 1998 have not been entered into the database. Therefore the report tables are incomplete. The complete report tables for 1997 will be available once these data have been entered and verified.

The Department is aware that duplicate data were introduced into the database. Due to time constraints, these duplicated data have not yet been removed from the database.

Pesticide data reported on non-standard forms were accepted by the Department. These forms include old versions of the standard forms, customized forms generated by businesses and applicators and data submitted on non-standard forms. Many of these forms were rejected by the data entry vendor. The Department is working to identify these data using microfilm copies of the forms. Due to time constraints, these data are not included in the report tables at this time, but will be included once quality assurance has been performed.

Some pesticide data submitted on non-standard forms were entered. On these forms the required report fields were not located in the same places as on the standard forms. In many cases the non-standard forms did not include all the required report fields. The data entry operators were forced to search for data that were either not there, located in a different section of the form, or even on separate pages altogether. The quality of these data are not as reliable as the data submitted on the standard forms.

The similarity in design of the 1997 forms entitled "Commercial Permittee Restricted or Agricultural Pesticide Sales Report" and the "Commercial Applicators Annual Report - Pesticides Used" was confusing to the businesses and applicators. Some application data was reported on the sales form and may have been processed as sales data. This has been addressed in the 1998 report forms.

The Law requires the Department to accept data from the regulated community on handwritten forms. These forms accounted for approximately 90 percent of the total number of forms received by the Department. The data on these forms were difficult for the data entry operators to decipher. The quality of these data are not as reliable as data submitted on typed or computer-generated forms.

Usage of zip code to define application and sales locations created a number of problems. Zip codes represent postal delivery locations. Large wilderness areas or farmland may have few if any delivery points. Since mail is not delivered to these locations, they are technically not located in a zip code. Determination of what zip code to report for an application or intended application in one of these locations was problematic for the businesses and applicators.

Some zip codes represent more than one contiguous location. Without more accurate address data than is currently collected, there is no way to divide application or intended application quantities between the separate locations represented by these zip codes.

Data reported for selected zip codes has not been reported under that zip code. These selected zip codes are unique to a location and could be used to identify where an application or intended application occurred. Identification of the specific location of a pesticide application is not allowed by the Pesticide Reporting Law. In these instances, these data have been reported by county; however, if the zip code was located entirely within a single enclosing zip code, the data were reported under that enclosing zip code.

Quantities for some pesticides were reported using both weight and volume-based units of measure. The validation data to determine which type of measurement unit should be used to report that particular pesticide are not currently available in a form applicable to the reported pesticide data. Therefore, the reports list both measurements, as it was reported to the Department.

Products with a quantity of zero reflect that applications or intended applications of the product were made, but that the quantity was indecipherable on the report form. Efforts will be made to obtain this information as the Department and Cornell continue with data quality assurance methods.

IV. Water Quality Monitoring for Pesticides (ECL §33-0714)

A. Introduction and Purpose

Pursuant to the Pesticide Reporting Law (ECL §33-0714), (See Appendix A, p. A-2), the Department has developed a Water Quality Monitoring for Pesticides Program that obtains information that can be used to more effectively manage the pesticide program. Early results suggest that this program has already been helpful towards achieving this goal.

The following are key results of this program's first year's findings:

- The United States Geological Survey monitored and analyzed surface waters outside of Long Island for a number of pesticides. In general, the USGS results showed that the levels of pesticides in surface waters are consistently lower (in parts per trillion) than drinking water standards. The monitoring also identified areas where further study or continued study is warranted.
- It is not surprising that pesticides are detected in extremely small concentrations in surface waters. It is the Department's mission to assure these levels do not significantly impact human health or the environment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires the EPA Administrator to balance the need for a pesticide with its impacts to assure it will perform its intended function without unreasonable adverse effects on the environment.
- Monitoring on Long Island confirmed previously known groundwater contamination. The monitoring data included in this report identified levels of some pesticides in individual drinking water wells above drinking water standards. The affected individuals were informed by the applicable county of alternatives for obtaining acceptable drinking water. However, many of these homeowners already have carbon filters on their wells which effectively strip the contaminants from their drinking water.
- To date, the program has detected two previously unknown contaminant plumes of non-registered pesticides in shallow groundwater on Long Island. The Department has initiated follow-up investigations to assess the extent of these plumes.
- Detection of pesticides above drinking water standards in past monitoring programs has led the Department to require changes in labeling of products such as Simazine and Dacthal to prohibit certain usage rates and exclude geographical locations that were considered inappropriate. In addition, the detection of certain pesticides and their metabolites (break-down products of chemical decomposition) in this monitoring program has caused the Department to include restrictions regarding their use.
- The data showing the sensitivity of certain areas of New York confirm the necessity of state-specific pesticide registration decisions to protect the water resources of New York State.

B. Program Components

In developing the Water Quality Monitoring for Pesticides Program, the Department initially established an informal Steering Committee made up of State, local and Federal agency staff who are involved with pesticide use and water quality. (The members of the Steering Committee are listed in Appendix E.) This committee provided Department staff with a broad understanding of the monitoring needs and issues associated with pesticide use in New York State and was a tremendous asset during startup of this new program. The Department is grateful for the participation and input provided by all of the Steering Committee members.

Due to the vast amount of work required to monitor the entire state's waters for pesticide impacts, the Department has sought to find partners to share the burden by identifying other State and Federal agencies that have similar monitoring interests. This partnership approach was called for in the Pesticide Reporting Law in the requirement that the Department work ". . .in coordination with the United States Geological Survey National Water Quality Assessment Program, the New York State Water Resources Institute and other parties. . ." This coordinated

approach has allowed the Department to achieve significant progress where a partner has had an existing monitoring program for pesticides. In some cases, because of this shared need for monitoring information, the Department was able to enter into agreements where the partners would provide matching funds to help complete the work.

Currently, the Water Quality Monitoring for Pesticides Program has three distinct components with each component managed by one of the monitoring partners: the United States Geological Survey; the Suffolk County Department of Health Services; and the New York State Water Resources Institute.

As the program grows and matures, additional partners may be added.

A description of the three components of the program follows:

- United States Geological Survey (USGS)

  Working under an existing Cooperative Agreement between the Department and the USGS, State and Federal funds have been used to expand and extend the Hudson River Basin study of the USGS National Water Quality Assessment (NAWQA) program into other areas of the state. Information currently being gathered will be used by the Department to identify high-priority areas and specific sites within these areas for long- term monitoring of trends in pesticide migration and impacts throughout the state. In this program, surface water samples are collected around the state at two types of sites, "synoptic" and "fixed." Synoptic sites are located over a wide geographic area and are sampled once each year during baseflow conditions. Fixed sites are sampled as many as ten times throughout the year. Using extremely sensitive analytical methods, the information developed by this program will be used to assess trends in pesticide contamination throughout the State and to provide an early warning system for unexpected pesticide levels.

  Monitoring in the USGS program has been accomplished by using three different, highly precise analytical methods with levels of detection down to parts per trillion. The pesticide products and metabolites (break-down product of chemical decomposition) being sought in each analytical method and the detection levels that can be achieved are included as Appendix F. This high level of precision is needed to obtain useful data for most pesticides, which typically are found at extremely low levels. Without these precise methods, low-level residues would go undetected and accurate trend analysis, a key factor in evaluating past registration decisions, would be impossible.

  In addition, a lack of precise methods would mask the presence of some pesticides that may only occur at extremely low levels in the environment. This masking would frustrate the efforts of those seeking to correlate the study's data with observable health impacts. Higher levels of detection than those used by USGS would also make it impossible to firmly demonstrate a lack of migration for the many commonly used pesticides that are generally not moving into the waters of New York State. This information is crucial to support registration decisions for the many registered products that are not impacting New York waters.

- Suffolk County Department of Health Services (SCDOHS)

  Under a two-year joint funding agreement with the Department, SCDOHS has been conducting an intensive study of public and private water supply wells and selected monitoring wells to identify any unknown pesticide contamination plumes in Nassau and Suffolk counties.

  SCDOHS is sampling approximately 2,000 public and private water supply and monitoring wells through March 31, 1999. All samples will be analyzed for an expanded list of pesticide compounds and metabolites, including many that have not been analyzed previously on Long Island. In addition, the levels of detection

will be, in many cases, lower than the levels previously sought by SCDOHS. A list of the compounds and the minimum detection levels being achieved by SCDOHS are included as Appendix G.

- New York State Water Resources Institute (WRI)

  Working under an existing contract between the Department and Cornell University, the WRI is using data obtained in previous years and new data collected by the USGS in the Canajoharie Watershed, to evaluate the efficacy of modeling as a tool in predicting pesticide migration within a watershed. WRI will use the model to make predictions that can be checked against data being gathered by the USGS in the watershed.

  If the modeling effort proves successful, the work being done by WRI will have a number of benefits. It will provide the Department with an important new tool to assist in making registration decisions and reviewing suspensions and cancellations of pesticide registrations. For those in agriculture, the model may help them to assess the benefits of implementing different farm management practices to reduce pesticide impacts before they occur. For health researchers, this model may be valuable for evaluating pesticide impacts on public health and the environment. In many ways, this program may provide a link between data collection and the ability to predict potential impacts of pesticide use.

  The result of this pesticide monitoring program will also be coordinated with the Department's Division of Water (DOW) as part of New York State's responsibility to assess and report to the EPA on the quality of the state's waters under Section 305(b) of the Clean Water Act. New York State is required to summarize the quality of the state's waters (both surface and ground) according to established EPA guidance and submit reports every two years.

  In addition, individual basins are to be assessed by DOW on a rotating basis across the state every five years.

C. Focus of Current Monitoring and Analytical Results

United States Geological Survey (USGS), ($32,000 SFY 1996-97, $271,000 SFY 1997-98)

The work being performed by the USGS in State Fiscal Years 1996-1998 included analysis of a wide variety of pesticides and their metabolites at six fixed sites and 50 synoptic sites. Appendix H shows the location of these sites. These sites were targeted to evaluate ambient surface water quality, not public or private drinking water supply intakes. Appendix H provides a description of each site and the analytical method being used at each site. Each of the fixed sites has typically been sampled ten times during the period, providing information on seasonal changes at these sites. In the synoptic study, water samples were collected once per site from a statewide network of 64 sites from early June to early July 1997, after most agricultural pesticides had been applied, in order to obtain information on the spatial distribution of pesticide residues under base-flow conditions.

Many of the sites in this year's sampling were located in the highly agricultural areas of western New York State, an area with significant pesticide use and very little existing pesticide monitoring data for groundwater and surface water.

A supplemental work plan, executed near the end of the State Fiscal Year 1997-98, extended the USGS work to include the analysis of samples in areas of concern that have been identified by SCDOHS.

The results from the synoptic study (64 sites sampled one time in the spring of 1997) are summarized below and are the subject of a USGS fact sheet that will be published shortly. (A preliminary copy of this fact sheet is included as Appendix I.)

The results of the synoptic sampling generally show low concentrations of 25 different pesticides that rarely exceeded 0.1 micrograms per liter (ug/l). No pesticides exceeded Federal or State maximum contaminant levels (MCLs) for public water supplies; aquatic surface water standards were only rarely exceeded. Twenty-three pesticides that were analyzed in the study were not detected in any sample.

The most frequently detected pesticides in upstate New York were the corn herbicides Atrazine, Metolachlor and the Atrazine degradation compound, Deethylatrazine. These pesticides were detected at low concentrations in 80 percent or more of the streams sampled. Other common corn herbicides, Alachlor and Cyanazine, were detected in roughly 40 and 50 percent of the streams sampled, respectively. Simazine, a herbicide commonly used in orchards and vineyards, was detected in 72 percent of the streams sampled.

The detection of pesticides was clearly related to the relative amount of land used for the various agricultural purposes in each watershed. Rivers and streams with the highest concentrations of Simazine drain watersheds with large areas dedicated to orchards and vineyards. The highest concentrations of corn herbicides occurred in streams that drain areas with the highest corn production.

For a complete description of this study and a more complete reporting of the levels of pesticides detected, see Appendix I, which is a preliminary copy of the USGS fact sheet, "Pesticide Concentrations in Surface Waters of New York State in Relation to Land Use." This fact sheet can be obtained on the World Wide Web at: www.dnyalb.er.usgs.gov/projects/nypesticides/pubs.html and data from the synoptic sites can be found at: www.dnyalb.er.usgs.gov/projects/nypesticides/networks.html on the World Wide Web.

Due to the longer term monitoring at the fixed sites, compilation of the results is not yet complete. A fact sheet summarizing this work will be completed this summer. Both fact sheets will be made available over the USGS and DEC web sites and will be distributed by the Department. Also, the results of the USGS work on Long Island will be made available as soon as the data is compiled and reviewed for accuracy.

Suffolk County Department of Health Services (SCDOHS) ($100,000 SFY 1997-98)

SCDOHS has analyzed samples throughout Nassau and Suffolk counties during 1997 and 1998, focused primarily on the five eastern townships of Suffolk County where the majority of Long Island's agricultural land is concentrated. Some of the tested wells, primarily those containing Aldicarb and Tetrachloroterephthalic acid (TCPA), were known to be contaminated from previous monitoring programs. Therefore, the sampling was not random and the results cannot be viewed as typical of groundwater in the counties or portions thereof. Between October 1, 1997 and March 31, 1998, 898 monitoring, private and public wells were sampled and 36 different compounds were detected, primarily pesticides or their metabolites.

The most frequently detected compounds (many at levels below drinking water standards) include:

Most Frequently Detected Compounds

Compound	Percent of wells
Aldicarb (sulfoxide/sulfone)	13.5%
TCPA	5.5%
1,2-dichloropropane (DCP)	3.9%
Ethylene dibromide (EDB)	2.3%
Metolachlor	2.1%
1,2,3-trichloropropane	1.2%
Simazine	1.2%

Of these, Simazine and Metolachlor are the only pesticides still registered for use on Long Island. The Department is currently working with SCDOHS and the agricultural community to reduce these impacts.

Six pesticide related compounds have exceeded State drinking water maximum contaminant levels (MCLs) including:

Compound	MCL	Max. Concentration Found
Alachlor	2 ug/l	6.66 ug/l
Aldicarb	7 ug/l	41.0 ug/l
1,2-dichloropropane (DCP)	5 ug/l	11.0 ug/l
1,2-dibromoethane (EDB)	0.05 ug/l	77.8 ug/l
Simazine	4 ug/l	12.3 ug/l
Tetrachlorterephthalic acid (TCPA)	50 ug/l	7.66 ug/l

Two pesticides were detected above DEC Water Quality Standards for Class GA fresh groundwater.

Compound	Class GA Std.	Max. Concentration Found
Dieldren	0.004 ug/l	0.78 ug/l
Methomyl	0.35 ug/l	1.7 ug/l

Of these, only Alachlor, Methomyl and Simazine are currently registered for use as pesticides on Long Island.

Two other compounds, sometimes related to pesticide use, were also found in excess of MCLs: bis-2-ethylhexylphthalate and 1,2,3-trichloropropane.

Most of the 90 wells that exceeded a pesticide-related State drinking water MCL were concentrated in the highly agricultural areas of the eastern townships of Suffolk County. Many of these were already known to be contaminated from earlier monitoring efforts and were resampled in this study. The five easternmost townships of Suffolk County accounted for 46 percent of the wells tested and 94 percent of the wells that exceeded a pesticide-related standard. In the more urban areas, only about 1 percent of the wells (1 of the 152 wells sampled in Nassau County and four of the 329 wells in the more suburban western towns of Suffolk County) had an exceedance of an MCL.

Of the 90 wells with MCL violations, 62 were private wells, 22 were monitor wells and 6 were community or non-community (schools etc.) public water supplies. (All of the public water supply wells now use carbon filtration or have already been closed.) Many of the private wells were known to be contaminated from previous investigations and are being treated.

