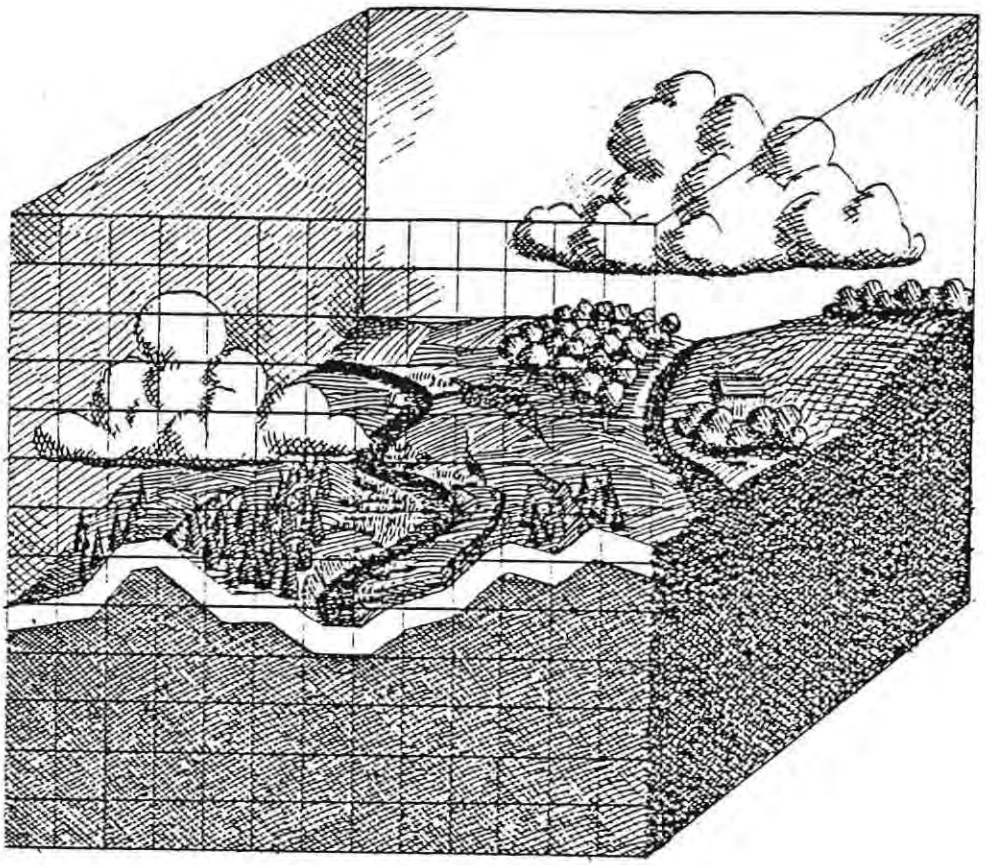


The Connecticut Council on Environmental Quality

Annual Report 1981

TABLE OF CONTENTS

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING, RM. G-4A HARTFORD, CONNECTICUT
PHONE 566-3510

The Honorable William A. O'Neill
Governor, State of Connecticut
State Capitol Building
Hartford, Connecticut 06115

The Honorable James J. Murphy
Senate President Pro Tempore
Room 313, State Capitol Building
Hartford, Connecticut 06115

The Honorable Ernest N. Abate
Speaker of the House of Representatives
Room 203, State Capitol Building
Hartford, Connecticut 06115

Dear Governor O'Neill, Senator Murphy and Representative Abate:

It gives me great pleasure to transmit to you the Council on Environmental Quality's seventh Annual Report.

This report covers a broad area of environmental topics including past activities of the Council, the current status of Connecticut's air, water, and land environment, the adequacy of available natural resources, a review of the state environmental programs and the Council's recommendations for improving these programs as required by Section 22a-12 of the Connecticut General Statutes.

One of the crucial issues facing the state in the coming year is what is to be done with the large quantities of hazardous and solid waste each year. There is no hazardous waste facility located in the state. Existing landfill sites are rapidly being filled to capacity. The potential impact on our drinking water supplies and other natural resources is great. Responsible planning and management by federal agencies and private industries are needed to prevent any long-term dangers to the health and quality of life.

Another major issue confronting us is the potential conflict between energy and environment. Some would have the state relax environmental regulations, and burn dirtier fuels which are cheaper. Other point out that if this were done, economic development might be restricted and the health of our citizens might be impaired. Also of concern is the issue of highway construction and the development of the state's recreational faciltiies.

Like all state agencies, the Council was working under a very tight budget. 1981 saw us lose the moneys that were used to hire college interns. This program not only provided staffing for the CEQ, but encouraged young people to get interested in the state service.

Projects with students from various Connecticut Colleges also continued to be a part of the CEQ. Various student reports have proved to be very timely when citizen concerns have arisen.

The Council has worked on many citizen requests during the past year. The divergent backgrounds of Council members has given the CEQ a balanced perspective in its deliberations. The workload of the Council on Environmental Quality has continued to be varied and geographically dispersed. The Council works with a number of state agencies and many private groups.

Finally, members of the Council would like to thank the many people who assisted us over the past year.

Respectfully submitted,

Donald MacKie,
Chairman

MEMBERS

Donald Blanchard
Westport

Donald L. MacKie, Chairman
Canton

Charles W. Flynn
New Haven

Edward Rice
Uncasville

Thomas C. Jackson
New Haven

Mary B. Walton
Jewett City

Grace Lichtenstein
Rowayton/Norwalk

Maxine Weistein
West Hartford

Domenic J. Forcella
Executive Director

Acknowledgements

The Council wishes to express its sincere appreciation to the many people who contributed to our efforts in 1981. The interest and support from many areas has a valuable aid in our work.

Additionally, our thanks go to Cindy Fazendeiro of the CEQ staff who performed many functions from beginning to end in compiling this report.

We would like to thank the CEQ interns for their work, Geoffrey Merril for his work on Solid Waste, Margaret Carvey for her work on Hazardous Waste and Non-Game Management, Gerald Schanz for his work on the Air Section, Jeffery Cogen for his work on Gypsy Moth and Hazardous Materials Section, and Maria Walker for her work on the Gypsy Moth Update.

And finally a word of thanks to the Department of Environmental Protection and other state agencies for their help in providing material to the CEQ for our report and other requests.

INTRODUCTION

The Council on Environmental Quality has the responsibility for reviewing all Environmental Impact Evaluations (EIEs) required by the Connecticut Environmental Policy Act (CEPA). The evaluations describe the potential environmental effects of proposed actions of state agencies.

The Council's review responsibilities bring it in contact with many state and federal agencies. The Department of Transportation has been one of the first agencies involved in this process. Their detailed roadway designs as well as environmental statements are submitted to the Council for review. Related to transportation are reviews of bridge structures that the United State Coast Guard has authority over. These are also received by the Council on Environmental Quality.

The Council on Environmental Quality has the responsibility to review and comment on various plans and proposals by the Department of Transportation and the Office of Policy and Management's State Clearinghouse. The Council on Environmental Quality has the opportunity to comment on transportation projects in various stages. The design meetings and draft environmental projects in various stages. The design meetings and draft environmental impact statements are two of these times. The Council on Environmental Quality receives urban systems projects and Federal Highway Administration proposals for comment.

Other materials received for comment by the Council on Environmental Quality include Industrial and Business Development (IBDs) project proposals. IBDs are program applications involving grants to municipalities to facilitiate the planning of development projects, such as industrial parks or business expansion. These are commented on by the Council on Environmental Quality. The grants are from the Connecticut Department of Economic Development. Another review and comment aspect of the Council is the review of A-95s. A-95s are a preliminary form sent to state agencies for an initial review of a project, which occur when federal money is involved. The reviews take place very early in the development stages of the applications. They can point out areas where further study must be done during the application process, thus hopefully eliminating later and perhaps more costly problems. As with all programs, well thought and written regulations, quality review personnal, and continued quality monitoring area imperative. In addition, under Section 16-50j(f) the Council may comment to the Power Facilities Evaluation Council, (PFEC). Copies of PFEC applications are made available to the Council. With the concern for energy, more hydropower permits are being applied for. Our rivers may once again become a prime energy source but their other uses will have to be maintained.

Applications for licensing from the Federal Energy Regulatory Commission (FERC) also are sent to the Council. These applications have a section for opening the power company land to usage by the public. This is the first time this requirement has been made, and a comprehensive planning effort by the state and the utility company should insure proper usage of these lands. Other federal agencies such as the Environmental Protection Agency of the Department of Energy also ask for Council on Environmental Quality comments. Much of this is in regard to rules and regulation promulgation. The other major source of reviews come from the Department of Environmental Protection. Besides reviewing as part of CEPA requirements, the CEQ gets involved with other aspects of the department. Permits (also reviewed in conjunction with the Corps of Engineers), regulations, and plans are sent to the Council.

Citizen complaints still provide the majority of involvement for the Council. Many requests cross department lines and require a good working relationship with various other state agencies. Some requests can be as simple as a correct phone number or reference person. Other times it can get as complicated as the Upjohn Chemical Company in North Haven, where the Council has been involved since August of 1979.

The ability to get answers and a one stop information center helps relieve the frustrations of many citizens unfamiliar with the bureaucratic process. Our requests have been answered promptly by the state agencies, helping to get the correct information out as sooon as possible. Individuals groups, and state wide organizations all take advantage of the service.