Of the 90 wells, 86 of these were related to agricultural sources (including nursery and sod uses), two wells were contaminated by industrial pesticide applications, one was near a golf course and one was from an unknown source. Homeowner use or application of pesticides was not implicated in any of the wells that exceeded drinking water standards.

This information is more fully described in the June 1998 interim progress report from Suffolk County included as Appendix J of this Annual Report.

Water Resources Institute ($50,000 SFY 1997-98)

The WRI work on the Canajoharie Watershed project this year included development and implementation of a pesticide use survey and data compilation for development of the model. No data outputs are currently available; however, the Department expects to receive the survey results later this year from the WRI. As soon as this information is available, preliminary model runs will begin. This information will be used to predict levels of pesticides that should be expected at various sites within the watershed. Ultimately, these predictions will be compared with data obtained in previous years and new data that is being collected by the USGS in the Canajoharie Watershed. This modeling effort is expected to be completed in December 1998.

D. Areas for Future Study

By design, this statewide monitoring program has had to prioritize areas of study. Much important information has already been gained, but there still is much work to be done.

In State Fiscal Year 1998-99, the USGS and SCDOHS will continue existing programs to obtain follow-up data in areas of concern. The USGS program will also be expanded to include monitoring of Cayuga Lake and a number of public water supply reservoirs in the western part of the state where independent studies by the USGS and the State Health Department have suggested further monitoring is needed.

Discussions also have been held within the Department and with other agencies to develop similar monitoring programs in the New York City Watershed and the Susquehanna River Basin as part of ongoing investigations aimed at source water protection for public water supplies.

Finally, in order to identify other areas where monitoring is needed, the Department intends to reconvene the Water Quality Monitoring for Pesticides Program Steering Committee this fall to review the data and to seek input on other priority areas for investigation of pesticide impacts to the ground and surface waters of New York State.

V. Conclusions and Recommendations

Conclusions

The Pesticides Reporting Law has provided the Department with a mechanism to collect data on millions of pesticide applications, sales and pesticide migration.

With this report and the establishment of the mandated Water Quality Monitoring for Pesticides, the Department has fulfilled the mandates of the Pesticides Reporting Law.

Even it its first year, these programs have provided invaluable information to the Department in the enhancement of the Pesticide Management Program.

The Law and its implementation by the Department leads us to the following:

Pesticides Reporting

- Given the volume of information, the time allocated in the Law to receive, enter, validate and quality assure the data and prepare and print an annual report is insufficient.
- The Department's comprehensive outreach and training program developed to educate the regulated community on the requirements of the Law was very successful. The regulated community's understanding

of pesticide reporting requirements is still lacking and needs to improve.

- The Department obtained a reporting compliance rate of 93 percent of commercial permittees (those that sell pesticides and are required to report) and 85 percent for commercial pesticides applicators. This is an excellent response for the first year of the new Pesticides Reporting Law.
- The quality of the data from some reportees needs improvement to enhance the future quality of the reporting data, there is a need to provide further education to the regulated community.

The following totals represent the compilation of raw data received by the Department and Cornell University. Due to time constraints, the data used to obtain these totals have not been quality assured and represents raw data as it was received. The Department is providing these results for informational purposes only. Please see III.B - Data Qualifications, prior to drawing any conclusions from these totals:

- For calendar year 1997, there were 336 different restricted use pesticides sold by Commercial Permittees (Including Importers, Manufacturers and Compounders) to other Commercial Permit Holders for Resale totaling 242,807.00 gallons and 2,387,795.85 pounds.
- For calendar year 1997, there were 531 different restricted use pesticides sold by Commercial Permittees (Including Importers, Manufacturers and Compounders) to certified Commercial Applicators for End Use totaling 229,812.10 gallons and 1,073,511.39 pounds.
- For calendar year 1997, there were 781 different restricted use pesticides and general use agricultural pesticides sold by Commercial Permittees to certified Private Applicators totaling 475,723.08 gallons and 2,938,233.71 pounds.
- For calendar year 1997, there were 2,698 different pesticide products applied by certified commercial pesticide applicators.
- For calendar year 1997, there were 13,771,939.06 pounds and 1,894,222.66 gallons of pesticides applied by certified commercial applicators.
- Of the 13,000+ pesticide products registered for use in New York State during calendar year 1997, a maximum of 4,346 were reported as applied or sold by the entities required to report to the Department.
- The scannable forms pilot project was very successful. The pilot confirmed that use of the new scannable forms could improve readability, accuracy and provide a level of automation for processing 1998 data. The pilot also demonstrated this reporting method as a cost-effective solution for the State. Two million scannable forms were printed and distributed to all New York State registered pesticide businesses for use during the 1998 reporting year. The response to the new forms has been favorable. It is likely that the number of entities using these scannable forms will continue to increase throughout 1998.
- The hand-held computer project appears to have potential as a data collection option. The use of these computers for pesticides reporting needs to be revisited in the future.
- The Department encouraged electronic filing of data, however 90 percent of the information came in as handwritten copy. This was very difficult to handle and efforts need to be made to encourage a shift to electronic filings.

Water Quality Monitoring for Pesticides Program

- The Department has developed a *Water Quality Monitoring for Pesticides Program* that provides data to aid in the effective management of pesticides in the State.
- The United States Geological Survey monitored and analyzed surface waters outside of Long Island for a number of pesticides. In general, the USGS results showed that the levels of pesticides in surface waters are consistently lower (in parts per trillion) than drinking water standards. The monitoring also identified areas where further study or continued study is warranted.
- Many pesticides for which analyses were done, were not detected.
- It is not surprising that pesticides are detected in extremely small concentrations in surface waters. It is the Department's mission to assure these levels do not significantly impact human health or the environment.

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires the EPA Administrator to balance the need for a pesticide with its impacts to assure it will perform its intended function without unreasonable adverse effects on the environment.

- Many of the pesticides that were found in groundwater on Long Island were from pesticide products that are no longer registered for use on Long Island. It is likely most of the contamination is from historical use that has since been discontinued.
- Monitoring on Long Island confirmed previously known groundwater contamination. The monitoring data included in this report identified levels of some pesticides in individual drinking water wells above drinking water standards. The affected individuals were informed by the applicable county of alternatives for obtaining acceptable drinking water. However, many of these homeowners already have carbon filters on their wells which effectively strip the contaminants from their drinking water.
- To date, the program has detected two previously unknown contaminant plumes of non-registered pesticides in shallow groundwater on Long Island. The Department has initiated follow-up investigations to assess the extent of these plumes.
- Detection of pesticides above drinking water standards in past monitoring programs has led the Department to require changes in labeling of products such as Simazine and Dacthal to prohibit certain usage rates and exclude geographical locations that were considered inappropriate. In addition, the detection of certain pesticides and their metabolites (break-down products of chemical decomposition) in this monitoring program has caused the Department to include restrictions regarding their use.

Recommendations

Pesticides Reporting Law

- As part of its annual legislative initiatives, the Department should consider appropriate changes, such as an extension of the time frame for report issuance, to the Pesticides Reporting Law.

Pesticides Reporting Data

- The Department should seek maximum compliance for 1997 and subsequent years, via an aggressive enforcement program in 1998.
- The Department supports requiring certain segments of the pesticides industry to file data in a Department approved electronic format. Toward that end, the Department will provide updated electronic specifications to the regulated community.
- The Department should expand the use of the scannable forms for reporting.
- The Department should conduct more outreach and education to improve the quality of the data.

Water Quality Monitoring for Pesticides Program

- The Department should evaluate the need and effectiveness of conducting a pesticides amnesty/collection day for Long Island.
- The Department should develop a Pesticides Management Plan for Long Island with the participation of the general public, pesticides users and other stake holders.
- The Department should, as necessary, expand the list of target pesticides and metabolites it analyzes in ground and surface water samples.
- The Department should continue to assess sites where pesticides have been detected in groundwater above the DOH drinking water standards.
- The Department should seek EPA fiscal support and any other available Federal funding sources to address the pesticide management concerns associated with this report.
- The Department should evaluate options for pesticides amnesty/collection days across the state in the future.
- The Department should continue and expand the Water Quality Monitoring for Pesticides program.

1997 PRL Annual Report - Appendix A

Chapter 279, Laws of 1996 as Amended

The Pesticide Reporting Law (PRL) was enacted on July 8, 1996. The law includes amendments to the Environmental Conservation Law (ECL), Public Health Law, Tax Law, and State Finance Law. Title 12 of the law covers PESTICIDE SALES AND USE DATA BASE AND RECORD KEEPING AND REPORTING requirements. Title 12 became effective on January 1, 1997.

On June 20, 1997, an amendment was adopted to the last sentence of ECL 33-1205.2 (a) to read as follows: Every person who sells or offers for sale restricted use pesticides to private applicators shall file, at least annually, a report or reports containing such information with the department on computer diskette or in printed form on or before February first for the prior calendar year. The department shall not use the [information obtained] REPORTS FILED pursuant to this [title] PARAGRAPH for enforcement purposes.

On July 18, 1997, amendments were made to the Public Health Law added by the PRL, in relation to establishing a prostate and testicular cancer detection and education advisory council. In addition, a new Title 1C was added to the Public Health Law. The State Finance Law was amended by adding a new section, in relation to creating a prostate and testicular cancer research and education fund.

AMENDMENTS TO ARTICLE 33 OF THE ENVIRONMENTAL CONSERVATION LAW

§33-0714- Water quality monitoring for pesticides.
§33-1201- Pesticide sales and use computer data base.
§33-1203- Access to pesticide information.
§33-1205- Record keeping and reporting.
§33-1207- Record keeping and reporting by importers and manufacturers.

AMENDMENTS TO ARTICLE 24 OF THE PUBLIC HEALTH LAW

§2410- Health research science board.
§2411- Powers and duties of the board.
§2412- Agency implementation
§2413- Biennial report.
§2415- Prostate and Testicular Cancer Detection and Education Advisory Council; Establishment.
§2416- Advisory council.
§2417- Annual report.

AMENDMENTS TO THE TAX LAW

§209-D - Gift for breast cancer research and education.
§627 - Gift for breast cancer research and education.

AMENDMENTS TO THE STATE FINANCE LAW

§97-yy- Breast Cancer research and education fund.
§97-ccc Prostate and testicular cancer research and education fund.

TITLE 7--REGISTRATION OF PESTICIDES

§33-0714. Water quality monitoring for pesticides

The department, in coordination with the United States Geological Survey, National Water Quality Assessment Program, the New York State Water Resources Institute, and other parties, shall conduct a water quality monitoring program to provide an adequate understanding of the health and environmental impacts of pesticide use in the state. The department shall utilize this program, as it deems necessary, in: making pesticide registration decisions; reviewing suspensions and cancellations of pesticide registrations in the state; and assessing the status, trends, and health impacts of any pesticide contamination of ground and surface waters on Long Island and throughout the state.

TITLE 12--PESTICIDE SALES AND USE DATA BASE AND RECORD KEEPING AND REPORTING

§33-1201. Pesticide sales and use computer data base

1. a. The department shall develop a pesticide sales and use computer data base in conjunction with Cornell University. The data base shall be maintained at the department.

b. Such data base shall consist of all information compiled from reports submitted to the department pursuant to sections 33-1205 and 33-1207 of this title. Such reports shall be entered into and maintained on a computerized data base and shall be updated annually. Information obtained for and contained in the data base shall be accessible by interested parties only to the extent permitted pursuant to the provisions of subdivision two of this section and paragraph a of subdivision 1 of section 33-1203 of this title.

2. The commissioner shall prepare an annual report summarizing pesticide sales, quantity of pesticides used, category of applicator and region of application. The commissioner shall not provide the name, address, or any other information which would otherwise identify a commercial or private applicator, or any person who sells or offers for sale restricted use or general use pesticides to a private applicator, or any person who received the services of a commercial applicator. In accordance with article six of the public officers law, proprietary information contained within such record, including price charged per product, shall not be disclosed. The report shall be submitted to the governor, the temporary president of the senate and the speaker of the assembly, and shall be made available to all interested parties. The first report shall be submitted on July first, nineteen hundred ninety-eight and on July first annually thereafter.

§33-1203. Access to pesticide information

1. a. The commissioner shall, upon written request of an interested party, in printed form or on a diskette in computerized data base format, provide the information on pesticides submitted to the department pursuant to sections 33-1205 and 33-1207 of this title. Such information shall be provided by county or counties, or five-digit zip code or codes as selected by the interested party making the written request. The commissioner shall not provide the name, address, or any other information which would otherwise identify a commercial or private applicator, or any person who sells or offers for sale restricted use or general use pesticides to a private applicator, or any person who received the services of a commercial applicator. In accordance with article six of the public officers law, proprietary information contained within such record, including price charged per product, shall not be disclosed. The provisions of this paragraph shall not apply to the provision of pesticide data to the commissioner of health, the health research science board and researchers pursuant to title one-B of article twenty-four of the public health law.

b. The department shall, upon request from the New York State Department of Health, compile pesticide application information by nine-digit zip code and provide the information to the commissioner of health for

researchers entitled to receive information pursuant to paragraph (d) of subdivision one of section twenty-four hundred eleven of the public health law provided, however, if the nine-digit zip code cannot be determined, the information shall be compiled by town or city.

2. The fees for copies of information shall not exceed twenty-five cents per photocopy not in excess of nine inches by fourteen inches, or the actual cost of reproducing any information.

§33-1205. Record keeping and reporting

1. All commercial applicators shall maintain pesticide use records for each pesticide application containing the following:

a. EPA registration number;
b. product name;
c. quantity of each pesticide used;
d. date applied;
e. location of application by address (including five-digit zip code).

Such records shall be maintained for a period of not less than three years. All commercial applicators shall file, at least annually, a report or reports containing such information with the department on computer diskette or in printed form on or before February first for the prior calendar year. All commercial applicators shall also maintain corresponding records of the dosage rates, methods of application and target organisms for each pesticide application. These records shall be maintained on an annual basis and retained for a period of not less than three years and shall be available for inspection upon request by the department.

2. a. Every person who sells or offers for sale restricted use pesticides to private applicators shall issue a record to the private applicator of each sale of a restricted use pesticide or a general use pesticide used in agricultural crop production to such applicator. Such record of each sale shall include the following:

1. EPA registration number;
2. product name of the pesticide purchased;
3. quantity of the pesticide purchased;
4. date purchased;
5. location of intended application by address (including five-digit zip code) or if address is unavailable by town or city (including five-digit zip code) if the location of intended application differs from the billing address that appears on the record.

Every person who sells or offers for sale restricted use pesticides to private applicators shall file, at least annually, a report or reports containing such information with the department on computer diskette or in printed form on or before February first for the prior calendar year. The department shall not use the reports filed pursuant to this paragraph for enforcement purposes.

b. All private applicators shall maintain, at a minimum, records of the restricted pesticides purchased, crop treated by such, method of application, and date of application or applications. This information shall be maintained on an annual basis and retained for a minimum of three years, and shall be available for inspection upon request by the department.

c. A private applicator shall, upon request, within six months, provide site-specific information relating to pesticide applications to any researcher entitled to receive information pursuant to paragraph (d) of subdivision one of section twenty-four hundred eleven of the public health law, provided, however, such request shall not be granted during planting and harvesting unless at a time and in a manner that is mutually convenient.

§33-1207. Record keeping and reporting by importers and manufacturers

1. Each person manufacturing or compounding a registered restricted use pesticide in this state, or importing or causing a registered restricted use pesticide to be imported into this state for use, distribution, or storage, shall maintain records of all sales within the state during the preceding year of each restricted use pesticide product which he or she has imported, manufactured or compounded. The record of each restricted use pesticide product shall include:

a. EPA registration number;
b. container size; and
c. number of containers sold to New York purchasers.

2. Such records shall be maintained for a period of not less than three years. All manufacturers and importers shall file an annual report containing such information with the department on computer diskette or in printed form on or before February first for the prior calendar year.

PUBLIC HEALTH LAW

ARTICLE 24--CONTROL OF MALIGNANT DISEASES

TITLE 1-B--HEALTH RESEARCH SCIENCE BOARD

§2410. Health research science board

1. There is hereby established in the department the health research science board. The board shall be a body of eleven scientists each of whom shall have either an M.D., D.O., Ph.D., or Dr.P.H. in one of the following fields: biochemistry, biology, biostatistics, chemistry, epidemiology, genetics, immunology, medicine, microbiology, molecular biology, nutrition, oncology, reproductive endocrinology, or toxicology and must currently be engaged in treating patients or conducting health research. The members shall be appointed in the following manner: two shall be appointed by the temporary president of the senate and one by the minority leader of the senate; two shall be appointed by the speaker of the assembly and one by the minority leader of the assembly; five shall be appointed by the governor. In addition, the governor shall appoint three non-voting ex officio members to the board, one of whom shall be the commissioner of the department, or his or her designee, one of whom shall be the commissioner of the department of environmental conservation, or his or her designee, and one of whom shall be the director of the Cornell University Institute for Comparative and Environmental Toxicology, or his or her designee; and the board shall appoint two non-voting ex officio members, one of whom shall be a person who has or has survived breast cancer and one of whom shall be a person who has or has survived prostate or testicular cancer. The governor shall designate the chair of the board. The governor, temporary president of the senate, minority leader of the senate, speaker of the assembly, and minority leader of the assembly may solicit recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, the Federal Agency For Health Care Policy and Research, and the National Academy of Sciences for appointments to the board.

2. All members shall serve for terms of three years and may be reappointed, such terms to commence July first and expire June thirtieth; provided, however, that of the eleven members first appointed, three such members, one appointed by the governor, one appointed by the temporary president of the senate and one appointed by the speaker of the assembly, shall be appointed for terms of one year, and three such members, one appointed by the governor, one appointed by the temporary president of the senate, and one appointed by the speaker of the assembly shall be appointed for a term of two years.
The board shall convene on or before September first, nineteen hundred ninety-seven.

3. Any member, after notice and an opportunity to be heard, may be removed by the governor for neglect of duty or malfeasance in office. Any member who fails to attend three consecutive meetings of the board, unless excused by formal vote of the board, shall be deemed to have vacated his or her position.

4. Any vacancy in the board shall be filled for the unexpired term in the same manner as the original appointment.

5. A majority of the voting members of the board shall constitute a quorum for the transaction of any business or the exercise of any power or function of the board.

6. Members of the board shall not receive compensation for their services as members, but shall be allowed their actual and necessary expenses incurred in the performance of their duties.

§2411. Powers and duties of the board

1. The board shall:

i. Survey state agencies, boards, programs and other state governmental entities to assess what, if any, relevant data has been or is being collected which may be of use to researchers engaged in breast, prostate or testicular cancer research;

ii. Consistent with the survey conducted pursuant to paragraph (a) of this subdivision, compile a list of data collected by state agencies which may be of assistance to researchers engaged in breast, prostate or testicular cancer research as established in section twenty-four hundred twelve of this title;

iii. Consult with the Centers for Disease Control and Prevention, the National Institutes of Health, the Federal Agency For Health Care Policy and Research, the National Academy of Sciences and other organizations or entities which may be involved in cancer research to solicit both information regarding breast, prostate and testicular cancer research projects that are currently being conducted and recommendations for future research projects;

iv. Review requests made to the commissioner for access to information pursuant to paragraph b of subdivision one of section 33-1203 and paragraph c of subdivision two of section 33-1205 of the environmental conservation law for use in human health related research projects. Such data shall only be provided to researchers engaged in human health related research. The request made by such researchers shall include a copy of the research proposal or the research protocol approved by their institution and copies of their institution's Institutional Review Board (IRB) or equivalent review board approval of such proposal or protocol. In the case of research conducted outside the auspices of an institution by a researcher previously published in a peer-reviewed scientific journal, the board shall request copies of the research proposal and shall deny access to the site-specific and nine-digit zip code pesticide data if the board determines that such proposal does not follow accepted scientific practice for the design of a research project. The board shall establish guidelines to restrict the dissemination by researchers of the name, address or other information that would otherwise identify a commercial applicator or private applicator or any person who receives the services of a commercial applicator;

v. Solicit, receive, and review applications from public and private agencies and organizations and qualified research institutions for grants from the breast cancer research and education fund, created pursuant to section ninety-seven-yy of the state finance law, to conduct research or educational programs which focus on the causes, prevention, screening, treatment and cure of breast cancer and may include, but are not limited to basic, behavioral, clinical, demographic, environmental, epidemiologic and psycho social

research. The board shall make recommendations to the commissioner, and the commissioner shall, in his or her discretion, grant approval of applications for grants from those applications recommended by the board. The board shall consult with the Centers for Disease Control and Prevention, the National Institutes of Health, the Federal Agency For Health Care Policy and Research, the National Academy of Sciences, breast cancer advocacy groups, and other organizations or entities which may be involved in breast cancer research to solicit both information regarding breast cancer research projects that are currently being conducted and recommendations for future research projects. As used in this section, "qualified research institution" may include academic medical institutions, state or local government agencies, public or private organizations within this state, and any other institution approved by the department, which is conducting a breast cancer research project or educational program. If a board member submits an application for a grant from the breast cancer research and education fund, he or she shall be prohibited from reviewing and making a recommendation on the application;

vi. Consider, based on evolving scientific evidence, whether a correlation exists between pesticide use and pesticide exposure. As part of such consideration the board shall make recommendations as to methodologies which may be utilized to establish such correlation;

vii. After two years of implementation of pesticide reporting pursuant to section 33-1205 of the environmental conservation law, the board shall compare the percentage of agricultural crop production general use pesticides being reported to the total amount of such pesticides being used in this state as estimated by Cornell University, Cornell Cooperative Extension, the department of environmental conservation, and the Environmental Protection Agency;

viii. Meet at least six times in the first year, at the request of the chair and at any other time as the chair deems necessary. The board shall meet at least four times a year thereafter. Provided, however, that at least one such meeting a year shall be a public hearing, at which the general public may question and present information and comments to the board with respect to the operation of the health research science board, the breast cancer research and education fund, the prostate and testicular cancer research and education fund and pesticide reporting established pursuant to sections 33-1205 and 33-1207 of the environmental conservation law. At such hearing, the commissioner of the department of environmental conservation or his or her designee shall make a report to the board with respect to the efficiency and utility of pesticide reporting established pursuant to sections 33-1205 and 33-1207 of the environmental conservation law.

2. The commissioner shall request that the department of environmental conservation compile information pursuant to paragraph b of subdivision one of section 33-1203 of the environmental conservation law as necessary to fulfill board approved requests, pursuant to paragraph (d) of subdivision one of this section.

3. The commissioner shall provide the board with such staff assistance and support services as are necessary for the board to perform the functions required of it under this section.

§2412. Agency implementation

All state agencies, including, but not limited to, the departments of agriculture and markets, environmental conservation, and health, shall review their programs and operations (pursuant to guidelines established by the board) to determine whether they currently collect data which may be of use to researchers engaged in breast, prostate or testicular cancer research. Any agency collecting such data shall forward a description of the data to the health research science board.

§2413. Biennial report

The commissioner shall submit a report on or before January first commencing in nineteen hundred ninety-nine, and biennially thereafter, to the governor, the temporary president of the senate and the speaker of the assembly concerning the operation of the health research science board. Such report shall include recommendations from the health research science board including, but not limited to, the types of data that would be useful for breast, prostate or testicular cancer researchers and whether private citizen use of residential pesticides should be added to the reporting requirements. The report shall also include a summary of research requests granted or denied. In addition, such report shall include an evaluation by the commissioner, the commissioner of the department of environmental conservation and the health research science board of the basis, efficiency and scientific utility of the information derived from pesticide reporting pursuant to sections 33-1205 and 33-1207 of the environmental conservation law and recommend whether such system should be modified or continued. The report shall include a summary of the comments and recommendations presented by the public at the board's public hearings.

§2415. Prostate and testicular cancer detection and education advisory council; establishment.

There is hereby created within the department the prostate and testicular cancer detection and education advisory council. This council is established to promote screening and detection of prostate and testicular cancer among unserved or underserved populations, to educate the public regarding prostate and testicular cancer and the benefits of early detection, and to provide counseling and referral services. For purposes of this section, "unserved or under-served populations" shall mean persons having inadequate access and financial resources to obtain prostate and testicular cancer screening and detection services, including persons who lack health insurance or whose health insurance coverage is inadequate.

§2416. Advisory council

1. There is hereby established in the department the prostate and testicular cancer detection and education advisory council to be composed of thirteen members who shall be appointed in the following manner: two shall be appointed by the temporary president of the senate and one by the minority leader of the senate; two shall be appointed by the speaker of the assembly and one by the minority leader of the assembly; seven shall be appointed by the governor. The governor shall designate the chair of the advisory council. The members of the council shall be representative of the public, persons with prostate or testicular cancer, local health departments, health care providers, and recognized experts in the provision of health services to men, cancer research, or environmental health.

The members of the council shall serve for a term of two years to commence on July first. Replacements or reappointments thereafter shall be made at the expiration of the term of each member, by the appointing official who originally appointed such member. Vacancies shall be filled by appointment in like manner for unexpired terms.

2. The advisory council shall be responsible for advising the commissioner with respect to the implementation of this title, including, but not limited to:

a. promotion of early detection of prostate and testicular cancer, including:

    i. testicular self-examination instruction and discussion of its importance as a lifelong personal health activity;

ii. dissemination of information regarding the incidence of prostate and testicular cancer, the risk factors associated with prostate and testicular cancer and the benefits of early detection and treatment; and

iii. clinical examination;

b. promotion of counseling and information on treatment options and referral for appropriate medical treatment;

c. dissemination of information to unserved and underserved populations, to the general public and to health care professionals concerning prostate and testicular cancer, the benefits of early detection and treatment, and the availability of prostate and testicular cancer screening services;

d. identification of local prostate and testicular cancer screening services;

e. dissemination of information regarding counseling and referral services to individuals diagnosed with prostate or testicular cancer; and

f. an evaluation component to assist in determining if the program accomplishes its stated objectives.

3. The advisory council shall perform an evaluation of early detection and treatment of prostate and testicular cancer within the state and shall submit to the legislature and the governor a report detailing its findings and recommendations concerning the state`s response to the incidence of prostate and testicular cancer. Such report shall be submitted no later than January first, nineteen hundred ninety-nine. The department shall provide such information and assistance as the advisory council shall require in order to complete its report.

4. The advisory council shall meet at least three times a year, at the request of the chair.

5. The members of the council shall receive no compensation for their services, but shall be allowed their actual and necessary expenses incurred in performance of their duties.

§2417 Annual report

The commissioner shall submit on or before december first, an annual report to the governor and the legislature concerning the operation of the prostate and testicular cancer detection and education advisory council. Such report shall include any recommendations for additional action to respond to the high incidence of prostate and testicular cancer in this state.

TAX LAW

§209-D. Gift for breast cancer research and education.

Effective for any tax year commencing on or after January first, nineteen hundred ninety-six, a taxpayer in any taxable year may elect to contribute to the support of the breast cancer research and education fund. Such contribution shall be in any whole dollar amount and shall not reduce the amount of the state tax owed by such taxpayer. The commissioner shall include space on the corporate income tax return to enable a taxpayer to make such contribution. Notwithstanding any other provision of law, all revenues collected pursuant to this section shall be credited to the breast cancer research and education fund and shall be used only for those purposes enumerated in section ninety-seven-yy of the state finance law.

§627. Gift for breast cancer research and education

Effective for any tax year commencing on or after January first, nineteen hundred ninety-six, an individual in any taxable year may elect to contribute to the breast cancer research and education fund. Such contribution shall be in any whole dollar amount and shall not reduce the amount of state tax owed by such individual. The commissioner shall include space on the personal income tax return to enable a taxpayer to make such contribution. Notwithstanding any other provision of law all revenues collected pursuant to this section shall be credited to the breast cancer research and education fund and used only for those purposes enumerated in section ninety-seven-yy of the state finance law.

STATE FINANCE LAW

§ 97-yy. Breast cancer research and education fund.

1. There is hereby established in the joint custody of the commissioner of taxation and finance and the comptroller, a special fund to be known as the "breast cancer research and education fund".

2. Such fund shall consist of all revenues received by the department of taxation and finance, pursuant to the provisions of section two hundred nine-D and section six hundred twenty-seven of the tax law and all other moneys appropriated, credited, or transferred thereto from any other fund or source pursuant to law. Nothing contained herein shall prevent the state from receiving grants, gifts or bequests for the purposes of the fund as defined in this section and depositing them into the fund according to law.

3. Monies of the fund shall be expended only for breast cancer research and educational projects. As used in this section, "breast cancer research and education projects" means scientific research or educational projects which, pursuant to section two thousand four hundred eleven of the public health law, are approved by the department of health, upon the recommendation of the health research science board.

4. Monies shall be payable from the fund on the audit and warrant of the comptroller on vouchers approved and certified by the commissioner of health.

5. To the extent practicable, the commissioner of health shall ensure that all monies received during a fiscal year are expended prior to the end of the fiscal year.

§ 97-ccc. Prostate and testicular cancer research and education fund.

1. There is hereby established in the joint custody of the commissioner of taxation and finance and the comptroller, a special fund to be known as the "prostate and testicular cancer research and education fund".

2. Such fund shall consist of all revenues received pursuant to an appropriation by the legislature and all other moneys appropriated, credited, or transferred thereto from any other fund or source pursuant to law. Nothing contained herein shall prevent the state from receiving grants, gifts or bequests for the purposes of the fund as defined in this section and depositing them into the fund according to law.

3. Monies of the fund shall be expended only for prostate and testicular cancer research and educational projects. As used in this section, "prostate and testicular cancer research and education projects" means scientific research or educational projects which are approved by the department of health and shall include but not be limited to:

a. establishment of a public education and outreach campaign to publicize prostate and testicular cancer detection and education services, including the extent of coverage for such services by health insurance, the medical assistance program and other public and private programs;

b. compilation of data concerning the prostate and testicular cancer detection and education program and dissemination of the data to the public;

c. development of professional education programs including the benefits of early detection of prostate and testicular cancer and the recommended frequency of the test and examination therefor; and

d. to further the goals and duties of the prostate and testicular cancer detection and education advisory council established in section twenty-four hundred fifteen of the public health law.

4. Monies shall be payable from the fund on the audit and warrant of the comptroller on vouchers approved and certified by the commissioner of health.

5. To the extent practicable, the commissioner of health shall ensure that all monies received during a fiscal year are expended prior to the end of that fiscal year.

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Public Outreach and Education

I. Mass Mailings

Date	What Happened
12/23/96	Initial mailing to approximately 30,000 regulated parties regarding all four reporting/record keeping forms (mailed on 1/29 and 31 of 1997).
06/17/97	Letter sent to all (415) Commercial Permittees regarding the newly revised restricted pesticide sales reporting form which combined the old form and new forms into one.
07/09/97	Mailing to large businesses offering DEC assistance regarding the Pesticide Reporting Law and encouraging them to call DEC's toll-free number.
08/28/97	Mailing to associations and large businesses with cover letter and Draft Technical and Administrative Guidance Memorandum (TAGM) for comments.
11/04/97	Mailing to all (30,000) interested parties regarding an announcement of DEC- sponsored workshops.
11/05/97	Mailing to associations asking them to publicize DEC's workshops.
11/18/97	Mailing to all (5,000) Commercial Permittees and Registered Pesticide Businesses to survey their use of computers to keep their pesticide reporting records.
12/23/97	Mailing to associations and large businesses enclosing a copy of DEC's finalized first TAGM.
01/98	Mailing of the DEC PRL brochure to 105 Public School Districts in the Buffalo area.
02/25/98	Mailing of scannable form packets to all (4400) Registered Pesticide Businesses.
04/06/98	Mailing of two letters: 1) to non-filing commercial permit holders and 2) to non-filing certified applicators.