This year the Council also made an effort to reach more of the public. CEQ members participated in a number of radio talk shows throughout the state. The formats ranged from half-hour discussions to three-hour phone in questions and answered programs. Council members have also been quest speakers on college campuses and at meetings of various organizations. The CEQ has also made attempts to reach the public in other areas. The office has put together a slide show entittled "How a Bill Becomes a Law". This has been shown to school groups as well as civic clubs.

The CEQ also handles citizen complaints. Many of the areas that are discussed in this report and the recommendations are a direct result of citizen input. It is felt that the work done by the CEQ as an ombudsman is the greatest benefit to the state's citizens. The Council can be used as a sounding board for problems, a place to bring people and the state agencies together, or a meeting place for future policy discussions. The CEQ has the responsibility for bringing out the opinions made known to it by interested citizens. This is done through its participation on various committees and by its attendance at conferences and seminars. With two of the states major issues being air pollution and hazardous materials, CEQ has served on the State Implementation Plan Revision Advisory Committee.

PART 1

HAZARDOUS MATERIAL & SOLID WASTES

SECTION 1: HAZARDOUS WASTE MANAGEMENT

Introduction

Prior to January 1981, there were no state regulations in Connecticut to cope with the ever increasing problem of the treatment of hazardous waste. As in other states without their own hazardous waste regulations, Connecticut fell under the jurisdiction of the federal government according to the Resource Conservation and Recovery Act of 1976. Outside of this Act, there were virtually no regulations concerning the generation, transportation, and disposal of hazardous materials. Because many people felt that this lack of regulation concerning such dangerous substances was unsafe, Connecticut, along with other states, decided to exercise the right to control the state's environment with its own hazardous waste program. With this need in mind then, drafting of a hazardous waste management document began in late 1978. The culmination of these efforts, however, was not to be fully realized until three years later.

Hazardous Waste Regulations: 1981

In 1981 there were two sets of regulations concerning treatment, storage, transportation, and disposal of hazardous waste issued by the DEP. The Hazardous Waste division of the Hazardous Materials Management Unit produced a booklet of Hazardous Waste Management Regulations as well as a set of Hazardous Waste Facility Siting Regulations.

The first regulations were a large set of rules, whose purpose was "to provide for state control on the disposal of hazardous wastes." The document, which was adopted in March, 1981, became effective on November 3, 1981. The Connecticut Hazardous Waste Management regulations were modeled after a similar set of federal regulations, and are interpreted on the same stringent level as the parent document. Indeed, the Connecticut regulations are viewed as very comprehensive in governing the generation and transportation of hazardous waste as well as the treatment, storage, and disposal of these materials at hazardous waste facilities.

The second set of regulations were mandated under the Connecticut Siting Bill, which was passed in 1980 and amended in 1981. This action called for special rules concerning the siting of hazardous waste facilities. These regulations are currently in the drafting stage, stemming from a public hearing in November of 1981. When the hazardous waste facility siting regulations are submitted to the General Assembly for legislative review sometime in January of 1982, it is expected that they will extend, as well as incorporate major sections of the hazardous waste management regulations. In addition to the sections of this document concerning hazardous waste facilities, the hazardous waste facility siting regulations will deal specifically with the construction, operation and closure of such plants.

Both sets of regulations, then, are directed towards the many problems hazardous waste facilities must address. The hazardous waste management rules

are concerned with the movement and ultimate disposal of the material, while the hazardous waste facility siting regulations focus on controls within treatment plants and around the plants themselves. Together, these two sets of regulations provide an answer to the central question of how to dispose of, treat and store hazardous materials.

Although it is difficult to assess the effectiveness of the hazardous waste management regulations at such an early stage of their implementation, it is becoming increasingly evident that many parts of the document are being followed. It is generally believed that many industries are making a valid attempt to comply with the laws set down. This may in fact be due to the inclusion of the manifest system in the document (see preceding/following section) which in essence tracks waste from its cradle to the grave. On the other hand, several sections are nearly impossible to enforce, although this may not necessarily mean that a dangerous situation is automatically created through this lack of watchfullness. It is readily acknowledged that it takes time and a great deal of effort to implement any new program and the permit and enforcement provisions in the Connecticut hazardous waste management regulations are no exceptions. Despite any shortcomings which have, or will, develop in this document, it is a significant step nonetheless, in its guardianship over something that cuts across all segments of the environment.

The future of the hazardous waste management regulations seems quite secure indeed. Because the document is so comprehensive at present, it is unlikely that new areas of regulations will be added in coming years. Some parts, however, may need to be expanded and revised as industry awareness increases and track records improve. Moreover, improvement in hazardous materials technology may outdate some problems dealt with in the regulations. As hazardous waste industries prove they are more reliable by adequately coping with wastes, a reworking of the regulations with significant amendments to the original document could be proposed. In general, however, it seems fair to say that the hazardous waste management regulations, as they now stand, will set the pattern for how Connecticut handles wastes for at least the next twenty years.

In 1981 there were many changes in the Hazardous Materials Management Unit. The Hazardous Materials Management regulations themselves necessitated an increase in staff size in order for the department to effectively cope with new permitting duties in particular. The department saw new people in areas where there were similar people before. This included an increase in field staff personnel, engineers, and program analysts. On the whole, the number of people in the Hazardous Waste division of the Hazardous Materials Management Unit increased from nine to fifteen during 1981. Approximately 90% of the staff is geared towards implementing the new regulations with the remaining 10% providing technical assistance on hazardous wastes by handling complaints, inspection and enforcement. The department now plans to add three more field inspectors and one senior environmental analyst during 1982.

The Hazardous Waste division continued to work on several on going projects, begun a couple of years ago. A PCB program was an entirely new development this year, after receiving a one year federal grant in July, 1981. The first people to work on this project were hired January 1, 1982 to conduct statewide inspection of PCB facilities.

An inventory of known hazardous waste disposal sites was also undertaken during the past year in the hazardous waste department. A partial list of past and present, large and small, legal and illegal hazardous waste dumping sites was published in January 1981. This inventory covered one-half of the state, with sites in the remainder of the state to be published periodically as they are discovered. The list covers the type of waste dumped, the disposal area and the town in which the site is found, but makes no judgment as to the potential health hazard the wastes may present. The inventory was required under a legislative mandate issued in 1979 to ensure an active search for all past disposal sites.

Another new development in 1981 in the Hazardous Waste division was an improvement of the methods which track hazardous waste shipments. By converting the manifest system into an automated computerized system, it is hoped that the transportation of hazardous waste can be monitored more closely.

The hazardous waste division is in the process of having a statewide hazardous waste program fully authorized by the EPA. Authorization comes in steps, with publication of comprehensive regulations as the first part. The department applied to the EPA for what is known as Interim Authorization in 1981, which should be granted in 1982. By the end of 1982, the department should receive final authorization which effectively gives as much power to Connecticut concerning hazardous waste as a state can assume under the federal government.

In the eyes of the government then, the hazardous waste program in Connecticut is still developing. Once the state assumes authorization from the federal government, a transfer of power will effectively occur. By Connecticut having a fully authorized hazardous waste program, the federal goverment can step out. This will alleviate what is now, in a sense, dual jurisdiction by the state and the federal government over the same program elements. Moreover, there will be less paperwork and industry will not have to send in duplicate forms concerning the generation, transportation, and disposal of hazardous materials. It is the hope of the hazardous waste department, then, that final approval for a fully delegated hazardous waste program will be received by the end of 1982.

SECTION 2: HAZARDOUS WASTE FACILITY SITING LAW

Introduction

Connecticut is a highly industrialized state, generating close to one hundred million gallons of hazardous waste annually, yet it possesses no adequate major hazardous waste disposal facility. As a result, industry must spend a large amount of money shipping hazardous waste out of the state. Prohibitive costs of proper hazardous waste disposal threaten to drive economically important industry out of the state and have resulted in improper disposal contaminating the environment. Action to establish safe hazardous waste facilities in Connecticut has been greatly needed. The Hazardous Waste Facility Siting Law, approved by the governor on June 27, 1981, lays down the groundwork for such action.

The law designates the Power Facility Evaluation Council, whch is in charge of approving sites of Connecticut power facilities, to approve sites of hazardous waste facilities in the state. In this capacity the nine member council becomes the thirteen member Connecticut Siting Council, containing nine permanent members and four ad hoc members. The permanent members consist of the commissioners of Health Services and Public Safety or their designees, designees of the speakers of the House of Representatives and the President Pro Tempore of the State, five members of the public appointed by the governor, two of whom must be experienced in the field of ecology and no more than one of whom may have past or present affiliation with any utility, government utility regulatory agency, or hazardous waste facility. The ad hoc members, three of whom are from the municipality of the proposed site, one of whom is from the municipality most likely to be affected by the proposed site, are appointed by the chief elected officials of the municipalities which they represent.

Before the Council will review an application for a hazardous waste facility certificate, the applicant must qualify for all necessary licenses, permits and approvals from the Department of Environmental Protection. Financial requirements must also be met by the applicant, such as obtaining third party liability insurance and providing surety bonds for closure costs and post-closure maintenance and monitoring. Once these qualifications are met, a certificate of public safety and necessity, which is needed in order to commence construction of a facility, can be applied for.

Application fees and regulations adopted by the permanent members of the Council will pay the ongoing expenses of the Council.

The application for the certificate must include an array of data ranging from population density and water movements around the proposed site to provisions for closure and post-closure care. The application must demonstrate that the proposed facility is both necessary and safe. In reviewing an application, the Council must consider all of this data as well as all potential health, environmental, and economic impacts of the proposed facility.

To assure public involvement in the process, the board must hold public hearings and allow any person or group to present opinions and cross-examine witnesses. Records of the hearings as well as solicited

written comments from the Department of Environmental Protection, Department of Health Services, the Council on Environmental Quality, and other organizations will also be considered in the Council's decision.

When a hazardous waste facility is proposed, a local project review committee will be established, consisting of between three and eight electors from the municipality of the proposed site and one elector from the municipality most likely to be affected. Members will be appointed by the chief elected official of the municipality which they represent. The committee is authorized to negotiate incentives, which the applicant must provide to the municipality. Possible incentives include the purchasing of a buffer strip around the facility, payment of road repairs needed as a result of facility traffic, payments for diminution of property values around the facility, and direct financial payment based on revenues. The applicant must provide up to thirty thousand dollars to the committee for obtaining technical assistance for such comittee's review of the proposed hazardous waste facility.

The law requires that ownership of any closed hazardous waste facility which has no reasonable alternate use must be transferred to the state, which then must monitor, maintain, and assume liability for the facility. A trust fund of up to ten million dollars will be established by assessments levied on hazardous waste facilities to cover state costs in such cases.

Finally, the Siting Council can override any local zoning decision by a vote of eight of the thirteen members. This section is particularly controversial because it does not give the community in which the site is proposed enough power to exclude a facility. Although the four ad hoc members assure some local influence, votes of permanent members are needed to sustain a town zoning decision. A Siting Council with such power is considered necessary in order to overcome the problem that few towns are willing to have a hazardous waste facility within their limits.

SECTION 3: HAZARDOUS WASTE REGULATIONS

The recent concern at the federal and state levels over the problem of hazardous waste has led to several changes in emphases in the area of waste management. Attention has shifted to hazardous waste from solid waste as it has become a topic of extensive media coverage, new legislation and major public concern. At the federal level funding is being supplied for hazardous waste management programs under subtitle C of RCRA, and at the state level a Hazardous Materials Management Unit (HMM) was created within the DEP.

Definition of Hazardous Waste

Waste are identified as hazardous if they are toxic, ignitable, corrosive, reactive, explosive, or infectious. (Radioactive wastes are regulated by the Federal Dept. of Energy, and are not addressed here.) Toxic wastes produce injury by contact with or accumulation in the body of an organism. Ignitable wastes generally consists of contaminated solvents. Corrosive wastes can eat away materials by chemical action. Reactive and explosive waste are unstable and may undergo violent chemical change. Infectious wastes come from health care facilities, laboratories, and sewage treatment plants.

Concern for the appropriate handling of hazardous wastes is based upon the public health and environmental consequences of improper handling. Depending upon the composition, concentration, form and method of disposal of hazardous wastes, effects may range from cancer and birth defects to fishkills and disruption of ecological systems. Certain organic chemicals, even when diluted in groundwater to a few parts per billion can render water supplies dangerous to health. Some toxic metals can slowly accumulate in tissues and then cause detectable damage. Finally, some wastes can be rendered virtually immobile in the environment while others disposed of in the same manner can infiltrate ecological and human systems.

Legislation

The Connecticut Regulation of DEP concerning Hazardous Waste Management has been amended by adding sections 25-54cc(c)-1 through 25-54cc(c)-5. These sections: 1) define hazardous waste and the criteria for identifying the characteristics of hazardous waste; 2) lay down the regulations for standardized test methods to determine whether or not a waste has any of these characteristics; and 3) establish a manifest system to aid in the responsible disposal of hazardous waste.

PART I:

Special Requirements

A small quantity Generator, one which generates less than 1,000 kilograms (1.2 tons) of hazardous waste per month, need not comply with regulation under part II. Instead, the small Quantity Generator must:

a) perform a hazardous waste determination to establish the hazardous characteristics of the waste.

b) treat or dispose of the waste in a permitted on-site facility, ensure delivery to a permitted off-site facility, or in another way dispense of the waste under the direction and with the written approval of the Commissioner.

c) comply with any reports which the Commissioner requires.

Criteria

A characteristic of hazardous waste can be identified and defined if a waste material which exhibits the characteristic poses a present or potential health or environmental hazard. Such a characteristic can be measured by standardized test methods, detected by the waste generator through their knowledge of their waste, or detected by another means which the Commissioner may direct.

Petitions

It is possible to petition the Commissioner to modify or revoke any provisions in the regulations. Such a petition must comply with Section 22a-6-1 of the Department's Rules of Practice.

Any person petitioning to add a testing or analytical method must successfully show that the proposed method is at least as accurate as the corresponding petition method. In addition, the petition must include a full description of the method, equipment, comparative results, types of waste involved and proposed procedures to ensure accuracy. Any additional information must be furnished to the Commissioner upon request.

It is also possible to petition to exclude a waste produced at a particular facility from being considered as hazardous. In order to qualify for such an exclusion, it must be proved that none of such waste meets any of the criteria of hazardous waste. Detailed descriptions of the processes used and information of personnel who did the testing must be included in the petition as well as any other information requested by the Commissioner.

Part II:

The Manifest System

Any hazardous waste generator which generates more than 1,000 kilograms per month must comply with the manifest system, which keeps track of the waste from the time it is generated until it has reached a hazardous waste facility. This is done by requiring that transported hazardous waste be accompanied by a manifest through every step of the process. Copies of the manifest are retained by the generator, any transporters, the hazardous waste facility and the Commissioner. The Commissioner receives a copy of the manifest after it is given to the transporter and after it reaches its destination. Any significant unresolvable discrepancy between what is listed on the manifest and what is received by the facility must be reported to the Commissioner.

General Requirements

* The manifest form is determined by the Commissioner of DEP.

* In an emergency, such as a spill, the Commissioner may waive any manifest requirements in order to facilitate a prompt response.

* The manifest forms must be retained longer than required by these regulations during any unresolved enforcement of the regulations or as requested by the Commissioner.

* Once the manifest has been accepted and signed by the transporter, the generator state must receive notification.

Requirements for the Generator

* Any hazardous waste which a generator wishes to transport or offer for transportation off site must be accompanied by a manifest with all required information and with the appropriate number of copies. On the form the generator must designate one facility to handle the waste and may designate an alternate facility to be used in case an emergency prevents delivery to the primary facility. If the transporter is unable to deliver the waste to either facility, the generator may arrange for the waste to be returned or for it to be delivered to another facility. The transporter and the Commissioner must receive written notice in such a case.

* For three years the generator must retain a copy of the manifest which is signed and dated by the transporter acknowledging acceptance of the waste. One copy must be mailed to the Commissioner and the others must be returned to the transporter.

Requirements for the Transporter

* The transporter may accept hazardous waste from a generator only if it is accompanied by a manifest which is signed by the generator. Before transporting the waste, the transporter must sign, date and return one copy of the manifest to the generator and ensure that the manifest accompanies the hazardous waste.

* When the transporter delivers the hazardous waste to another transporter or the designated facility, he must retain a signed and dated copy of the manifest from the transporter or the facility.

* The transporter must deliver all of the waste which he accepted from the generator to the primary designated facility, the alternate designated facility if necessary, or the next designated transporter. If the hazardous waste cannot be delivered to any of the aforesaid places, the transporter must revise the manifest according to the generator's instructions.

* The transporter must keep a copy of the manifest signed by the generator, any previous transporter, himself, and the next designated transporter or the owner or operator of the designated facility for three years after the waste is accepted by the initial transporter.

* Any transporter of hazardous waste must be licensed by the Commissioner.

Requirements for the Receiving Facility

* When a facility receives hazardous waste accompanied by a manifest, the manifest must be signed and dated and any significant discrepancies between

* One copy must immediately be given to the transporter, and within three days one must be sent to the generator and the Commissioner. The facility must retain one copy for three years.

* The waste must be analyzed to make sure the proper waste has been received. A copy of the analysis must be retained with the manifest.

Manifest Discrepancies

* Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of facility actually receives.

* Any significant manifest discrepancies discovered by the facility operator or owner, which cannot be reconciled with the transporter or generator, must be reported to the Commissioner in writing.

* If upon discovering such a discrepancy, the facility rejects any of the hazardous waste, the facility must report this to the Commissioner.

Acceptance of Other Manifests and Retention of Manifests

* The Commissioner may permit the use of the manifest of any other state or country for the purposes of transporting hazardous waste into or through Connecticut.

* The Commissioner must retain one copy of each completed manifest for at least 15 years.

International Shipments

* In cases where hazardous waste is imported into Connecticut from a foreign country, the transporter will be considered to be the generator for the purposes of these regulations.

* Transporters who transport hazardous waste out of the Unit States must indicate on the manifest the date the waste left the United States, sign and retain one copy of the manifest for three years, and return a signed copy to the generator, the facility, and the Commissioner.

Shipments by Rail or Water

* In the case of rail or water shipment, the waste must be accompanied by the manifest or a shipping paper which contains most of the manifest information. If a shipping paper is used, the manifest, signed and dated by the transporter, must be forwarded to the destination. Either the shipping paper or the manifest must be signed and dated by the facility upon receiving the waste and copies must be retained by the transporter and mailed to the Commissioner.