II. Public Workshops Series of four workshops in 1996 throughout the State

Date	Where
10/10/96	Syracuse
10/16/96	Smithtown
10/21/96	Albany
11/19/96	Rochester

Series of six workshops in 1997 throughout the State (3500 attendees)

Date	Where
12/02/97	White Plains
12/04/97	Rochester
12/05/97	Albany
12/10/97	Syracuse
12/11/97	Long Island
12/12/97	Binghamton

III. Speeches/Outreach at Public Meetings

Date	What and Where
01/97	NYS Arborists Association Meeting in Suffern
01/97	Long Island Agricultural Forum in Riverhead
01/97	Black Fly Management Workshop (75 People)
02/97	Cooperative Extension of Franklin County Training (25 People)

Date	What and Where
02/97	Federal Correctional Institute Training at Ray Brook (35 People)
02/97	Cooperative Extension of Washington County Training (20 People)
02/97	Conference sponsored by LESCO (60 People)
02/97	Workshop for Growers in Orleans and Niagara Counties in Knowesville (21 People)
02/97	Pest Management and Food Safety Meeting in Rochester
02/97	Pesticide Management Advisory Council (PMAC) Meeting
02/97	NYS Vegetable Growers Conference in Syracuse
02/97	Northeast NY Nursery/Landscape Education Day in Albany
02/97	Pesticide Recertification Workshop in Schenectady
02/97	NYS Turfgrass Association Turf and Grounds Exposition II in Suffern (225 People)
02/97	Long Island Arboriculture Association Tree Conference at Hofstra (300 People)
02/97	Jefferson/Lewis Crop Congress Presentation (130 People)
03/97	Nassau/Suffolk Landscape Gardeners Association Annual Professional Turf and Plant Conference which included staffing a trade show booth (1000 People)
03/97	Empire State Recreational Marine Caucus at SUNY Stony Brook (50 People)
03/97	Landscape Gardeners Association Turf and Plant Conference in West Huntington (3000 at conference, 1000 at Pesticide Reporting Law Presentation)
03/97	NYS Turf and Landscape Association in Scarsdale (140)
03/97	Pesticide Management Advisory Council (PMAC)Meeting
03/97	Pest Management Turf Care Conference for Golf Courses in White Plains (20 People in Attendance)
03/97	New York City Watershed Conference
03/97	Agway Training Workshop (50 People)
03/97	IPM Seminar (55 People)
03/97	NYS Department of Transportation Training (120 People)
03/97	Cooperative Extension of Jefferson County Training
03/97	Cooperative Extension of Clinton County Training (20 People)
03/97	IPM Seminar in Saranac Lake (65 People)
03/97	Cairo/Vail Growers Meeting in Salem (200 People)
03/97	Meeting with Cornell University's Pesticide Management Education program staff
03/97	Meeting with Onondaga County Department of Health Vector Control Unit
03/97	Recertification Training at Cornell University (90 People)
03/97	CLC Lawn Care Workshop
03/97	Workshop at the Cornell University Experiment Station in Geneva (110 People)
03/97	Workshop with Oswego County School District Grounds Superintendents at the BOCES in Mexico (20 People)
03/97	Presentation regarding the PRL at Niagara County Cooperative Extension Office (24 People)
04/97	Rudd Spray Service Workshop (45 People)
04/97	Central New York Flower and Garden Show in Syracuse (80 People)
04/97	Amish Farmers Workshop (8 People)
04/97	CNA Environmental Services Workshop in Saratoga Springs (200 People)
04/97	Workshop at the Cooperative Extension Center in Ballston Spa (50 People)
04/97	Central New York Flower and Garden Show at the NYS Fairgrounds (1000's of People in Attendance)
04/97	Presentation regarding the PRL at Allegany County Cooperative Extension Office (25 People)
04/97	Training session for the PRL during exam session at SUNY Alfred (13 People)
04/97	PRL info provided at Recertification class for North Collins Agway (34 People)
04/97	Presentation regarding the PRL at Cattaraugus County Cooperative Extension Office (38 People)
04/97	Presentation regarding the PRL at Chautauqua County Cooperative Extension Office (53 People)

Date	What and Where
04/97	Presentation regarding the PRL at Recertification Session sponsored by NALCO who supply Cooling Tower products (35 People)
04/97	Info. on the PRL at the Betz-Dearborn Cooling Tower Meeting (120 People)
04/97	Professional Certified Applicators Association in Nyack (20 People in Attendance)
04/97	Environmental Advocates Meeting in Albany
05/97	Program at the Best Western in Albany (35 People)
06/97	City of Oswego Town Meeting (50 People)
06/97	Cooling Tower Training Course
06/97	Pesticide Management Advisory Council (PMAC)Meeting
07/97	Oneida County Fair Q and A Booth
07/97	Northern New York Housing Authority Director's Meeting (12 People)
07/97	Sustainable Forestry Workshop held at the Castle Inn in Olean
07/97	NYS Turfgrass Association meeting in Potsdam (50 People)
08/97-09/97	New York State Fair in Syracuse
08/97	Cornell Turfgrass Field Days in Ithaca
08/97	Provided assistance at the Empire Farm Days regarding the PRL
09/97	Pesticide Management Advisory Council (PMAC) Meeting
09/97	Environmental Advocates and NYPIRG "Environment '97" Conference in Silver Bay
09/97	Monitor Recertification Training session (11 People)
10/97	Capital Area Ag Consulting Workshop in Albany (75 People)
10/97	State University of New York Environmental Health and Safety Association Conference in Port Jefferson.
11/97	Central Atlantic States Sanitation Association Meeting (48 People)
11/97	NYS Turfgrass Association Conference in Syracuse (200 People) Applicators visited their Trade Show Booth during the conference.)
11/97	NYS Turfgrass Conference in Syracuse
11/97	Clean States Foundation Meeting
11/97	Cooperative Extension Recertification Training Course in Erie County (11 People)
11/97	Pesticide Training Consulting Recertification Course
11/97	Earth Steward Consulting Recertification Course in Lockport (35 People)
12/97	Earth Steward Consulting Recertification Course in Tonawanda (25 People)
12/97	Earth Steward Consulting Recertification Course in East Aurora (22 People)
12/97	Cattaraugus County Cooperative Extension Recertification in Ellicottville (14 People)
12/97	Chautauqua County Cooperative Extension Recertification in Jamestown (39 People)
12/97	Agway Annual Pesticide Applicator Workshop in Riverhead (80 People)
12/97	Pesticide Management Advisory Council (PMAC)Meeting
01/98	Software vendors meeting regarding electronic filing specifications at the NYS Fairgrounds in Syracuse.
01/98	NYS Agri-Business Meeting in Waterloo
01/98	Northeast Turf and Grounds Expo in Albany (150 People)
01/98	Professional Turf and Landscape Conference in White Plains (175 People in Attendance)
01/98	Health Research Science Board (HRSB) Meeting
01/98	Meeting with City of Buffalo officials to discuss use of pesticides and the PRL
01/98	Hadley/Luzerne School Workshop for the School's Athletic Fields and Greenhouse
01/98	Agway Recertification Training Workshop in Cayuga County (65 People)
01/98	Long Island Fisherman's Forum in Riverhead (35 People/Mostly Boat Painters)
01/98	Long Island Pest Control Association Conference Trade Show Booth

Date	What and Where
01/98	NYS Turfgrass Association meeting in Albany (150 People)
02/98	Long Island Horticulture Conference in Ronkonkoma (150 People/Mostly Greenhouse and Nursery Field Growers)
02/98	Empire State Marine Trades Association Recertification Course in Stony Brook (25 People/Mostly Bottom Boat Painters)
02/98	NYS Turfgrass Association Turf and Grounds Exposition II in Suffern (225 People)
02/98	Integrated Pest Management Conference for School Grounds Superintendents(90 People)
02/98	Tru-Green/ChemLawn Statewide Management Workshop in Albany (48 People)
02/98	Capital District Bedding Plant Conference in Albany (60 People)
02/98	Schoharie County Recertification Training Workshop (30 People)
02/98	Fundamentals of Integrated Pest Management in Cortland County (45 People)
02/98	Sprayer/Calibration Seminar in Cortland County (75 People)
02/98	Cooperative Extension Ornamentals and Turf talk in Monroe County (70 People)
02/98	Commercial Applicators talk in Monroe County (50 People)
02/98	Landscape School/Eligibility and Recertification Course in Monroe County (20 People)
02/98	Chautauqua County Cooperative Extension Grape Experiment Station Annual Growers Meeting in Fredonia (90 People)
02/98	LESCO's Recertification Workshop and Product Show (200 People)
02/98	Commercial Permittee Recertification Workshop on Long Island (15-20 Businesses in Attendance)
03/98	Nassau Suffolk Landscape Gardeners Association Conference in Long Island (3000 People at Conference, 1000 People at Pesticide Reporting Law Session)
03/98	Health Research Science Board (HRSB) Meeting
03/98	Pesticide Management Advisory Council (PMAC) Meeting
03/98	Ag Chem Grower's Meeting in Chateauguay (20 People)
03/98	Agway Grower's Meeting in Salem (200 People)
03/98	Caro/Vail Growers Meeting in Salem (200 People)
03/98	Recertification workshop by ESSCO Distributors held in Bay Shore (120 People)
03/98	W.T.C. Recertification Training Workshop (35 People)
04/98	Health Research Science Board (HRSB) Meeting
05/98	Health Research Science Board (HRSB) Meeting
06/98	Pesticide Management Advisory Council (PMAC) Meeting
06/98	Health Research Science Board (HRSB) Meeting

IV. Technical and Administrative Guidance Memorandum (TAGM)

Date	TAGM
08/20/97	Draft TAGM, which also includes an electronic version of the Pesticide Reporting Law, was published in the Environmental Notice Bulletin (ENB) and mailed to associations and large businesses. It was also mailed out to anyone that requested it.
12/17/97	Notice of Final Draft of first TAGM was published in ENB.
01/20/98	First TAGM became final.

V. Other Outreach

Date	What
08/12/97	Finalization of three-fold brochure.

VI. E-mail Address (prl@dec.ny.gov)

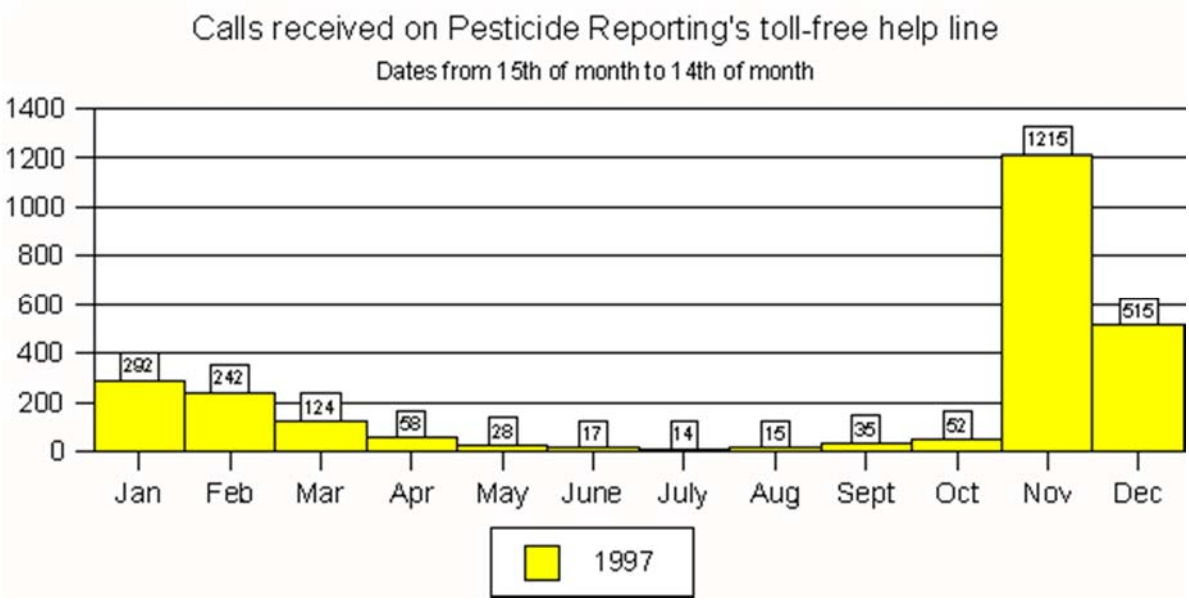
The first general Pesticide Reporting Law e-mail message was received on November 20, 1997. DEC received approximately 76 e-mail messages in 1997. DEC received approximately 365 e- mail messages between January 1, 1998 and May 31, 1998.

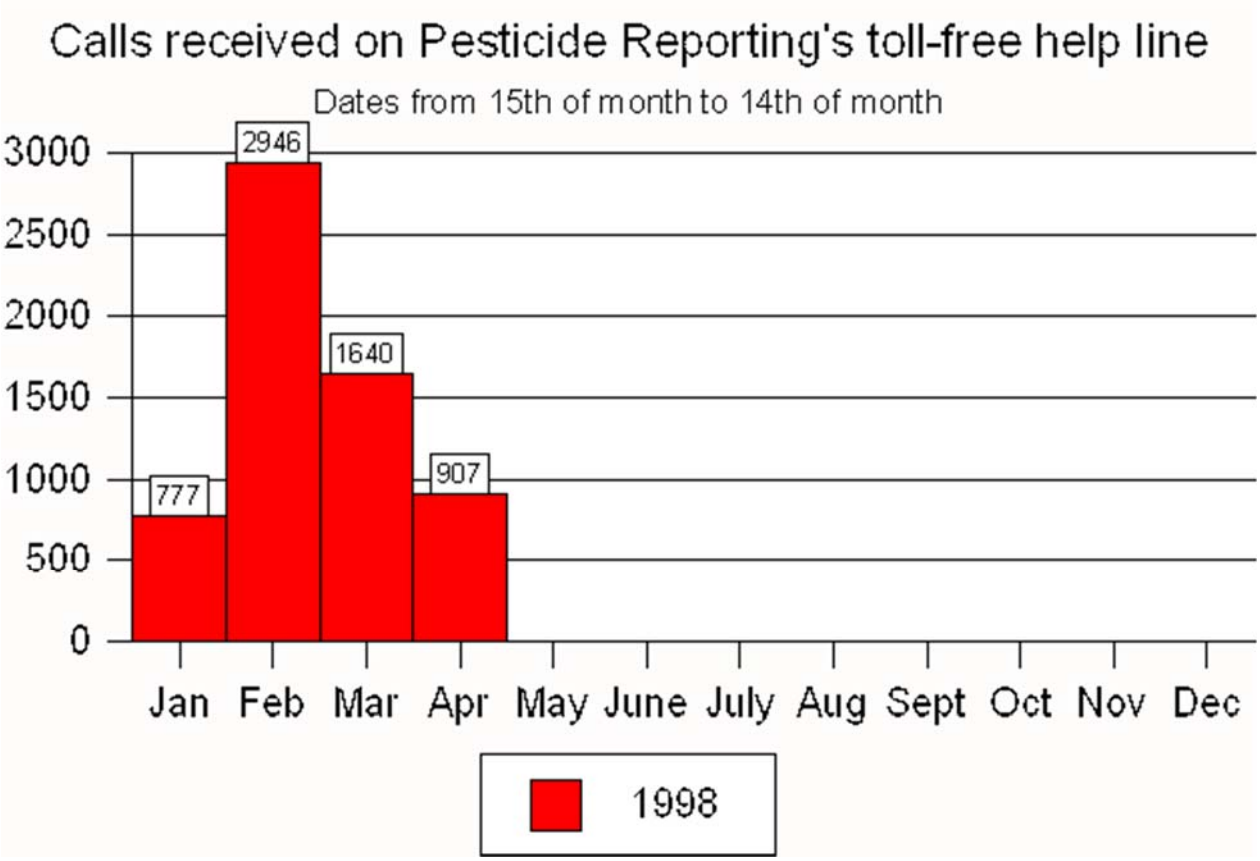
VII. NYSDEC Internet Web Site

In December 1997, the Department formatted Pesticide Reporting Law program information for use on the World Wide Web ("Web"). The Web test includes an introduction to the Pesticide Reporting Law, an annotated version of the Pesticide Reporting Law, information on electronic submission and the scannable form. Hypertext links direct readers to the reports, where an option allows for downloading of the report forms. An e-mail link will allow visitors to contact program staff from the Web site. The Pesticide Reporting Law program Web information will be incorporated into the Division of Solid & Hazardous Materials Web outline.

VIII. Toll-free Hot Line

The system became operational on January 15, 1997. DEC received 2,607 calls in 1997. We received 5,363 calls between January 1, 1998 and March 15, 1998.




Calls received on Pesticide Reporting's toll-free help line
Dates from 15th of month to 14th of month
3000
2500
2000
1500
1000
500
0
2946
1640
907
777
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
1998

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Water Quality Monitoring for Pesticides Program Steering Committee Members

Mr. Ronald Entringer, P.E.
Chief, Program Implementation Section
Bureau of Public Water Supply Protection
New York State Department of Health

Mr. Fred Gaffney
Natural Resources Conservation Service
United States Department of Agriculture

Tony Grey, Ph.D.
Bureau of Toxic Substance Assessment
New York State Department of Health

Mr. Jim McCardell
NY Soil & Water, Conservation Committee
New York State Department of Agriculture & Markets

Mr. Patrick Phillips
United States Geological Survey

Keith S. Porter, Ph.D. Director
New York State Water Resources Institute

Donald A. Rutz, Ph.D.
Professor of Veterinary Entomology & Chair Department of Entomology Cornell University

William Smith, Ph.D.
Pesticide Management Education Program
Cornell Cooperative Extension

Mr. L. Grady Moore, P.E.
Water Resources Division
United States Geological Survey

Mr. Mark Walker
New York State Water Resources Institute

Ms. Beth Baldwin
New York State Water Resources Institute

Mr. Fred Kozak
U.S. Environmental Protection Agency

Mr. Jim Perry
Area Resource Conservationist
Natural Resources Conservation Service

Mr. George Proios
Chief Environmental Analyst
Suffolk County Executive Office

Mr. Jim Ridenhouer
Bureau of Toxic Substance Assessment
New York State Department of Health

Mr. Rene Van Schaack
Greene County Soil and Water Conservation District

Mr. Stephen Smith
New York State Conservation District
Employees Association

Mr. Robert Mungari
New York State Department of Agriculture & Markets

Mr. Fred Van Alstyne
New York State Department of Environmental Conservation
Division of Water

Larry Rosenmann
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials

Maureen Serafini
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials

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Information for National Water Quality Laboratory Schedule 2001/Sh2010

Lab	Parameter	CAS Number*	Parameter Name	MRL Units**
4016	82660 D	579-66-8	2,6-Diethylaniline	0.003 µg/L
4053	49260 D	34256-82-1	Acetochlor	0.002 µg/L
4001	46342 D	15972-60-8	Alachlor	0.002 µg/L
4023	34253 D	319-84-6	alpha-HCH	0.002 µg/L
4003	39632 D	1912-24-9	Atrazine	0.001 µg/L
4004	82686 D	86-50-0	Azinphos-methyl	0.001 µg/L
4005	82673 D	1861-40-1	Benfluralin	0.002 µg/L
4006	04028 D	2008-41-5	Butylate	0.002 µg/L
4007	82680 D	63-25-2	Carbaryl	0.003 µg/L
4008	82674 D	1563-66-2	Carbofuran	0.003 µg/L
4009	38933 D	2921-88-2	Chlorpyrifos	0.004 µg/L
4036	82687 D	52774-45-7	cis-Permethrin	0.005 µg/L
4010	04041 D	21725-46-2	Cyanazine	0.004 µg/L
4011	82682 D	1861-32-1	Dacthal	0.002 µg/L
4002	04040 D	6190-65-4	Deethylatrazine	0.002 µg/L
4013	39572 D	333-41-5	Diazinon	0.002 µg/L
4015	39381 D	60-57-1	Dieldrin	0.001 µg/L
4018	82677 D	298-04-4	Disulfoton	0.017 µg/L
4019	82668 D	759-94-4	EPTC	0.002 µg/L
4020	82663 D	55283-68-6	Ethalfluralin	0.004 µg/L
4021	82672 D	13194-48-4	Ethoprophos	0.003 µg/L
4022	04095 D	944-22-9	Fonofos	0.003 µg/L
4025	39341 D	58-89-9	Lindane	0.004 µg/L
4026	82666 D	330-55-2	Linuron	0.002 µg/L
4027	39532 D	121-75-5	Malathion	0.005 µg/L
4029	39415 D	51218-45-2	Metolachlor	0.002 µg/L
4030	82630 D	21087-64-9	Metribuzin	0.004 µg/L
4031	82671 D	2212-67-1	Molinate	0.004 µg/L
4032	82684 D	15299-99-7	Napropamide	0.003 µg/L
4033	39542 D	56-38-2	Parathion	0.004 µg/L
4028	82667 D	298-00-0	Parathion-methyl	0.006 µg/L
4034	82669 D	1114-71-2	Pebulate	0.004 µg/L
4035	82683 D	40487-42-1	Pendimethalin	0.004 µg/L
4037	82664 D	298-02-2	Phorate	0.002 µg/L
4012	34653 D	72-55-9	p,p'-DDE	0.006 µg/L
4039	04037 D	1610-18-0	Prometon	0.018 µg/L
4040	04024 D	1918-16-7	Propachlor	0.007 µg/L
4041	82679 D	709-98-8	Propanil	0.004 µg/L
4042	82685 D	2312-35-8	Propargite	0.013 µg/L
4038	82676 D	23950-58-5	Propyzamide	0.003 µg/L
4043	04035 D	122-34-9	Simazine	0.005 µg/L
4045	82670 D	34014-18-1	Tebuthiuron	0.010 µg/L

4046	82665 D	5902-51-2	Terbacil	0.007 µg/L
4047	82675 D	13071-79-9	Terbufos	0.013 µg/L
4044	82681 D	28249-77-6	Thiobencarb	0.002 µg/L
4049	82678 D	2303-17-5	Tri-allate	0.001 µg/L
4050	82661 D	1582-09-8	Trifluralin	0.002 µg/L

* CAS Number is a number assigned by the Chemical Abstract Service to Uniquely Identify a Chemical

** MRL is the Minimum Reporting Level

Information for National Water Quality Laboratory Schedule 2050/2051

Compound	Mean Observed Conc. (µg/l)	Standard Deviation (µg/l)	Relative Standard Deviation (Percent)	Mean accuracy (Percent of true conc.)	Method Det. Limit (µg/l)
Aciflourfen	0.056	0.003	5	56	0.008
Aldicarb	0.083	0.006	7	83	0.016
Aldicarb sulfone	0.061	0.006	9	61	0.016
Aldicarb Sulfoxide	0.061	0.007	12	61	0.021
Bentazon	0.060	0.005	8	61	0.014
Bromacil	0.077	0.004	5	77	0.011
Bromoxynil	0.051	0.004	8	51	0.012
Carbaryl	0.082	0.003	3	82	0.008
Carbofuran	0.088	0.010	11	88	0.028
3-OH-Carbofuran	0.068	0.005	7	68	0.014
Chloramben	0.075	0.004	5	75	0.011
Chlorothalonil	0.057	0.002	4	57	0.007
Clopyralid	0.046	0.006	13	46	0.018
2,4-D	0.050	0.004	9	50	0.013
2,4-DB	0.058	0.005	8	58	0.013
Dacthal, MA	0.046	0.005	12	46	0.017
Dicamba	0.045	0.004	8	45	0.011
Dichlobenil	0.072	0.004	5	72	0.012
Dichlorprop	0.076	0.011	15	76	0.032
Dinoseb	0.043	0.003	8	43	0.010
Diuron	0.072	0.004	5	72	0.012
DNOC	0.039	0.002	5	39	0.006
Esfenvalerate	0.041	0.007	16	41	0.019
Fenuron	0.080	0.005	6	80	0.013
Fluometuron	0.050	0.003	7	50	0.010
Linuron	0.079	0.002	3	79	0.006
MCPA	0.049	0.005	10	49	0.014
MCPB	0.045	0.003	7	45	0.010
Methiocarb	0.070	0.009	13	70	0.026
Methomyl	0.066	0.006	9	66	0.017
1-Naphthol	0.079	0.002	3	79	0.007
Neburon	0.076	0.005	7	76	0.15
Norflurazon	0.073	0.008	11	73	0.024

Compound	Mean Observed Conc. (µg/l)	Standard Deviation (µg/l)	Relative Standard Deviation (Percent)	Mean accuracy (Percent of true conc.)	Method Det. Limit (µg/l)
Oryzalin	0.052	0.007	13	52	0.019
Oxamyl	0.046	0.006	14	46	0.018
Picloram	0.048	0.002	3	48	0.004
Propham	0.066	0.004	6	66	0.011
Propoxur	0.075	0.003	3	75	0.008
Silvex	0.050	0.007	14	50	0.021
2,4,5-T	0.046	0.004	8	46	0.010
Trichlopyr	0.048	0.003	7	48	0.010

USGS Kansas Lab Pesticide and Metabolite Schedule

VARIABLE NAME	DETEC LIMIT (µg/L)
Acetachlor ESA	0.20
Acetachlor Oxanilic Acid	0.20
Alachlor ESA	0.20
Alachlor Oxanilic Acid	0.20
Hydroxy-Atrazine	0.20
Metolachlor ESA	0.20
Metolachlor Oxanilic Acid	0.20
Acetochlor	0.05
Alachlor	0.05
Ametryn	0.05
Atrazine	0.05
Cyanazine	0.05
Cyanazine-amide	0.05
Deethyl Atrazine	0.05
Deisopropyl Atrazine	0.05
Metolachlor	0.05
Metribuzin	0.05
Prometon	0.05
Prometryn	0.05
Propachlor	0.05
Propazine	0.05
Simazine	0.05
Terbutryn	0.05

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Water Quality Monitoring Program to Detect Pesticide Contamination in Groundwaters of Nassau and Suffolk Counties, New York

Proposed Analytes & Typical MDLs (ug/L)

Metals	MDL	Chlorinated Pesticides	MDL	Chlorinated Acids	MDL
silver	5.0	Alpha-BHC	0.2	Acifluoren	0.5
aluminum	5.0	Beta-BHC	0.2	Bentazon	0.5
arsenic	2.0	Gamma-BHC	0.2	Chloramben	0.5
barium	5.0	Delta-BHC	0.2	2,4-D	0.5
beryllium	1.0	Heptachlor	0.2	2,4-DB	0.5
cadmium	1.0	Heptachlor epoxide	0.2	Dicamba	0.5
cobalt	1.0	Aldrin	0.2	3,5-dichlorobenzoic acid	0.5
chromium	1.0	Dieldrin	0.2	Dichloroprop (2,4-DP)	0.5
copper	1.0	Endosulfan I	0.2	Dinoseb	0.5
molybdenum	1.0	Dacthal	0.2	MCPA	0.5
nickel	1.0	4,4-DDE	0.2	MCPP	0.5
lead	1.0	4,4-DDD	0.2	4-nitrophenol	0.5
antimony	1.0	4,4-DDT	0.2	pentachlorophenol	0.5
selenium	2.0	Endrin	0.2	Picloram	0.5
thorium	1.0	Endrin aldehyde	0.2	2,4,5-T	0.5
titanium	1.0	Chlordane	1.0	4,5-TP (Silvex)	0.5
thallium	1.0	Alachlor	0.5		
vanadium	1.0	Methoxychlor	0.5		
zinc	50.0	Endosulfan II	0.2		
manganese	1.0				

EDB & DBCP	MDL	Dacthal Metabolites	MDL
1,2 dibromoethane	0.02	Monomethyltetrachloroterethalate	10.0
1,2 dibromo-3-chloropropane	0.02	Tetrachloroterephthalic Acid	10.0

Methyl-Carbamates	MDL	Semi-Volatile Organics	MDL
Aldicarb	1.0	Hexachlorocyclopentadiene	0.2
Aldicarb sulfoxide	1.0	Hexachlorobenzene	0.2
Aldicarb sulfone	1.0	Simazine	0.2
Carbofuran	1.0	Atrazine	0.2
3-hydroxycarbofuran	1.0	Metribuzin	0.2
Oxamyl	1.0	Alachlor	0.2
Carbary	1.0	Metolachlor	0.2
1-napthol	1.0	Dacthal	0.2
Methomyl	1.0	Butachlor	0.2
Propoxur	1.0	Bis (2-ethylhexyl) adipate	
Methiocarb	1.0	Bis (2-ethylhexyl) phthalate	
		Benzo(a)pyrene	0.2

* MDL is the Minimum Detection Level

Water Quality Monitoring Program to Detect Pesticide Contamination in Groundwaters of Nassau and Suffolk Counties, New York

Analytes & Typical MDLs (ug/L)

Volatile Organics	**MDL**	**Volatile Organics**	**MDL**
chlorodifluoromethane	0.5	benzene	0.5
Dichlorodifluoromethane	0.5	toluene	0.5
Vinyl chloride	0.5	chlorobenzene	0.5
Methylene chloride	0.5	ethylbenzene	0.5
1,1 dichloroethane	0.5	o-xylene	0.5
Trans 1,2-dichloroethene	0.5	m-xylene	0.5
Chloroform	0.5	p-xylene	0.5
1,1,1-trichloroethane	0.5	2-chlorotoluene	0.5
Carbon tetrachloride	0.5	3-chlorotoluene	0.5
1-bromo 2-chloroethane	0.5	5 4-chlorotoluene	0.5
1,2-dichloropropane	0.5	total chlorotoluene	0.5
trichloroethene	0.5	1,3,5-trimethylbenzene	0.5
Chlorodibromomethane	0.5	1,2,4-trimethylbenzene	0.5
2-bromo-3-chloropropane	0.5	m,p-dichlorobenzene	0.5
Bromoform	0.5	1,2 dichlorobenzene (o)	0.5
Tetrachloroethene	0.5	p-diethylbezene	0.5
Cis- 1,2-dichloroethene	0.5	1,2,4,5-tetramethylbenzene	0.5
Freon 113	0.5	1,2,4-trichlorobenzene	0.5
Dibromomethane	0.5	1,2,3-trichlorobenzene	0.5
1,1-dichloroethene	0.5	ethenylbenzene (styrene)	0.5
Bromodichloromethane	0.5	1-methylethylbenzene	0.5
2,3-dichloropropene	0.5	n-propylbenzene	0.5
cis l,3-dichloropropene	0.5	tert-butylbenzene	0.5
Trans- 1,3-dichloropropene	0.5	sec-butylbenzene	0.5
1,1,2-trichloroethane	0.5	isopropyltolunene (p-cymene)	0.5
1,1,1,2-tetrachloroethane	0.5	n-butylbenzene	0.5
1,1,2,2-tetrachloroethane	0.5	hexachlorobutadiene	0.5
1,2,3-trichloropropane	0.5	methyl-tert-butyl-ether	0.5
2,2-dichloropropane	0.5	naphthalene	0.5
1,3-dichloropropane	0.5	1,4-dichlorobutane	0.5
Methyl sulfide	0.5	2-butanone (MEK)	20.0
Dimethyldisulfide	0.5	tetrahydrofuran	20.0