PART III:

Requirements for Generators of Hazardous Waste

Sections 6 through 9:

A generator who treats or disposes of hazardous waste on-site must only comply with the following requirements of this part: make a hazardous waste determination to assess the hazardous characteristics of the waste, obtain an

identification number and comply with record keeping and reporting requirements of these regulations.

A generator who stores any hazardous waste on-site for ninety days or longer must meet the aforesaid on-site requirements as well as complying with the following off-site requirements when the waste is finally transported.

Generators who ship hazardous waste off-site must make a hazardous waste determination; obtain an identification number; comply with pre-transport requirements by carefully, clearly and safely packaging, labeling, marking and placarding the waste according to Federal Department of Transportation regulations; obey recordkeeping and reporting requirement and carefully mark any stored waste to keep track of which waste remains on-site for ninety days.

Records of required manifests, reports, tests and analyses must be kept for three years or longer if desired by the Commissioner. Annual reports on appropriate Environmental Protection Agency forms and other reports requested by the Commissioner must also be submitted.

Small quantity generators must annually report the names, locations, addresses and identification numbers of the transporters and hazardous waste facilities used as well as the types and quantities of waste generated. A farmer disposing of waste pesticides from his own use need only triple rinse each container and dispose of the pesticide residues on his own farm in a manner consistent with the disposal instructions on the pesticide label and all applicable state and federal laws.

Part IV:

Requirements for Transporters of Hazardous Waste

Section 10 through 14:

* Transporters may not operate in or through Connecticut without permits and identification numbers.

* Permits must be reapplied for annually and the application must list each vehicle. A separate application shall be submitted for each operating site.

* Vehicles owned by small quantity generators, if they are used to transport hazardous waste to a permitted Connecticut facility, are exempt from transporter permits.

* The Commissioner may suspend or revoke the transport permit for violation or permitting any violation of any applicable requirements, any action or omission that could cause a hazard to human health or the environment, misrepresentation or omission in the permit application or any report, or failure to comply with any orders issued by the Commissioner.

* After notifying the transporter of the effective date and the reasons behind such action, the Commissioner may suspend a permit when he believes it is necessary to protect human health, livestock, wildlife or the environment.

* The transporter may correct the violations or petition for a hearing.

* The suspension shall remain in effect until the violation has been corrected or the Commissioner makes a final decision based on the hearing.

* One hundred eighty days after a permit has been revoked, a transporter may petition for reinstatement.

* The Commissioner may deny a permit if he determines that the transporter corporation has had any formal enforcement action brought against it within the last year, or the application does not demonstrate compliance with applicable standards.

* Transfers and minor modifications of permits may be done only with approval from the Commissioner. Formal modification requests may be made in writing by any interested person.

* All materials shall be safely packaged and handled in accordance with Federal Department of Transportation regulations.

* Any transporter with capacity for storage of waste is subject to applicable facility requirements.

* Hazardous waste may not be stored in any vehicle or other means of conveyance for more than 48 hours except in an emergency or with prior approval by the Commissioner.

* Transport vehicles may be inspected by the Commissioner at any time and must be maintained in compliance with state and federal regulations provided with safety and emergency equipment, and have a displayed identification number. Transport personnel must be thoroughly trained in proper emergency response.

* Transporters must demonstrate financial responsibility sufficient to cover any potential liability. Such demonstration shall include general liability insurance for each vehicle.

* In the event of an accidental discharge, the transporter must take action to clean up all waste and to protect human health and the environment. The Commissioner may waive manifest requirements and specify a manner of disposal in such a case. The transporter must also notify appropriate centers, departments, and bureaus as specified in Section 14 in the case of an accidental discharge.

Part V:

General Permit Requirements for Hazardous Waste Facilities

Requirements for a Permit - Section 15

* No person shall utilize, operate, construct or modify a hazardous waste facility which does not have a valid permit. An identification number is also needed to operate a facility.

* Any facility which accepts hazardous waste for a fee, which accepts hazardous waste from a source not owned and operated by the owner of the facility, or any off-site facility which accepts hazardous waste for final land disposal shall be subject to special approval procedures before they can be constructed or modified, as required by Public Act 80-472.

* Point source discharges, vessels for ocean disposal and publicly owned treatment works if otherwise permitted or regulated may be exempt or may be deemed to have a permit if they comply with applicable requirements and regulations.

* The Commissioner may issue a temporary permit to a non-permitted facility in an emergency in accordance with CFR 127.27 and state statutes and regulations.

Permit Applications - The General Application Process - Section 16

* Facilities qualifying for interim status pursuant to 40 CFR 122.23 will be treated as having been permitted until any further action is taken on their permit applications.

* Timely submission of the notification of interim status and Parts A and B of the application is necessary to qualify and retain interim status. Facilities with interim status must comply with parts VI and VII of these regulations.

* Changes in types of waste managed, design capacity, processes treatment or ownership cannot be made during interim status without submitting a revised application a specified number of days in advance. When ownership is changed, the old owner has financial responsibility until the new owner demonstrates to the Commissioner that he is complying with that requirement. Reconstruction is prohibited during interim status.

* No facility can commence construction and no permitted facility may commence modification until isued a permit pursuant to this part.

The Permit Application - Required Information - Section 17

* Part A permit applications shall be on forms supplied by the Commissioner and shall contain information specified at 40 CFR, Section 122.4(d), 40 CFR Section 122.24 and Section 22a-7-1 of the Regulations of Connecticut State Agencies.

* Part B shall contain information specified at 40 CFR Section 122.25 and other information which the Commissioner requires.

Otner Permit Requirements - Section 18 through 21

* The Commissioner shall review every application for completeness and shall notify the applicant of any deficiencies. If the applicant fails to correct such deficiencies, the application may be rejected.

* The Commissioner shall render a final decision on all applications.

* Judicial review of final permit decisions may be taken in conformance with Sections 18 and 19 of the Connecticut Uniform Administrative Procedures Act.

* All permits issued under this part shall include the conditions specified at 40 CFR Sections 122.7, 122.11, and 122.28 as well as such conditions as are necessary to ensure compliance with the requirements of Parts VI and VII of these regulations or such other conditions as the Commissioner deems necessary to carry out his responsibilities under these regulations.

* Permits shall be effective for a fixed term not to exceed five years.

Changes in Permit Requirements - Section 22

* The Commissioner may modify, revoke or reissue permits as becomes necessary and warranted.

* A request for modification, revocation or reissuance of permits may be made in writing by any interested person or upon the Commissioner's initiative.

Reapplication for and Renewal of Expiring Permits - Section 23

* A new permit must be reapplied for at least 120 days before the effective permit has expired.

* The procedures for review of permit renewal shall be in accordance with Section 22a-7-4 of the Regulations of Connecticut State Agencies.

Permit Termination - Section 24

* A permit may be terminated or denied if the permittee is not compliant with the permit, misrepresents any facts, or if the permitted activity endangers human health or the environment. A request for termination may be made in writing by any interested person.

Part VI:

Standards for Hazardous Waste Facilities

Applicability - Section 25

* Except as otherwise provided, the requirements of this part apply to owners and operators of all hazardous waste facilities including ocean disposers subject to a permit issued under the Marine Protection Research, and Sanctuaries Act, and persons storing hazardous waste before disposal at sea.

Identification Number - Section 26

* Every facility owner or operator must apply to the Commissioner for an identification number within 90 days of the promulgation of these regulations.

Required Notices - Section 27

* Notice must be given by the facility to the Commissioner in advance, indicating when hazardous waste will arrive from a foreign source. To any generator which is shipping waste to a facility, the facility must give notification that the facility has the appropriate permits and will accept the waste. A copy of this notification must be retained by the facility.

* Old owners or operators must notify new owners or operators of facility requirements. A new owner or operator is still responsible for complying with regulations even if the old owner fails to give required notice.

General Waste Analysis - Section 28

* Before treating, storing or disposing of hazardous waste a facility must obtain a detailed chemical and physical waste analysis with enough information to properly manage the waste. If the generator does not supply the information and the facility accepts the waste, the facility is responsible for obtaining required information.

* The analysis must be repeated as necessary, including when there is reason to believe that the process generating the waste has changed and when there is a manifest discrepancy.

* The facility must develop and follow a written waste analysis plan to obtain necessary information which must specify parameters for which waste will be tested, reasons behind such parameters, test methods, method use to obtain a representative sample of the waste and frequency with which analysis will be reviewed or repeated. For off-site facilities the plan must specify the analyses that the generators have agreed to supply, methods which will be used to obtain information not supplied by the generator, and for facilities which treat waste by mixing and then forward it for disposal, analyses which show that all incoming chemical consituents leave must be specified. Off-site facilities also must specify plans to determine the identity of each movement of waste managed at the facility.

Security - Section 29

* A facility owner or operator must prevent the unknowing entry and minimize the possibility of unauthorized entry of people or livestock into the facility unless he demonstrates that contact with anything contained within the facility will not cause injury and that disturbance of the waste or equipment will not cause a violation of the requirements of this part.

* Unless he makes a successful demonstration the owner or operator also must have a 24 hour surveillance system monitoring and controlling entry onto and a barrier surrounding the active portion of the facility or the facility as a whole. In addition, warning signs legible from 25 feet must be posted.

General Inspection Requirements - Section 30

* The owner or operator must develop and follow a written schedule for inspecting his facility for malfunctions and deterioration, including monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment, to prevent any accident which may cause harm to human health or the environment. The schedule must be kept at the facility and must identify types of problems to be looked for and frequency of inspection. The owner or operator must remedy any deterioration or malfunction discovered to ensure safety to human health and the environment. Areas subject to spills must be inspected daily when in use and an inspection log must be kept.

Personnel Training - Section 31

* Facility personnel must complete on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with these regulations. This must include emergency procedures, inspecting procedures and others. The personnel must take part in an annual review of their training.

* Discriptions of each facility job and each employee's qualifications, duties and training must be maintained at the facility.

Preparedness and Prevention - Section 32

* Design, construction, maintenance and operation must minimize the possibility of fire, explosion or unplanned release of hazardous waste.

* Facilities must be equipped with specified safety equipment and decontamination equipment, all of which must be tested and maintained in proper operating condition.

* Emergency communication equipment must be easily accessible to all personnel when working with hazardous waste.

* Aisle space must be maintained to allow access of emergency vehicles and equipment to the area of facility operation.

* Ignitable and reactive waste must be stored away from anything which could cause ignition or reaction. When such waste is being handled, smoking and open flames must be confined to a special area. No Smoking signs must be posted wherever appropriate.

* Arrangements must be made with appropriate local authorities such as police, fire departments, hospitals and emergency response teams to familiarize them with waste hazards, facility layouts, waste properties and waste health effects.

Contingency Plan and Emergency Procedures - Section 33

* Each owner or operator must have a contingency plan to immediately be carried out to minimize hazards to human health or the environment from fires, explosions or releases of hazardous waste or hazardous waste constituents, unless a Spill Prevention Control, and Countermeasures Plan has already been prepared. In that case that plan need only be amended to comply with the requirements of this part.

* The Contingency Plan must describe the actions the facility personnel must take during such an emergency, arrangements agreed to by local emergency authorities, and it must list names, addresses, and phone numbers of all persons qualified to act as emergency coordinator, including alternates. The plan also must include a list of all emergency equipment at the facility, listing locations and physical descriptions and capabilities of each item and an evacuation plan for facility personnel.

* Copies of the contingency plan and all revisions to the plan must be maintained at the facility and submitted to all local police and fire departments, hospitals, and state and local emergency response teams. After approval by the Commissioner the plan will become a condition of any permit issued.

* The plan must be reviewed and amended if necessary, whenever the permit is revised; whenever the plan fails in an emergency; whenever the facility changes in a way that materially increases the potential for fires, explosions, releases of hazardous waste, or changes the response necessary in an emergency; whenever the list of emergency coordinators changes; and whenever the list of emergency equipment changes.

* There must always be at least one emergency coordinator on the facility premises or on call with the responsibility for coordinating all emergency response measures. He must be thoroughly familiar with the contingency plan, all operations, waste handled, layout, and location of all records of the facility. He must have authority to commit the resources needed to carry out the contingency plan.

* In the case of an imminent or actual emergency, the emergency coordinator is responsible for activating alarms and communication systems and notifying state or local agencies.

  When there is a release, fire, or explosion, he must identify the character, exact source, amount, areal extent and possible hazards to human health and the environment. If he determines that there is a possible hazard, he must notify appropriate local authorities and aid in evacuation decisions, notify the Commissioner using the emergency spill response number, and notify the National Response Center of required information concerning the accident.

* During an emergency the emergency coordinator must take all reasonable measures to prevent recurrence or spreading of the problem.

* If the facility stops operations in response to an accident, the emergency coordinator must monitor appropriate equipment.

* Immediately after an emergency, the emergency coordinator must provide for management of recovered waste, contaminated soil or surface water or other material resulting from the accident.

* The emergency coordinator must ensure that, in the effected areas of the facility, no incompatible waste enters until cleanup procedures are completed and that emergency equipment is ready for use before operations are resumed. The Commissioner must be notified that these requirements are met before resuming operation.

* The owner or operator must note details in the operating record and submit a written report with required information to the Commissioner after any incident that requires implementating the Contingency Plan.

Operating Record - Secton 34

* If a facility ships any waste which has not been rendered non-hazardous, it shall initiate a new manifest and shall be considered as the generator.

* An operating record must be maintained at the facility, which contains a description and the quantity of each hazardous waste received, methods and dates of its treatment, storage, or disposal, and the location and quantity of each hazardous waste within the facility. For disposal facilities, location must be indicated on a map or diagram. For all facilities, cross-references to specific manifest document numbers must be included when applicable. In addition, records and results of waste analyses, reports of incidents requiring the Contingency Plan, inspection results, notices to generators as specified in Section 27 and closure and post-closure cost estimates must be retained.

* All records and plans required under this part must be available for inspection by officers, employees, or representatives of the state who are designated by the Commissioner.

* Retention periods for all records are automatically extended during unresolved enforcement action regarding the facility or as requested by the Commissioner.

* A copy of waste locations and quantities must be submitted to the Commissioner and local land authority upon closure of facility.

* The owner or operator must submit an annual report to the Commissioner covering facility activities, which must include the identification number, name and address of the facility; the year covered by the report; identification numbers of each generator using the facility; a description and the quantity of each manifested hazardous waste received, listed by identification numbers of each generator; a description and the quantity of each un-manifested hazardous waste including that from small generators; methods of treatment, storage and disposal of each hazardous waste; the certification signed by the owner or operator; monitoring data; and the most recent closure and post-closure estimates.

* If a facility accepts any waste from an off-site source without a manifest or a shipping paper the owner or operator must submit a report to the Commissioner within fifteen days, which must include the identification numbers, names and addresses of the facility, the generator and the transporter if available; the date the waste was received, a description and the quantity of each un-manifested hazardous waste; the method of treatment, storage, or disposal; signed certification; and a brief explanation of why the waste was un-manifested.

Groundwater Monitoring - Section 35

* By November 19, 1981, facilities having interim status must implement a groundwater monitoring program approved by the Commission capable of determining the facility's impact on the uppermost aquifer underlying the facility.

* A groundwater monitoring plan shall be filed as part of permit applications.

* Groundwater monitoring programs must comply with the requirements of 40 CFR 265.90 to 265.94 and must be carried out for the lifetime of the facility and during the post-closure care period as well for disposal facilities.

Closure and Post Closure - Section 36

* The owner or operator must close his facility in a manner that is approved by the Commissioner, that will minimize the need for further maintenance and which controls any post-closure contamination of the environment to the extent necessary to protect human health and the environment.

* Before comencing operations at a facility the owner or operator must have a written closure plan which may be amended at any time and must be amended when necessary. The plan must include a description of how and when the facility will be closed, an estimate of the maximum inventory of wastes in storage or in treatment at any given time, a schedule for final closure and other specified information.

* The owner or operator must submit his final closure plan to the Commissioner at lest 180 days before he expects to begin closure.

* The Commissioner, after providing the owner or operator and the affected public (through a newspaper notice) the opportunity to submit written comments, will modify, approve, or disapprove the plan.

* Within 90 days after the final volume of hazardous wastes is received, all hazardous wastes in storage or in treatment must be treated, removed from the site, or disposed of on-site in accordance with the closure plan.

* The Closure plan must be carried out within six months after receiving the final volume of wastes unless it is demonstrated to the Commissioner that extra time is necessary to complete closure activities and that significant threats to human health or the environment from the unclosed facility have been eliminated.

* When closure is completed all facility equipment and structures must have been properly disposed of or decontaminated.

* When closure is completed, the owner and operator and an independent registered professional engineer must submit certification to the Commissioner, that the facility has been closed in accordance with the approved closure plan.

* Post-closure care must include groundwater monitoring and reporting and maintenance of monitoring and waste containment systems.

* The Commissioner may require maintenance of any security requirements of Section 29 during post-closure when wastes may remain exposed after completion of closure or access by the public or domestic livestock may pose a hazard to human health or the environment.

* Post-closure use of property must never be allowed to disturb the integrity of any component of any hazardous waste containment system or the function of the facility's monitoring system unless the operator or owner demonstrates to the Commissioner that the disturbance is necessary to reduce a threat to human health or the environment or is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment.

* Approved post-closure care must be provided for at least thirty years. Extension or reduction of the post-closure care period may be petitioned for to the Commissioner.

* The owner or operator must have a written post-closure plan which shall be kept at the facility. It must identify the activities which will be carried on after final closure and the frequency of those activities, including groundwater monitoring and maintenance of containment structures and monitoring equipment.

* The owner or operator may amend his post-closure plan with approval of the Commissioner at any time and must amend his plan when changes which affect the plan occur.

* The post-closure plan must be submitted to the Commissioner at least 180 days before the operator or owner expects to begin closure. The Commissioner will modify or approve the plan within 90 days of receipt and after providing the owner or operator and the affected public the opportunity to submit written comments.

* Within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the town clerk's office in the town(s) where the facility is located and to the Commissioner, a survey plat indicating the location and dimensions of disposal areas, which must be prepared and certified by a profesional engineer. The town clerk's copy must be accompanied by a note of intent to restrict disturbance of the site. The town clerk's office and the Commissioner must also receive a

record of the type location, and quantity of hazardous wastes disposed of within each area. For wastes disposed of before these regulations were promulgated, the owner or operator must supply that information to the best of his knowledge.

* The owner of the property on which a disposal facility is located must indicate on some instrument which is normally examined during title search, that will notify any potential purchasers of the property, that the land has been used to manage hazardous waste and that its use is restricted.