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Sample Collection Sites for Statewide Monitoring Program for Pesticides in Surface Water of New York

Samples collected at Site

Fixed Sites

Site Number	Station name	SH2001	Metabolites	SH2050
F1	Canajoharie Cr. nr Canajoharie	X	X	
F2	Mohawk R. at Cohoes	X	X	
F3	Seneca R. at Baldwinsville	X	X	
F4	Fall Cr. nr Ithaca	X	X	
F5	Genessee R. at Avon	X	X	
F6	Canaseraga Ck. nr Shakers Crossing			

Synoptic Sites

Site Number	Station name	SH2001	Metabolites	SH2050
1	Peconic R. at Riverhead	X		X
2	Massapequa Cr. at Massapequa	X		
3	Raquette R. at Raymondville	X		
4	Hudson R. nr Poughkeepsie	X		X
5	Ausable R. nr Au Sable Forks	X		
6	Croton R. at N. Croton Darn nr Croton	X		
7	Saw Mill R. at Yonkers	X		
8	Claverack Cr. at Claverack	X		X
9	Mettawee R. nr Middle Granville	X		
10	Wallkill R. at Gardiner	X		X
11	Schoharie Cr. at Esperance	X		
12	West Cr. at Warnerville	X		
13	Biscuit Br. abv. Pigeon Br. at Frost Valley	X		
14	Delaware R. at Port Jervis	X		
15	Stoney Cr. at Vischers Ferry	X		
16	Black River at Watertown	X		X
17	Delaware R. at Walton	X		X
18	Oswego R. at Oswego	X		X
19	Oneida R. nr Euclid	X		X
20	Allegheny R. at Salamanca	X		X
21	Susquehanna R. at Owego	X		X
22	Canandaigua Outlet at Chapin	X		X
23	Grout Brook trite SE of Fair Have	X		X
24	Black Br. at Tyre	X		X
25	Flint Ck. at Phelps	X		X
26	Black Cr. at Churchville	X		
27	Cohocton R. nr Campbell	X		
28	Tonawanda Ck. at Rapids	X		
29	Tonawanda Ck. at Attica	X		

30	Otselic R. at Cincinnatus	X		
31	Oatka Ck. at Garbutt	X		
32	Butternut Ck. nr Jamesville	X		
33	Cattaragus Ck. at Gowanda	X		
34	Sterling Ck. at Sterling	X		
35	Fourmile Ck. nr Youngstown	X		
36	Salmon Ck. nr Sodus (Lake Ontario)	X		
37	Lake Ontario trib.	X		
38	Orchard nr Niagara (Lake Ontario)	X		
39	Vineyard nr Hammondsport (Kueka Lake)	X		
40	Vineyard Or Valois (Seneca Lake)	X		
41	Vineyard nr Canandaigua (Canandaigua Lake)	X		
42	Vineyard Or Fredonia (Lake Erie)	X		
43	Vineyard Or Westfield (Lake Erie)	X		
44	Small Ag Or Shakers Crossing (Genesee R.)	X		
45	Small Ag Or Attica (Tonawanda Cr.)	X		
46	Forest basin Or Hemlock Lake	X		
47	Forest basin Or Allegany Forest	X		
48	Cayuga Lake at Bolton Point nr Ithaca	X		
49	Skaneateles Lake at Skaneateles	X		
50	Hemlock Lake at Hemlock	X		

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Water Quality Monitoring Program To Detect Pesticide Contamination In Groundwaters Of Nassau and Suffolk Counties, NY

Interim Report

June 1998

Suffolk County Department of Health Services
Division of Environmental Quality
Joseph H. Baier, P.E., Director

Bureau of Groundwater Resources
Martin Trent, Project Manager

Introduction

Pesticide contamination of groundwater has become a national issue due to growing concerns about potential public health impacts. These concerns are particularly acute on Long Island, where groundwater is the sole-source of drinking water for Nassau and Suffolk County residents. The Suffolk County Department of Health Services is conducting a comprehensive pesticide monitoring program in cooperation with the New York State Department of Environmental Conservation, Division of Solid & Hazardous Materials. The project was initiated to fulfill the requirements of Section 33-0714 of the Environmental Conservation Law (ECL), to conduct a water quality monitoring program to detect and assess pesticide contamination of ground and surface waters on Long Island and throughout the state. The objective of the program is to identify and define pesticide impacts on Long Island groundwater from use by agriculture, residents, businesses, and institutions. The program is innovative from the perspectives of both the large number of compounds being tested and the geographic distribution of sample sites.

This interim report provides the results of testing for the NYSDEC Water Quality Monitoring Program to Detect Pesticides in Groundwaters of Nassau and Suffolk Counties. The interim findings presented are based upon testing conducted between October 1, 1997 and March 31, 1998, coinciding with the end of the state fiscal year. The term pesticide as used herein refers to any compound or element utilized as an insecticide, nematicide, herbicide, or fungicide, or any metabolite of these chemicals. A total of 2,000 samples is contracted to be analyzed over a two-year period. Sampling for the project began on October 1, 1997.

Methods

Wells were sampled in all thirteen townships across the two counties to provide full geographic coverage. Many sample sites were selected based upon their high vulnerability due to the proximity to areas of known pesticide use -- agricultural as well as industrial -- shallow well depths -- and previous testing that had shown pesticides. Site-specific surveys were conducted to sample additional private wells where significant or unexpected analysis results were obtained. New monitoring wells were drilled and sampled in both highly impacted areas and in regions where no other sampling points were available. Monitoring

wells provide data on impacts to the groundwater resource that may not be detected if testing were conducted only at public or private drinking water supply wells. Raw (untreated) water was tested at drinking water supplies where filtration or treatment exists.

Sample collection is being conducted by the Suffolk County by the Department of Health Services (SCDHS) and the Nassau County Department of Public Works. Samples collected in Suffolk are transported directly to the SCDHS Public and Environmental Health Laboratory (PEHL), while samples from Nassau County wells are refrigerated and delivered to the SCDHS PEHL twice weekly. Through March 31, 1998, a total of 1,111 samples was analyzed representing 898 wells.

Each sample set is analyzed utilizing the following eight methodologies: metals (USEPA Method 200.8), volatile organic compounds (524.2), microextractable compounds (504), chlorinated pesticides (505), methyl carbamate pesticides (531.1), semi-volatile pesticides (525.2), chlorinated acids (555), and dacthal metabolites (SCDHS developed method, published and peer reviewed). The eight methods provide information on 157 chemicals, of which approximately 70 may be considered pesticides. Appendix A contains a listing of the compounds analyzed by each method, and the minimum detection level (MDL) for each parameter.

Sample Distribution

Tables I through III indicate the number of wells sampled in each county and township, the number of wells in which pesticides were detected, and the number of those detections that exceeded state and federal drinking water Maximum Contaminant Levels (MCLs). Seventeen percent of the total number of wells tested were located in Nassau County and 83% in Suffolk County. Samples were collected in all 13 townships across the two counties, with the fewest number of wells being tested on Shelter Island (9), and the greatest number within the Town of Southold (173).

The SCDHS installed and sampled 42 new monitoring wells to gain information on groundwater quality in areas in which it was lacking in Suffolk County. Many of the wells drilled were sampled at several levels in the aquifer in order to vertically profile water quality and detect zones where contamination might exist. Other monitoring wells were installed to target specific land uses such as golf courses.

Sampling Results

The project's data indicate that 24 different pesticides or metabolites have been detected in groundwater samples to date (see Table V), and that eight of these compounds have exceeded drinking water MCLs. The compounds that have exceeded MCLs are: alachlor, aldicarb, bis 2-ethylhexylphthalate, 1,2-dichloropropane (DCP), 1,2-dibromoethane (ethylene dibromide or EDB), simazine, tetrachloroterephthalic acid (TCPA is a dacthal metabolite), and 1,2,3-trichloropropane (see Table V). When an MCL is exceeded, the homeowner is notified by SCDHS, told not to drink their water, and advised of alternative water supply sources.

A total of 234 individual wells (26 percent of the wells tested) contained detectable concentrations of at least one pesticide or metabolite compound. One in every ten wells (90 of 898) sampled exceeded a pesticide-related drinking water MCL. The vast majority of the exceedances were from wells located in

the agricultural areas of Suffolk County. Eleven wells in agricultural areas exceeded MCLs for more than one pesticide or metabolite compound.

It is important to recognize that these contamination statistics are not representative of public drinking water supplies where treatment is provided to remove any contamination. Approximately one-half of all the wells tested were targeted specifically in areas considered to have a high potential for pesticide impacts, and 80 percent (%) of the total wells tested were either domestic private wells or monitoring wells. Four public (community) supply wells located in eastern Suffolk County exceeded pesticide MCLs, but these wells have granular activated carbon filtration in place for contaminant reduction.

Well locations exceeding MCLs are depicted on the map of Long Island attached as Appendix B. The map in Appendix B.1 shows a detail of impacted areas of the north and south forks of Suffolk County.

The most frequently detected pesticides or metabolites are listed below together with the number and percent of wells in which the chemical was found. Each insecticide and herbicide listed is applied directly to the soil, as opposed to foliar application. The four most commonly detected pesticide compounds are no longer actively used on Long Island.

Pesticide	# Detects	% of Wells
aldicarb (sufoxide/sulfone)	121	13.5
Tetrachloroterephthalic acid (TCPA)	50	5.5
1,2-dichloropropane	35	3.9
ethylene dibromide	21	2.3
metolachlor	19	2.1
1,2,3-trichloropropane	11	1.2
simazine	11	1.2

Aldicarb (trade name Temik), a systemic carbamate insecticide applied primarily to potato crops, was withdrawn from the Long Island market in 1979. Its manufacturer, Rhone Poulenc Ag Company, voluntarily withdrew the chemical from use on potatoes in 1990 nationwide due to concerns about groundwater contamination. Carbon filters are provided to homes when the aldicarb standard is exceeded. The United States Environmental Protection Agency suspended the use of ethylene dibromide (EDB) as a soil fumigant in 1983.

Dacthal, of which TCPA is a metabolite, was withdrawn from use on Long Island in 1988. Distribution labels were modified at the request of NYSDEC in 1991. DCP (1,2-dichloropropane) applications to the island's nematode-infested potato farms by the U.S. Department of Agriculture were halted in 1982. The widespread findings of these chemicals many years later demonstrates their stability and persistence in Long Island's groundwater environment.

Of the 90 wells found to exceed pesticide MCLs, the vast majority (86) were impacted by agricultural chemicals (including nursery and sod uses). A majority of the 86 were due to aldicarb(47). The five easternmost townships of Suffolk County accounted for 46% of the wells tested and 94% of the wells that exceeded a pesticide-related standard. Homeowner use or residential applications of pesticides were not implicated in any of the findings of wells exceeding drinking water standards.

Sample Results - Agricultural Areas

In addition to being the most frequently detected pesticide, aldicarb also exceeded its MCL of 7 µg/L more than any other contaminant. Parent aldicarb was not found, metabolites aldicarb sulfoxide and aldicarb sulfone were

detected. Forty-seven wells in 15 communities in eastern Suffolk County were found to exceed the aldicarb standard. The highest concentration of aldicarb detected was 41 µg/L. Aldicarb, used on Long Island from 1975-1979, was applied directly to the soils of over 20,000 acres of potato fields.

Sampling in an agricultural area of Calverton led to the discovery of nine private wells impacted by the soil fumigant EDB. EDB concentrations in the private wells ranged from 0.16 to 29.8 micrograms per liter (µg/L). The drinking water MCL for EDB is 0.05 µg/L. A series of monitoring wells were installed and vertically profiled to help determine if the unusual findings resulted from a point source or from field applications. EDB was found at multiple levels in the groundwater and in a cross section of wells approximately 0.5 miles wide, indicating applications to several fields as potential sources. An EDB point source within this area also remains a possibility since a monitoring well installed at a hot spot contained 91.9 µg/L EDB (April 1998), a level more than 1,800 times the MCL. Seventeen of the 20 wells exceeding the MCL for EDB were within this area of Calverton. EDB exceeding standards were also detected in Mattituck, Cutchogue, and Orient on Suffolk's north fork.

The dacthal metabolite tetrachloroterephthalic acid (TCPA) exceeded the Unspecified Organic Compound (UOC) standard of 50 µg/L (established in Part 5 of the NYS Sanitary Code) in 29 wells in eight communities. Twenty-eight of the 29 wells exceeding the TCPA MCL are located in agricultural areas of Suffolk County on the north and south forks. Dacthal is a pre-emergence herbicide that is applied to the soil. Of the pesticides found, TCPA was detected in the highest concentration during the program at 766 µg/L in a private well in Riverhead. Private wells in this area have contained concentrations as high as 1,753 µg/L TCPA (April 1996).

Soil fumigants 1,2,3-trichloropropane and 1,2-dichloropropane exceeded the 5 µg/L MCL for each compound in one and four wells, respectively. These chemicals were widely applied to potato acreage for nearly 30 years, beginning in the 1950s on Long Island, at very high application rates. The wells found exceeding standards are located in Cutchogue, Melville, Wainscott, and Water Mill.

The herbicide alachlor was found in two wells exceeding its 2 µg/L MCL in Shelter Island and Water Mill. In recent sampling by the SCDHS, alachlor was detected in numerous private wells adjacent to landscape nurseries in several Suffolk communities.

Sample Results - Suburban Areas

Simazine, a triazine herbicide, exceeded its 4 µg/L MCL in two monitoring wells located in Aquebogue and Great River, and one private well in Shirley. Simazine is another chemical product that may be soil applied. The two monitoring wells are downgradient of LILCO substations. LILCO applied the chemical for weed control at 101 substations in Suffolk County at industrial application rates (~10 times greater than agricultural rates) between 1979 and 1993. In cooperation with LILCO a separate SCDHS survey was completed and detected simazine in wells located in proximity to the substations. NYSDEC has required label restrictions that prohibit higher application rates.

Only one well was found to exceed pesticide-related MCLs in Nassau County, and four wells exceeded standards in the more suburban western five towns of Suffolk County, despite the fact that these areas account for nearly 54% of the total number of wells sampled. The low rate of pesticide detections in Nassau County may be at least partially explained by the fact that 40 (26%) of the wells tested in Nassau were greater than 300 feet deep, with several over 1,000 feet deep. These depths are typical for public water supply wells, and are considered the least vulnerable to pesticide contamination.

The five contaminated suburban area wells and potential sources of the contamination are described below. The single shallow (monitoring) well exceeding an MCL in Nassau contained TCPA and is downgradient of a golf course in Sands Point. A monitoring well in Commack exceeded the standard for bis 2-ethylhexylphthalate, a

plasticizer that is also used as a pesticide carrier. This well also contained simazine and is located downgradient of a LILCO substation. DCP (1,2-dichloropropane) was detected in a new SCDHS monitoring well drilled in a former potato farming area of Melville. Simazine was found to exceed the MCL in a monitoring well downgradient of a LILCO substation in Great River. A private well in Shirley that exceeded the simazine MCL also contained high concentrations of toluene and other volatile organic compounds(VOCs) from an unknown source. Although past testing by SCDHS has occasionally attributed a few private well contaminations to residential applications of pesticides, none were implicated in any of the findings of wells exceeding drinking water standards in this program.