Financial Requirements - Section 37

* The financial requirements shall meet those given to 40 CFR 265.141 through 40 CFR 265.169 inclusive and such other requirements as the Commissioner my direct.

Part VII:

Standards Applicable to Specific Types of Hazardous Waste Facilities

Applicability - Section 38

The regulations of this part aply to specific facilities defined in each section.

General Operating Standards - Section 39

* Management of ignitable, reactive or incompatible hazardous wastes or materials must be conducted so that it does not generate extreme heat, pressure, fire, explosion, or violent reaction; uncontrolled toxic mists, fumes, dusts, or hazardous quantities of gases; uncontrolled flammable fumes or gases in sufficient quantities to ignite; and so that it does not damage the structure of the containment device or in any way threaten human health or the environment.

* Hazardous wastes or treatment reagents must not be stored in a tank which they could cause to fail in a way before the end of its intended life.

* Uncovered tanks must have at least sixty centimeters of freeboard, unless equipped with a containment structure, a drainage control system, or a diversion structure with a capacity that equals or exceeds the volume of the top sixty centimeters of the tank.

* Containment systems for tanks must be capable of holding the volume of the largest tank contained therein.

* Where hazardous waste is continuously fed into a tank, the tank must be equipped with a means to stop this inflow.

* Emissions into the atmosphere of any substance shall comply with all applicable air pollution laws.

Use and Management of Containers - Section 40

* If a container containing hazardous waste is in bad condition, the waste must be put in another container or otherwise managed in a manner which complies with these regulations.

* Hazardous waste must not be stored in containers if it will react with or impair the container's ability to contain the waste.

* A container holding hazardous waste must not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

* Containers shall be stored on impervious, bermed surface to prevent leakage in case of a spill.

* A container shall always be legibly labeled. The label shall identify the contents of the container and the date on which the waste was placed in the container.

* Runoff from the storage area must be collected and if it is a hazardous substance it must be managed in accordance with any applicable regulations and requirements.

* At least weekly, owners or operators must inspect container storage areas for deterioration and leaks.

* Containers holding ignitable or reactive waste must be located at least fifteen meters from the facility's property line.

* Incompatible wastes or incompatible wastes and materials must not be placed in the same container, unless section 39 is complied with.

* Hazardous waste must not be placed in an unwashed container that previously contained an incompatible waste or material.

* A storage container holding hazardous waste that is incompatible with waste or material stored nearby must be separated from it by means of a dike, berm, wall or other device to prevent fires, explosions, emissions, leaching, or discharges which could result from leaks or breaks.

Tanks - Section 41

* In addition to the waste analysis required by Section 28, whenever a tank is used to treat or store hazardous waste which has not been previously treated in that tank or when waste is treated with a substantially different process than has been used in that tank, the owner or operator must conduct waste analyses and trial treatment or storage tests or obtain already documented information on similar processes to show that this proposed treatment or storage will meet all applicable requirements of Section 39.

* The owner or operator of a tank must daily inspect, where present, discharge control equipment, data gathered from monitoring equipment and the level of waste in each tank. Weekly he must inspect the construction materials of the tank and the construction materials of, and the area immediately surrounding, discharge confinement structures.

* Where the potential for systems failure or malfunctions are noted, remedial actions must be carried out.

* Ignitable or reactive waste must not be placed in a tank unless the waste is treated, rendered, or mixed before or immediately after placement in the tank so that the waste is no longer ignitable or reactive, unless the waste is stored or treated in such a way that it will not ignite or react, or unless the tank is used solely for emergencies.

* The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks must comply with the National Fire Protective Associations (NFPA) buffer zone requirements for tanks, contained in Tables 21 through 26 of the "Flammable and Combustible Code 1977".

* Incompatible wastes, or incompatible wastes and materials must not be placed in the same tank, unless Section 39 is complied with.

* Hazardous waste must not be placed in an unwashed tank which previously held an incompatible waste or material, unless Section 39 is complied with.

Surface Impoundments - Section 42

* A surface impoundment must maintain enough freeboard to prevent any overtopping of the dike by overfilling, wave action, or a storm. There must be at least sixty centimeters of freeboard.

* All earthen dikes must have a protective cover to minimize erosion and to preserve their structural integrity.

* When a surface impoundment is used to treat a different type of waste than has been treated in that impoundment or when a different process is used, before treating the waste or using the different process, the owner or operator must conduct waste analyses and trial treatment tests or obtain documented information on similar conditions to show compliance with Section 39.

* Freeboard level must be inspected daily, the surface impoundment must be inspected weekly, and any malfunction or potential failure must be remedied.

* Ignitable or reactive waste must not be placed in a surface impoundment unless the waste is treated, rendered, or mixed before or immediately after placement in the impoundment so that the waste, mixture or dissolution is no longer ignitable or reactive or unless the surface impoundment is used solely for emergencies.

* Incompatible wastes and materials must not be placed in the same surface impoundment unless Section 39 is complied with.

Waste Piles - General Operating Requirements - Section 43

* Hazardous waste piles must be shielded from wind dispersal.

* The owner or operator must analyze a representative sample of waste from each incoming movement before adding the waste to any existing pile, unless all wastes the facility receives are compatible with each other or the waste is compatible with the waste in the pile to which it is to be added.

* If leachate or run-off from a pile is a hazardous waste, then the pile must be put on a compatible impermeable base, run-off must be diverted away from the pile, and any leachate and run-off must be collected and treated as hazardous waste. The pile may be protected from precipitation and runoff by some other means. In addition, no free liquids may be placed on the pile and the owner or operator must comply with groundwater monitoring requirements.

* Ignitable or reactive wastes must not be placed in a pile, unless addition to an existing pile renders the waste inignitable and unreactive and

complies with section 39 or unless the waste is managed in a way that it is protected from any conditions which may cause it to ignite or react.

* Incompatible wastes or materials must not be placed in the same pile unless Section 39 is complied with. They must be separated by means of a dike, berm, wall or other device. If hazardous waste is to be placed where incompatible waste or materials was once stored, the area must first be thoroughly decontaminated.

Land Treatment Facility - Section 44

* Hazardous waste must not be placed in or on a land treatment facility unless it can be made less hazardous or non-hazradous by biological degradation of chemical reactions occurring in or on the soil and such application has been permitted under part V.

* Run-on must be diverted from the active portion of a land treatment facility and run-off must be collected.

* Before placing a hazardous waste in or on a land treatment facility, the owner or operator must determine the concentrations in the waste of any substance which is concentrated enough to meet EPA toxicity standards, or has characteristics which make the waste a hazardous waste. If food chain crops are grown, concentrations of arsenic, cadminm, lead and mercury must be determined.

* If food chain crops are, have been, or will be grown on a hazardous waste land treatment facility the owner or operator must notify the Commissioner.

* Food chain crops cannot be grown if arsenic, lead, mercury, cadmium or other hazardous constituents will be transfered to the food portion of the crop or otherwise ingested by animals in greater concentrations than in the same crops grown on untreated soils. This must be tested in accordance with RCRA.

Secured Landfills - Section 45

* Run-on must be diverted and run-off must be collected from the active portions of a secured landfill.

* Collected run-off is subject to hazardous waste, point source, and any applicable requirements.

* Wind dispersal must be controlled at secured landfills containing hazardous waste.

* The owner or operator of a secured landfill must maintain in the operating record, a map with dimensions and location of each cell and contents and location of each hazardous waste within each cell.

* Ignitable or reactive waste may not be placed in a secured landfill unless rendered non-ignitable or non-reactive before or immediately following placement.

* Incompatible wastes or materials may not be placed in the same cell unless Section 39 is complied with.

* Any liquid waste must not be placed in a secured landfill.

* A container holding liquid waste or waste containing free liquids must not be placed in a secured landfill, unless the container is very small such as an ampule.

* Empty containers must be crushed flat, shredded, or similarly reduced in volume before being buried in a secured landfill.

Engineered Landfills - Section 46

* The base of the fill must be at least 1.5 meters above the historical high water table except as otherwise provided by the Commissioner.

* The active cell must be capped with at least 60 centimeters of impervious material and appropriate cover material to establish vegetation.

* The cover must be domed appropriately to promote run-off but prevent erosion.

* A vegetation cover must be established as an erosion control.

* The Commissioner may require incorporation of lime into the cover.

* Area exposed to direct precipitation must be minimized, run-off must be diverted, run-off must be collected and wind dispersal of hazardous waste must be minimized.

* An engineered landfill may be used to dispose of stabilized ignitable or reactive wastes or dewatered sludges which are toxic because of failure to meet the toxic extraction procedure criteria for inorganic materials only.

* An engineered landfill may not be used to dispose of containers or any waste in containers, free draining sludges; liquid waste; ignitable or reactive wastes; or incompatible wastes.

* The owner or operator of an engineered landfill must maintain in the operating record a map with locations and dimensions of each cell and the contents and location of each hazardous waste within the cells.

Incinerators - Section 47

* Before incinerating hazardous waste, the owner or operator must bring the incinerator to normal operating conditions, including with respect to temperature and air flow. The incinerator must be operated in accordance with all applicable state and federal air pollution control requirements.

* The owner or operator must analyze any waste which he has not previously burned in his incinerator to establish best incinerating conditions and pollution resulting from incineration, unless in the latter case he has documented data that provides pollutant information.

* The owner or operator must monitor and inspect existing instruments which relate to combustion and emission control every 15 minutes and normal combustion conditions must be maintained.