Sample Results - Golf Courses

Twenty wells located on or downgradient of 10 different golf courses were sampled to examine impacts of golf course pesticide use on groundwater. The wells included 12 new shallow monitoring wells installed by the SCDHS at three Suffolk County operated courses at Timber Point, West Sayville, and Indian Island. The monitoring wells were targeted in areas immediately downgradient of greens, fairways and tees -- areas expected to be the most heavily treated with pesticides (and fertilizers). The results, as previously noted, show one well in Sands Point that exceeded the MCL for TCPA, and two monitoring wells at West Sayville contained detectable traces of bis 2-ethylhexylphthalate and 4-nitrophenol. There were no detections of pesticides or metabolites in the remaining 17 wells at golf courses.

Sample Results - Surface Waters

Groundwater provides the base flow for Long Island's streams and rivers. Sampling was conducted at twelve rivers near the end of March. The results of the testing indicated no detection of pesticide related parameters in any of the rivers. VOCs were detected in seven of the 12 rivers sampled. Methyl-tert-butyl ether (MTBE), trichloroethene (TCE), and tetrachloroethene (PCE), were the most common VOCs detected. PCE exceeded the drinking water MCL in two streams. Nitrate was detected in 11 of 12 streams, and the average stream nitrate concentration was 2.2 mg/L. Additional surface water testing is planned.

Metals Results

There were low-level detections of some metals that may have had utilization in pesticide formulations in the past. It is unclear whether any of these findings are actual remnants of pesticide applications. Arsenic and cadmium were detected in 16 and 22 samples, respectively. With the exception of one cadmium finding, all detections were below drinking water MCLs, the lone exception being a well in Nassau County that exceeded the cadmium MCL of 5 µg/L. The original sample of this well showed 1.12 µg/L cadmium, and a resample 11.2 µg/L. Cadmium was registered for lawn and turf uses from 1959 to 1986 by the USEPA.

Initial analysis of some samples indicated detections of mercury in concentrations less than one microgram per liter. The results of resampling showed no detections in 15 of 16 analyses. The exact cause of the false positives has not been conclusively determined. Method limitations have been discussed with the laboratory instrument's manufacturer, and it is possible that there may have been random contamination of sample bottles used in the very sensitive analysis by the Inductively Coupled Plasma/Mass Spectrometer.

Nitrate Results

Nitrate analyses were also conducted, where possible, for wells sampled in Suffolk County. Wells in Nassau were not tested for nitrate due to the restriction of analytical method holding times. Excess nitrate in drinking water is of public health importance due to the potential occurrence of methemoglobinemia (blue baby syndrome).

Sixty-five (12%) of the 565 Suffolk County wells (see Table VII) tested during this phase of the project for nitrate exceeded the drinking water MCL of 10 milligrams per liter (mg/L). The highest concentration of nitrate found was 31.3 mg/L in a Manorville private well located downgradient of a large nursery operation. A 1996 study by the SCDHS of the results of testing over 45,000 private wells in Suffolk from 1972-1994 showed that 7.4% of the wells exceeded the nitrate MCL. The greater percentage in the current project may be attributable to the concentrated testing in agricultural areas where fertilization practices contribute to elevated nitrate levels in groundwater.

The average nitrate concentration in the 19 golf course wells sampled in Suffolk County was 4.9 mg/L. In comparison, The Suffolk County Water Resources Management Plan (1987) and previous studies have concluded that developing land at a density of 1 and 2 dwelling unit(s) per acre yields an average nitrate concentration of 4 and 6 mg/L, respectively, and comparatively, Nitrate and Pesticide Impacts on Groundwater Quality, Suffolk County, NY (1996) found that the 20 year average nitrate concentration of monitoring wells in agricultural areas was 11.3 mg/L.

Conclusions & Recommendations

The initial sampling of groundwaters for this project was concentrated at shallow wells in areas thought to be vulnerable to pesticide contamination. Because of this, the data cannot be considered representative of all groundwater on Long Island.

The interim results of the study demonstrate the vulnerability of Long Island's groundwater to impacts from pesticides and their metabolites, particularly to agricultural chemicals applied to the land surface. These findings are clearly most evident in agricultural areas in eastern Suffolk County where nearly all of the MCL exceedances were found.

Based upon the data, the following recommendations are made:

- Continue to provide the necessary resources to expand analytical capability to monitor the groundwater for additional pesticides and metabolite compounds.

- A high priority should be given to taking the steps necessary to provide for remediation of areas with contaminated private wells through the extension of public water supplies.

TABLE I
Number of Water Samples
Oct 1997-Mar 1998

Nassau	Suffolk	Blanks	Total
152	746	213	1,111

TABLE II
Nassau Pesticide Sample Distribution

Township	# Wells Sampled	# Detects	# >MCL
Hempstead	73	5	0
North Hempstead	35	3	1
Oyster Bay	44	2	0
Totals	152	10	1

TABLE III
Suffolk Pesticide Sample Distribution

Township	# Wells Sampled	# Detects	# >MCL
Babylon	23	3	0
Brookhaven	124	12	1
East Hampton	58	19	5
Huntington	53	12	1
Islip	21	4	1
Riverhead	86	41	28
Shelter Island	9	1	1
Smithtown	108	6	1
Southampton	91	36	9
Southold	173	90	42
Totals	746	224	89

VII. VOLUMES

Pesticide Sales and Use Reporting: 1997 Report Year (Summaries available at: http://pmep.cce.cornell.edu/psur/97report.shtml)

New York State Commercial Applicator 1997 Pesticide Applications (Summarized by Product)

New York State Commercial Applicator 1997 Pesticide Applications (Summarized by County)

New York State Commercial Applicator 1997 Pesticide Applications (Summarized by Zip Code)(Parts 1-9)

New York State Commercial Permittees (Including Importers, Manufacturers and Compounders) 1997 Restricted Use Pesticide Sales to Commercial Permit Holders for Resale (Summarized by Product)

New York State Commercial Permittees (Including Importers, Manufacturers and Compounders) 1997 Restricted Use Pesticide Sales to Commercial Applicators for End Use (Summarized by Product)

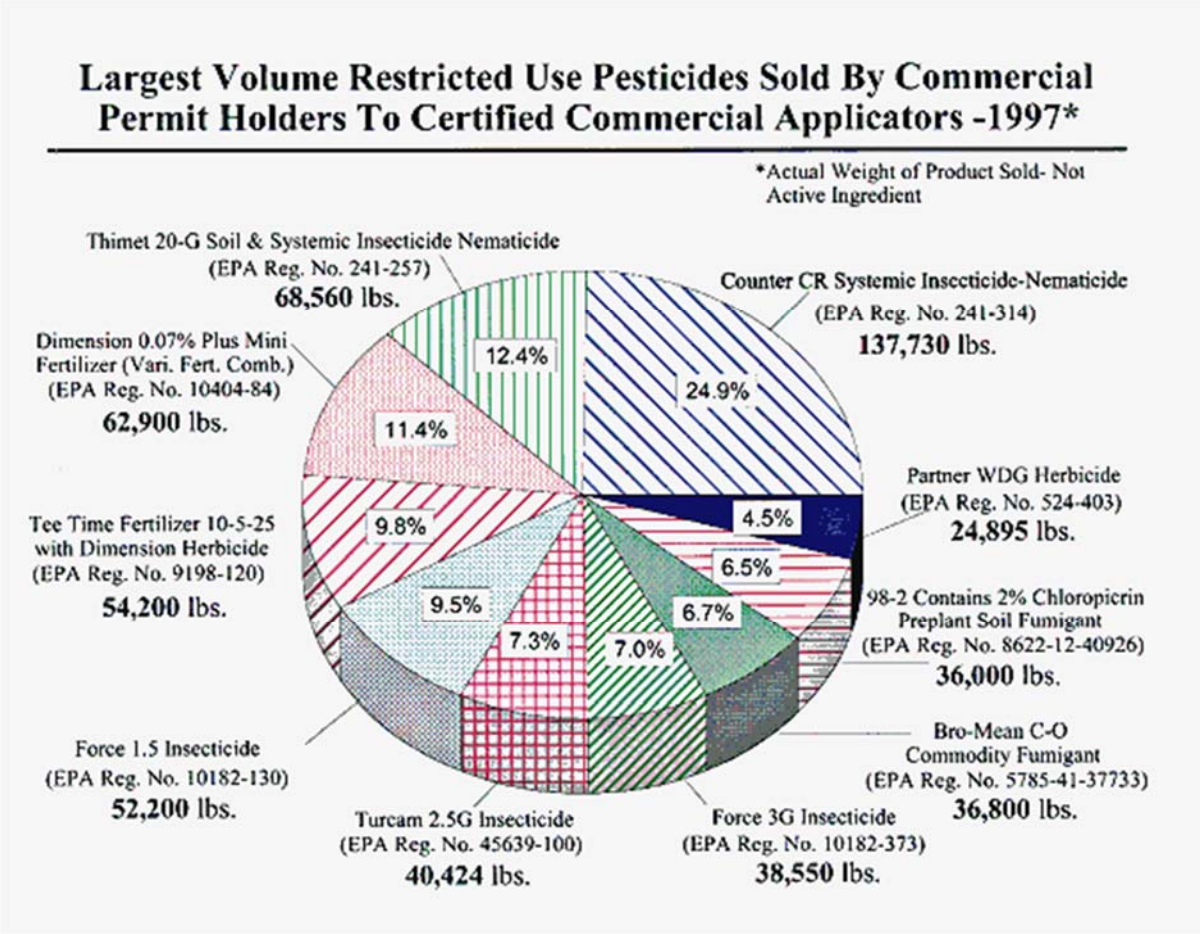
New York State Commercial Permittees 1997 Pesticide Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Private Applicators (Summarized by Product)

New York State Commercial Permittees 1997 Pesticide Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Private Applicators (Summarized by County)

New York State Commercial Permittees 1997 Pesticide Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Private Applicators (Summarized by Zip Code)

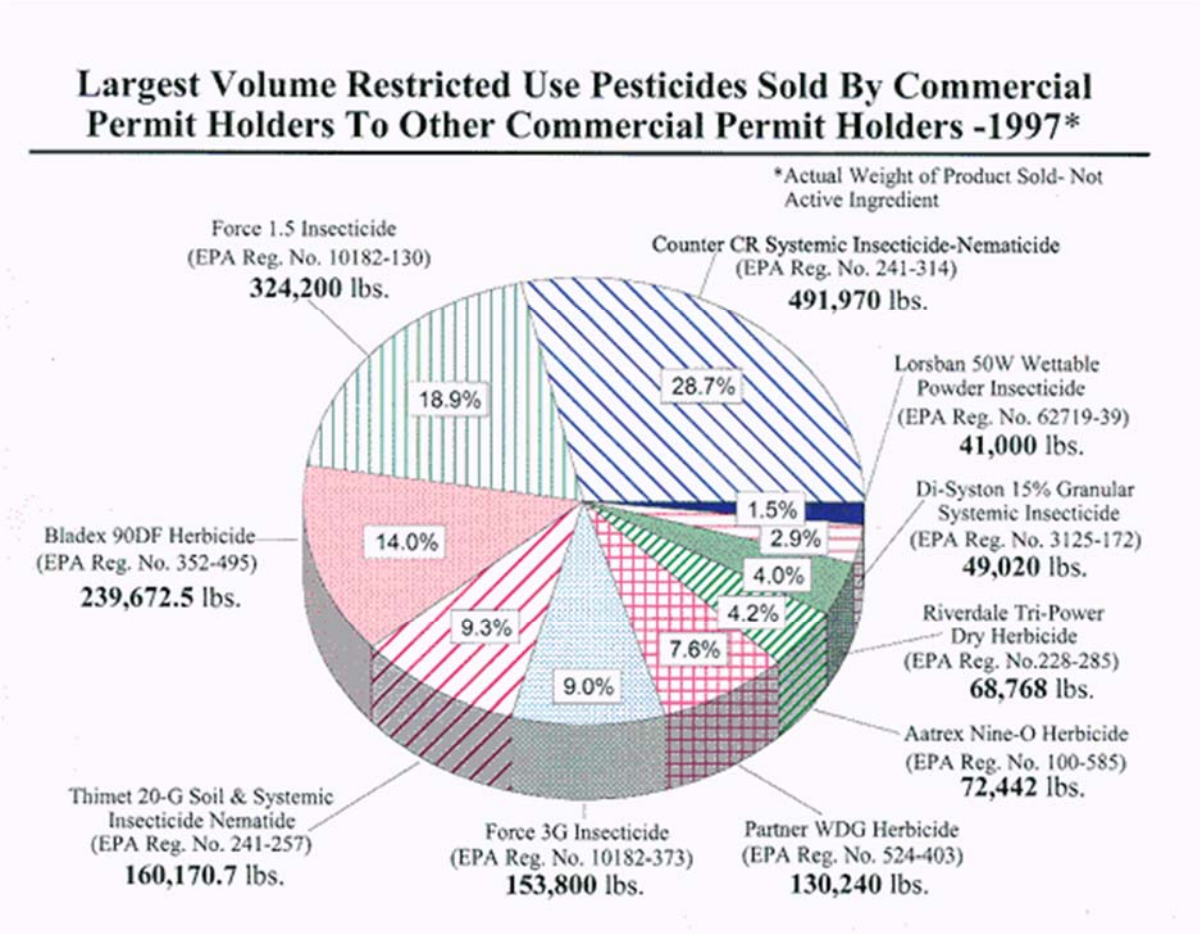
1997 PRL Annual Report - Figure 1

- 24.9% Counter CR Systemic Insecticide-Nematicide (EPA Reg. No. 241-314)- 137,730 lbs.
- 12.4% Thimet 20-G Soil & Systemic Insecticide Nematicide (EPA Reg. No. 241-257)- 68,560 lbs.
- 11.4% Dimension 0.07% Plus Mini Fertilizer (Various Fertilizer Combinations) (EPA Reg. No. 10404-84)- 62,900 lbs.
- 9.8% Tee Time Fertilizer 10-5-25 with Dimension Herbicide (EPA Reg No. 9198-120)- 54,200 lbs.
- 9.5% Force 1.5 Insecticide (EPA Reg. No. 10182-130)- 52,200 lbs.
- 7.3% Turcam 2.5G Insecticide (EPA Reg. No. 45639-100)- 40,424 lbs.
- 7.0% Force 3G Insecticide (EPA Reg. No. 10182-373)- 38,550 lbs.
- 6.7% Bro Mean C-O Commodity Fumigant (EPA Reg. No. 5785-41-37733)- 36,800 lbs.
- 6.5% 98-2 Contains 2% Chloropicrin Preplant Soil Fumigant (EPA Reg. No. 8622-12-40926)- 36,000 lbs.
- 4.5% Partner WDG Herbicide (EPA Reg. No. 524-403)- 24,895 lbs.