* The stack plume (emissions) must be visually inspected hourly and the normal color must be maintained.

* The complete incinerator and associated equipment must be inspected daily for leaks and spills and emergency shutdown controls and alarms must be checked to assure proper operation.

Thermal Treatment - Section 48

* Before adding hazardous waste, the owner or operator must bring his thermal treatment process to normal conditions of operation, unless the process is a non-continuous thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste.

* The owner or operator must analyze any waste which he has not previously treated in his thermal process to establish appropriate operating conditions and to determine the type of pollutants which might be emitted, unless in the latter case he obtains documented data with such information.

* When thermally treating hazardous waste, the operator or owner must monitor instruments relating to temperature and emission control every fifteen minutes and appropriate conditions must be maintained. The stack emission must be visually inspected hourly for any visible alterations, which must immediately be remedied. In addition, the complete thermal treatment process and associated equipment must be inspected daily, including all emergency shutdown controls and system alarms.

* Open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment.

Chemical Physical, and Biological Treatment - Section 49

* Chemical, physical, or biological treatment of hazardous waste must comply with Section 39.

* Hazardous wastes or treatment reagents must not be placed in the treatment process or equipment if they could cause the treatment process or equipment to fail before the end of its intended life.

* Where hazardous waste is fed into a treatment process or equipment, the process or equipment must be equipped with a means to stop inflow of hazardous waste.

* Wherever hazardous waste which is substantially different from waste previously treated in a treatment process or equipment or a substantially different process is to be used to chemically treat the waste, the owner or operator must conduct waste analyses in addition to Section 28 and trial treatment tests or obtain documented information on the process.

* The owner or operator of a treatment facility must inspect, where present, discharge control and safety equipment daily; data gathered from monitoring equipment daily; construction materials of the treatment process or equipment weekly; construction materials of and the area immediately surrounding discharge confinement structures weekly.

* Ignitable or reactive waste must not be placed in a treatment process or equipment unless the waste is treated, rendered, or mixed before or immediately after placement in the treatment process or equipment so that the waste is no longer ignitable or reactive and unless Section 39 is complied with or unless the waste is protected from anything which may cause it to ignite or react.

* Incompatible wastes or materials must not be placed in the same treatment process or equipment, unless Section 39 is complied with.

* Hazardous waste must not be placed in unwashed treatment equipment which previously held an incompatible waste or material, unless Section 39 is complied with.

Underground Injection - Section 50

* Treatment, storage, or disposal of hazardous waste by underground injection is prohibited.

SECTION 4: SOLID WASTE

Introduction

Almost nine years have elapsed since the Connecticut General Assembly passed the Resources Recovery Act of 1973. Being the first state to develop such a comprehensive solid waste "planning and implementation" package seems to have meant very little in terms of bringing the state closer to the solution of its solid waste management problems. Not until the completion of the Windham Regional Resource Recovery facility late last year, did the citizens of Connecticut see a major improvement in the situation regarding the solid waste issue. Despite the fact that this first step has been taken, the state of Connecticut (which finds itself in one of the worst solid waste predicaments in the nation,) has only just begun to fight.

The Current Situation

a) Landfills

The Connecticut Department of Environmental Protection (DEP) estimates that the total municipal solid waste (MSW) generated by the state's residents and industry is roughly equal to 2.5 million tons each year. Approximately 95 percent of this waste is disposed of at the state's 110 mixed solid waste landfills and 45 bulky waste sites. In simpler terms, Connecticut's 3,180,000 persons produce enough material to cover between six and seven acres of land with a layer of refuse one foot thick, each and every day of the year. This is equal to 0.7 tons per person per year.

The Problem

State law mandates that each municipality provide for the disposal of all solid waste generated within its borders. Here is the problem. Existing space for disposal on land is rapidly diminishing and many municipalities which once depended upon their own dump sites are now disposing of their waste at one of the eight large regional landfills. Currently 71 of the 169 townships' are exporting their waste to locations outside of their borders. The latest DEP estimates reveal that at least 105 towns will find themselves in this same predicament at approximately the same time that Connecticut's large commercial and 8 regional landfills are expected to reach capacity in 1985. As one can see, this is no longer a municipal problem, it is a state wide dilemma. Not only are existing landfills reaching capacity, but new landfills are becoming increasingly difficult to site. At the close of 1981, one new private site of ten acres was permitted in Colchester and the Connecticut Resource Recovery Authority (CRRA) was negotiating with the owner of the existing Shelton landfill for a regional site under Authority auspices.

Why a landfill shortage

Connecticut's climate and geology are two main factors which make difficult the location of environmentally sound landfill space. High rainfall, compounded by thin rocky soils with poor drainage qualities, create a situation where the resulting leachate is insufficiently diluted before it enters ground or surface waters. Consequently, an illegally placed landfill can result in a health hazard by contaminating a water

source. Use of landfill liners and leachate treatmet technology has been frowned upon by state regulators as being economically inefficient thereby making other alternatives more attractive. Furthermore, local opposition displayed under the preface of zoning laws has made selection of individual landfill sites difficult even in areas deemed environmentally acceptable by the DEP.

B) Resource Recovery

The imminence of landfill space exhaustion, diminished chances of environmental degradation, and recovery benefits in the form of energy and materials have made the development of resource recovery facilities the major priority in an attempt to solve Connecticut's long range solid waste problems. In 1973, General Electric prepared a report for the state which estimated that ten resource recovery plants would be handling 84 percent of the state's solid waste by 1985. Unfortunately, the development of such plants has been excruciatingly slow.

The Connecticut Resource Recovery Authority (CRRA), whose mandate it is to carry out the construction and management of a statewide solid waste disposal system, seems to be inadequately dealing with the long line of barriers it has encountered. In its nine years of existence only a handful of projects have actually been attempted, all of which have been set back as a result of institutional and technical difficulties. A prime example if this can be found in the CRRA's very first project in Bridgeport, which was scheduled to be fully operative by March 1978. Mechanical problems in separating and classifying waste, along with the bankruptcy of one of the partners involved with construction and operation of the plant have prevented this "1800 tons per day" waste processing plant from producing its refuse derived fuel to this very day. In addition to the difficulties in Bridgeport, though not necessarily impartial to them, is the CRRA's inability to get towns to commit themselves to such facilities before the exhaustion of landfill space and without any guarantees or economic incentives. Even with the concession that only proven technology be utilized in future plants, as is the case with the proposed project in Hartford, towns have been unwilling to hop on the band-wagon.

At present, only one resource recovery facility is in operation in Connecticut. The Windham "modular combustion unit" energy recovery plant, which went into operation in early December 1981, presently serves the disposal needs of 8 towns in the surrounding area. This project is unique in Connecticut in that it represents the implementation of a municipality's initiative aided by the DEP Solid Waste Management Unit. The project was designed by Windham officials in conjunction with representatives of Kendall Corporation, the steam purchaser.

The plant, in burning 27,000 tons of refuse each year, produces approximately 15,000 pounds/hour of saturated steam which is expected to replace 84 percent of Kendall's yearly average process steam demand. In total, the plant is expected to reduce the company's fuel costs by 60 percent. The plant has been in operation only since early December, yet recent reports from the facility cite that the plant is already surpassing its design requirements.

A state grant of 2.46 million dollars, which wsa awarded to cover 70 percent of construction costs, was essential in getting the plan off the

ground, despite the fact that such a grant is contrary to the CRRA policy, which states "that all CRRA projects shall be economically self-sufficient." However, as a demonstration of small scale system capabilities to the rest of the state, this project will benefit all subsequent projects in lessons learned in plant operations and planning.

C) Source Separation, Recycling

Although source separation and recycling are considered by many to be an integral part of the long term solution to the solid waste problem, there is still no statewide program through which these activities can be consolidated and carried out. The DEP provides technical assistance to municipalities, but implementation is solely at the local level. To date, over 96 [2] towns have begun voluntary recycling programs; only two (i.e. East Lyme, Wethersfield) have passed source separation ordinances. At this time, however, Connecticut is the only state to have both a bottle bill and an "Anti-Litter Bill", once again in the forefront of legislation.

Issues

While hazardous waste has been the prime target of environmental concern during two sessions of the Connecticut General Assembly, the solid waste problem has been the recipient of a great deal of scrutiny over the past year and is expected to be hotly debated in upcoming sessions of the legislature. In fact, it is expected to be the premier legislative environmental concern in 1982. Following are some of the solid waste issues which have attracted a good deal of attention:

A) Rational use of existing landfill capacity

Although it is expected that resource recovery facilities will be processing the majority of Connecticut's solid waste by mid-decade, not many new landfills are likely to be permitted in the near future, and therefore efficient management of existing landfills is becoming increasingly important. There is a general concensus among municipalities, waste processors, and regional planners alike that increased state initiative is necessary to implement resource recovery systems necessary to a long-term solution of Connecticut's solid waste problem. However, it is evident that continued municipality cooperation and consultation with state agencies is necessary. Any long range planning should include the flexibility to adapt to changes in technology, economic conditions, and public awareness.

B) Mechanisms for finding new landfill sites

The Council on Environmental Quality advocates strong and active state participation in the landfill selection process, although landfill operation should be carried out by private contractors or municipalities. The state should be given the power to overrule municipalities where localities are reluctant to host new sites which are deemed necessary and environmentally sound by DEP. According to the DEP, Connecticut's ground and surface water classification maps (which are on the verge of completion) are the siting tools which will be employed by the State.