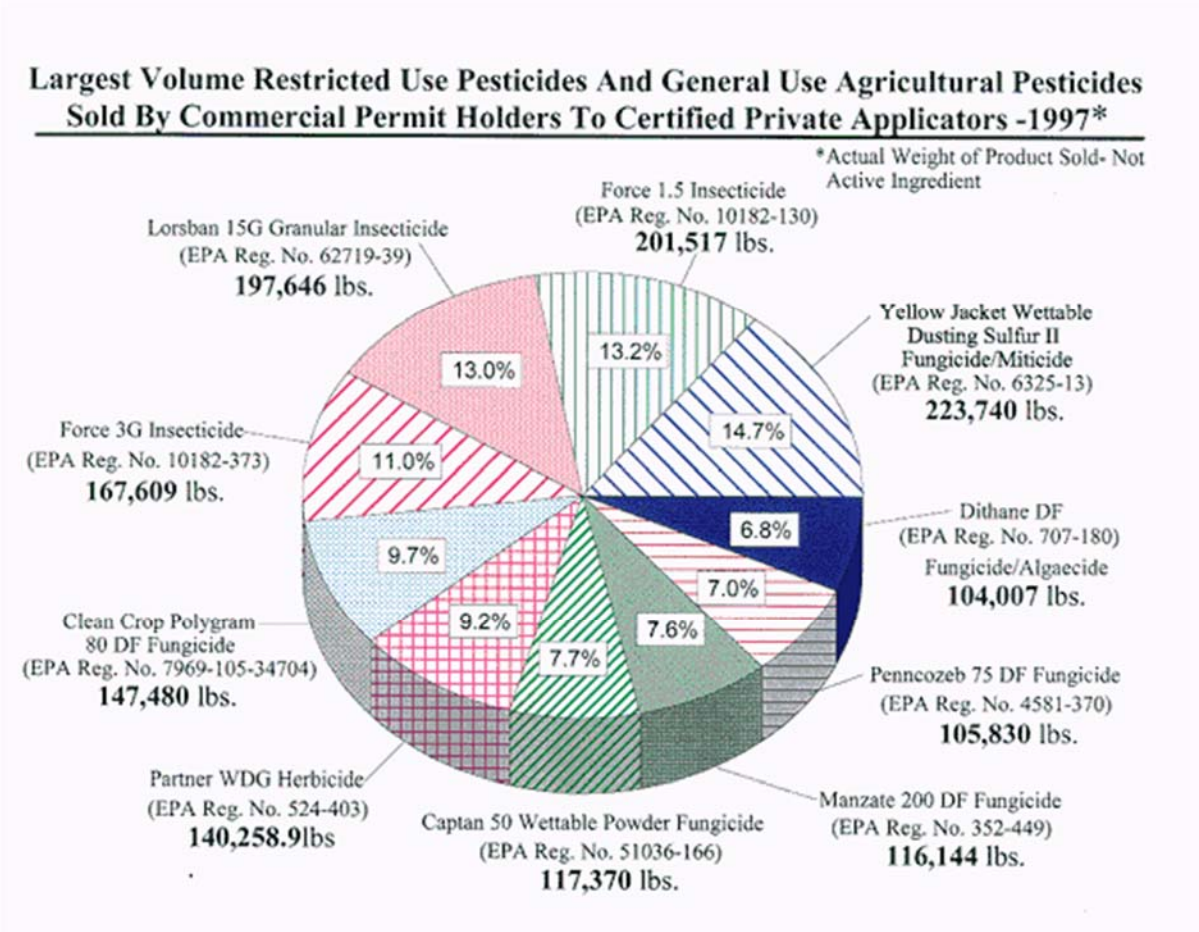
1997 PRL Annual Report - Figure 2

- 28.7% Counter CR Systemic Insecticide-Nematicide (EPA Reg No. 241-314)- 491,970 lbs.
- 18.9% Force 1.5 Insecticide (EPA Reg. No. 10182-130)- 324,200 lbs.
- 14.0% Bladex 90DF Herbicide (EPA Reg. No. 352-495)- 239,672.5 lbs.
- 9.3% Thimet 20-G Soil & Systemic Insecticide Nematicide (EPA Reg. No. 241-257)- 160,170.7 lbs.
- 9.0% Force 3G Insecticide (EPA Reg. No. 10182-373)- 153,800 lbs.
- 7.6% Partner WDG Herbicide (EPA Reg. No. 524-403)- 130,240 lbs.
- 4.2% Aatrex Nine-O Herbicide (EPA Reg. No. 100-585)- 72,442 lbs.
- 4.0% Riverdale Tri-Power Dry Herbicide (EPA Reg. No 228-285)- 68,768 lbs.
- 2.9% Di-Syston 15% Granular Systemic Insecticide (EPA Reg. No. 3125-172)- 49,020 lbs.
- 1.5% Lorsban 50W Wettable Powder Insecticide (EPA Reg. No. 62719-39)- 41,000 lbs.



1997 PRL Annual Report - Figure 3

- 14.7% Yellow Jacket Wettable Dusting Sulfur II Fungicide/Miticide (EPA Reg. No. 6325-13)- 223,740 lbs.
- 13.2% Force 1.5 Insecticide (EPA Reg. No. 10182-130)- 201,517 lbs.
- 13.0% Lorsban 15G Granular Insecticide (EPA Reg. No. 62719-39)- 197,646 lbs.
- 11.0% Force 3G Insecticide (EPA Reg. No. 10182-373)- 167,609 lbs.
- 9.7% Clean Crop Polygram 80 DF Fungicide (EPA Reg. No. 7969-105-34704)- 147,480 lbs.
- 9.2% Partner WDG Herbicide (EPA Reg. No. 524-403)- 140,258.9 lbs.
- 7.7% Captan Wettable Powder Fungicide (EPA Reg. No. 51036-166)- 117,370 lbs.
- 7.6% Manzate 200 DF Fungicide (EPA Reg. No. 352-449)- 116,144 lbs.
- 7.0% Penncozeb 75 DF Fungicide (EPA Reg. No. 4581-370)- 105,830 lbs.
- 6.8% Dithane DF Fungicide/Algaecide (EPA Reg. No. 707-180)- 104,007 lbs.



1997 PRL Annual Report - Figure 4

Gallons Reported:

- 60.3% Dursban Pro Insecticide, Miticide (EPA Reg. No. 62719-166)- 661,107.13 gal.
- 11.3% Damoil Insecticide, Miticide (EPA Reg. No. 19713-123)- 123,762.982 gal.
- 10.6% Dragnet FT Insecticide, Miticide (EPA Reg. No. 279-3062)- 116,228.56 gal.
- 5.5% Optashield CS Premise Insecticide (EPA Reg. No. 499-304)- 60,067.51 gal.
- 3.7% Diazinon 4E Insecticide (EPA Reg. No. 655-457)- 40223.22 gal.
- 3.0% Prowl 3.3 EC Herbicide (EPA Reg. No. 241-337)- 33, 368.21 gal.
- 3.0% Tempo 20 WP Insecticide Packets (EPA Reg. No. 3125-396)- 33,228.16 gal.
- 2.6% Empire 20 Insecticide Miticide (EPA Reg. No. 62719-88)- 28,840.31 gal.

Pounds Reported:

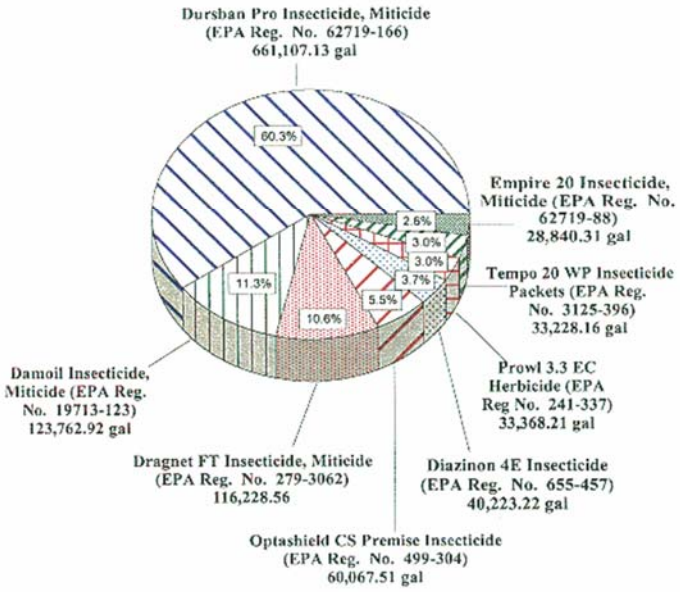
- 45.1% Dursban Pro Insecticide, Miticide (EPA Reg. No. 62719-166)- 3,478,754.36 lbs.
- 12.2% CCA Type C Wood Preservative 60% (EPA Reg. No. 10465-28)- 939,280.05 lbs.
- 11.3% Pre-M Plus Fertilizer w/1.31% Pendimethalin Herbicide (EPA Reg. No. 10404-82)- 874,274.88 lbs.
- 6.4% Diazinon 4E Insecticide (EPA Reg. No. 655-457)- 491,926.34 lbs.
- 6.3% Merit 0.2 Plus Fertilizer (EPA Reg. No. 3125-474-10404)- 483,193.26 lbs.
- 4.8% Fertilizer Plus Pre-M Herbicide (EPA Reg. No. 538-214-10404)- 368,850.53 lbs.
- 3.9% Balan 2.5G Herbicide (EPA Reg. No. 1471-62)- 303,466.83 lbs.
- 3.8% PT 565 Pyrethrum Insecticide & Pyrethrum Insecticide & Miticide (EPA Reg. No. 499-182)- 295,466.83 lbs.
- 3.6% Wolmanac Concentrate 50% Insecticide, Miticide, Fungicide (EPA Reg. No. 62190-2)- 276,000 lbs.
- 2.6% Insect Control With Dursban 232 Insecticide, Miticide (EPA Reg. No. 8378-34)- 197,185.19 lbs.

Figure 4

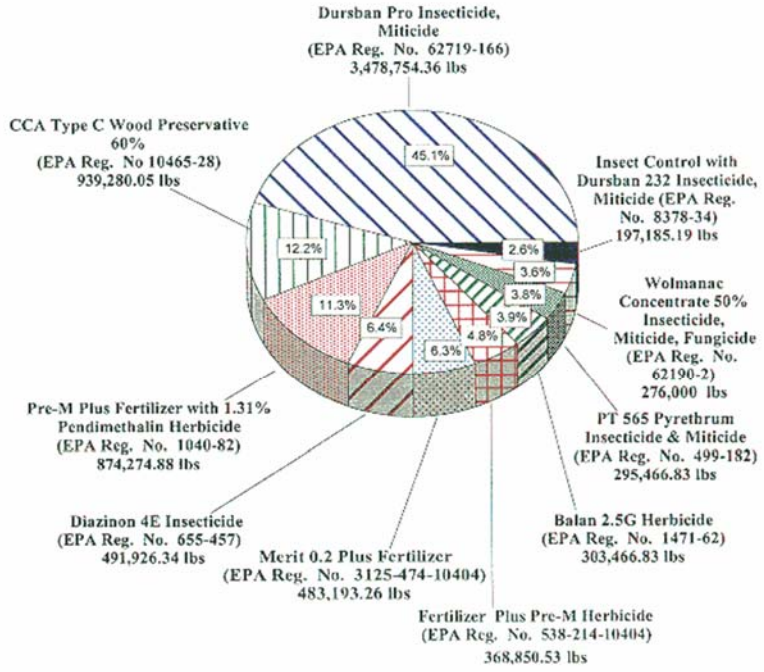
Largest Volume of Restricted Use and General Use Pesticides Applied by Certified Commercial Applicators- 1997*

*Actual Weight and Volume of Product Applied-Not Active Ingredient

GALLONS REPORTED



POUNDS REPORTED



1997 PRL Annual Report - Figure 5

Sample Collection Sites for Statewide Monitoring Program for Pesticides in Surface Water of New York
Samples collected at Site

Site Number	Station Name	SH2001	Metabolites	SH2050
Fixed Sites				
F1	Canajoharie Cr. nr Canajoharie	X		
F2	Mohawk R. at Cohoes	X	X	
F3	Seneca R. at Baldwinsville	X	X	
F4	Fall Cr. nr Ithaca	X	X	
F5	Genessee R. at Avon	X	X	
F6	Canaseraga Ck. nr Shakers Crossing		X	

Site Number	Station Name	SH2001	Metabolites	SH2050
Synoptic Sites				
1	Peconic R. at Riverhead	X		
2	Massapequa Cr. at Massapequa	X		X
3	Raquette R. at Raymondville	X		
4	Hudson R. nr Poughkeepsie	X		
5	Ausable R. nr Au Sable Forks	X		X
6	Croton R. at N. Croton Darn nr Croton	X		
7	Saw Mill R. at Yonkers	X		
8	Claverack Cr. at Claverack	X		
9	Mettawee R. nr Middle Granville	X		X
10	Wallkill R. at Gardiner	X		
11	Schoharie Cr. at Esperance	X		X
12	West Cr. at Warnerville	X		
13	Biscuit Br. abv. Pigeon Br. at Frost Valley	X		
14	Delaware R. at Port Jervis	X		
15	Stoney Cr. at Vischers Ferry	X		

Site Number	Station Name	SH2001	Metabolites	SH2050
Synoptic Sites				
16	Black River at Watertown	X		
17	Delaware R. at Walton	X		
18	Oswego R. at Oswego	X		
19	Oneida R. nr Euclid	X		
20	Allegheny R. at Salamanca	X		
21	Susquehanna R. at Owego	X		
22	Canandaigua Outlet at Chapin	X		
23	Grout Brook trite SE of Fair Have	X		
24	Black Br. at Tyre	X		
25	Flint Ck. at Phelps	X		
26	Black Cr. at Churchville	X		
27	Cohocton R. nr Campbell	X		
28	Tonawanda Ck. at Rapids	X		
29	Tonawanda Ck. at Attica	X		
30	Otselic R. at Cincinnatus	X		
31	Oatka Ck. at Garbutt	X		
32	Butternut Ck. nr Jamesville	X		
33	Cattaragus Ck. at Gowanda	X		
34	Sterling Ck. at Sterling	X		X
35	Fourmile Ck. nr Youngstown	X		X
36	Salmon Ck. nr Sodus (Lake Ontario)	X		X
37	Lake Ontario trib.	X		X
38	Orchard nr Niagara (Lake Ontario)	X		X
39	Vineyard nr Hammondsport (Kueka Lake)	X		X
40	Vineyard Or Valois (Seneca Lake)	X		X
41	Vineyard nr Canandaigua (Canandaigua Lake)	X		X

Site Number	Station Name	SH2001	Metabolites	SH2050
Synoptic Sites				
42	Vineyard Or Fredonia (Lake Erie)	X		X
43	Vineyard Or Westfield (Lake Erie)	X		X
44	Small Ag Or Shakers Crossing (Genesee R.)	X		
45	Small Ag Or Attica (Tonawanda Cr.)	X		
46	Forest basin Or Hemlock Lake	X		
47	Forest basin Or Allegany Forest	X		
48	Cayuga Lake at Bolton Point nr Ithaca	X		
49	Skaneateles Lake at Skaneateles	X		
50	Hemlock Lake at Hemlock	X		

Glossary

(From ECL and 6NYCRR Parts 325 and 326)

"Business registration" means the requirement of each person or business providing services of commercial application of pesticides, either entirely or as a part of the business, to register with the department.

"Commercial application" means any application of any pesticide except as defined in private or residential application of pesticides.

"Commercial applicator" means a certified applicator (whether or not a private applicator with respect to some uses) who uses or supervises the use of any pesticide for any purpose on any property other than as provided by the definition of "private applicator".

"Commercial permit" means the permit issued by the commissioner, pursuant to Environmental Conservation Law, section 33-0901, for the distribution, sale, offer for sale, purchase for the purpose of resale, or possession for the purpose of resale, of a restricted pesticide.

"General use pesticide" means a pesticide which does not meet the state criteria for a restricted pesticide as established under authority of section 33-0303 of this article.

"Pesticide" means:

a. Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest; and

b. Any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant.

"Private application" means any application of any pesticide for the purpose of producing an agricultural commodity.

a. On property owned or rented by the applicator or the applicator's employer, or

b. If applied without compensation other than the barter of personal services between producers of agricultural commodities, on property owned or rented by a party to such a barter transaction.

"Restricted use pesticide" means a pesticide, as defined in this article and determined as provided in Section 33-0303:

a. Which (1) either (a) persists in the environment, or (b) accumulates as either the pesticide per se, a pesticide metabolite, or a pesticide degradation product in plant or animal tissue or product and is not excreted or eliminated within a reasonable period of time and which may be transferred to the forms of life; and (2) which by virtue of such persistence or accumulation creates a present or future risk of harmful effects on any organism other than the target organisms: or

b. Which the commissioner finds is so hazardous to man or other forms of life that restrictions on its sale, purchase, use or possession are in the public interest.