Again, it must be stressed that while expanding landfills is necessary in the short run, they cannot provide for the long-term solution to the state's solid waste disposal problem. A more realistic long-term solution will require more restrictive and efficient use of landfills together with

a heavy reliance on resource recovery systems. The state legislature must take the initiative in making decisions necessary to address the solid waste problem in light of the reluctance of local officials to handle it properly. At this point in time, no advances are being made.

C) Long-term strategies

A clear consensus exists between state and local governments on the immediate need for the development of resource recovery facilities in Connecticut. There is also agreement on the need for a plan which advocates that the extent and scale of such projects should vary within the state according to regional energy markets and waste availability. Both the CRRA and DEP agree on the concept that all such facilities should fall under one centralized authority in order to ensure the rational development of such facilities from a regional perspective. But how does the state establish the regional relationships essential for development? The CRRA can attest to the fact that voluntary municipal participation is not the solution; it has been employed in the past but failed miserably.

The DEP feel that a state mandate is the only solution to the problem and is expected to push this proposal in the 1982 General Assembly. A large opposition found among municipalities and legislators alike will undoubtedly prevent the passage of such a proposal in the forthcoming year; however the situation will demand that such an action be taken by the state in the very near future.

It takes two to five years to get a resource recovery facility from the blueprints to the production phases of operation. As the CRRA is not a public agency, government funds are not available to subsidize such projects. The capital, therefore, must come from private sources in the form of bond issues. In order for these bonds to be issued, the CRRA must be given guarantees from municipalities that they will join a CRRA proposed project upon its completion of a regional wasteshed facility. Even if one town in a given wasteshed chooses not to join such a project, for any of a variety of reasons, the project as a whole could be jeopardized for all the other members of the wasteshed, regardless of whether or not it is needed for a solution of their solid waste problems. It is evident that some action must be taken.

It is for this reason that DEP proposes the wasteshed mandate program which would force municipalities by law to guarantee their annual tonnage of solid waste to a designated recovery facility. The Solid Waste Management Unit of DEP states that such a mandate is the only possible means of solving the waste disposal dilemma, and at the same time fulfill the state's wish to formulate a comprehensive, economical statewide management system.

The primary flaw in the present CRRA system is that it is based upon voluntary participation and a need to understand the future impacts of todays policies. The inability to obtain this cooperation in time has led the CRRA to try to put together less than complete systems where the need is immediate. This spot implementation without overall system planning is guaranteed to lead to problems, i.e. a rise in costs and a developed inability of local communities to deal with increased waste flows in the near future. The state mandate, by forcing individual towns to participate as a group, would ideally achieve economies of scale, and consequently

bring about lower costs than would be the case if each town were to dispose of its waste individually.

The main reason given to the DEP and CRRA by local officials who have taken a stance against the wasteshed concept is that they have been given no guarantees concerning disposal costs in terms of tipping fees. Consequently, a large majority of localities have refused to join the regional system, the argument being that a regional waste recovery plant could induce higher tipping fees in the longrun, as compared to the present system. They propose that the state subsidize the costs involved, if they exceed a given level which is stipulated by state officials before the signing of a wasteshed contract. The DEP argues that this is a preposterous argument due to the fact that municipalities presently have no guarantees for the next fifteen years or so. If they don't have assurances now, why should the state be responsible for giving them one in the future? Is it the job of the state to present financial incentives to get the job done, or does the state simply mandate that the municipalities comply with the agreement? This is one of the important issues which will be of major concern in 1982.

D) Appropriate landfill enforcement mechanisms

It is the responsiblity of the Solid Waste Management Unit of DEP to make routine inspections of the state's solid waste facilities, and to take the steps necessary to obtain corrective action if any of these facilities are found to be in non-compliance with their permit provisions, with state solid waste management regulations, or with federal disposal criteria.

In some cases, efforts to gain voluntary upgrading or closure of disposal facilities are sufficient. It is possible for DEP to issue compliance orders relevant to Section 19-524b CGS which authorizes the Commissioner to demand action necessary to ensure against damage to the health or well being of the state's citizens. However, in doing so the DEP Commissioner must also provide a reasonable alternative for a municipality before closing the present landfill. This "reasonable alternative" clause is in itself a major roadblock which the DEP must overcome, mainly because the state has no power to force municipalities into accepting a proposed landfill, even if it is located at an environmentally sound site. Proponents of this law feel that it is the only way municipalities can protect their best interests. Without it, some say that the DEP would foreclose development of needed landfills for other than public health and environment considerations. That is, in order to stimulate the development of resource recovery facilities and to reduce dependence on landfills.

One non-controversial bill which undoubtedly will find itself instituted into law in 1982 is one which endorses a two-tiered permit system for landfills.

The present system allows a facility to be both constructed and operated under a single permit. A finding of improper operation could jeopardize the entire facility. A two-tiered permit system would enable construction of a design-conforming facility. Operating problems would simply be met by revocation of the operating permit only, just until problems could be corrected. The previous system resulted in numerous foreclosings of facilities when simple changes in operation could have rectified the problem.

This new system, if implemented, will give the DEP Solid Waste Management Unit a small amount of leverage in comparison to the present

system. Not much, but an improvement.

Recommendations

1) Enforcement-- If DEP's goal is to protect the environment it must not be restricted to the issuance of permits, but is must be allowed to actively enforce permit restrictions and pertinent regulations in a fair manner. It is recommended the DEP's enforcement efforts be improved from its present status. Legal action, not civil penalties, must be taken in order to meet this challenge. Injunctive and contempt powers must be allocated and maximum fines must be established or the efforts of DEP and CRRA will continue to be thwarted by short-sighted politicians.

2) Resource reduction-- Resource recovery methods, especially recycling centers which handle glass, paper, and metal are very important to reutilize and to reduce the total volume of waste generated. DEP, the state, and regional planners should do everything in their power to assist citizens in designing and operating local source reduction programs. Further disincentives to generate trash such as the 1978 Bottle Bill should be implemented where feasible.

3) Regional Cooperation-- Due to economics of scale achieved by regional waste 3) RConnecticut legislature should consider legislation to mandate all future solid waste disposal operators to incorporate regional solutions such as those put forth by DEP and CRRA.

4) Consider variety of waste disposal options-- Reliance solely on resource recovery creates a very inflexible solid waste management system. To provide more flexibility, Connecticut should consider the wide spectrum of disposal options prior to choosing on a final alternative. For instance, if a town finds a site specific alternative and conditions are optimum for its development as a landfill, it should be developed as one and hopefully incorporated into the total management system as an overflow area and backup.

5) Expand DEP's role as an agency for allocating solid waste information-- As the DEP is the exclusive permitting agency, towns look to it to provide them with information. For this reason, DEP should expand and update its library of relevant solid waste publications.

6) Prevent further cuts in DEP budget-- The past few years has seen a decrease in the department's and Solid Waste Management unit's budget resulting in reduction of staff and consequently in the ability of the unit to carry on its activities. This has all come at a time when state interest on the solid waste issue has increased and at a time when the situation is reaching a critical level. The prevention of further cutbacks is essential, and possibly new sources of funds will become available in the near future.

7) Greater cooperation between interested parties-- The need for greater cooperation between DEP, CRRA, municipalities and private interests is obvious, as is the fact that legislation is not the answer to this problem.

8) Incentives for safe landfills and for joining wastesleds-- Regulations and restrictions are a fine way to protect the environment, but if there is no incentive to create safe (to health and the environment) landfills, they

will not be produced. Also, the possibility of giving municipalities incentives for joining resource recovery facility programs should not be ruled out. By encouraging towns financially, the state would be removing road blocks interfering with CRRA programs.

9) Public education-- Efforts should be made and continued to educate the public on the solid waste problem issues, the causes and future options. Public education through the media serves to inform people so that rational decisions can be made. Also, the public should be kept abreast of current activities and encouraged to comment upon them. A well informed public will be less suspicious of state activities.

10) Acquire patience -- The state's solid waste management problem cannot be solved over night. It is a problem which must be approached both in the long and short run. Before the state's long run goal of numerous resource recovery facilities can be attained, the solutions will be a mixed bag of technologies including more landfills and increased life existing landfills, as well as source separation, recycling, and resource combustion facilities.

[1]Towns Exporting Waste

Colebrook
Winchester
New Hartford
Goshen
Harwinton
Windsor
Pomfret
Chaplin
Scotland
Haddam
Cromwell
Deep River
Durham
Bolton
Tolland
Hebron
Franklin
Eastford
Ashford
Union
East Haddam
New London
Old Saybrook
Clinton
Killingworth
Bozrah
Plainfield
Lisbon
Guilford
Waterford
South Windsor
New Britain
Vernon
Newington
Rocky Hill
Hartford
Beacon Falls
Seymour
Orange
Bethany
Middlebury
Plymouth
Naugatuck
Greenwich
Stamford
Darien
Norwalk
Westport
Wilton
Easton
Trumbull
Stratford
Brookfield
Bridgewater
Sherman
Warren
New Milford
Bethel
Milford
West Haven
East Haven
Sterling
Griswold
Canterbury
Madison
East Windsor
West Hartford
Enfield
Ellington
Wethersfield
Berlin

Andover
Avon
Barkhamsted
Berlin
Bethlehem
Bloomfield
Bridgewater
Bristol
Burlington
Canaan
Canton
Chaplin
Cheshire
Chester
Colebrook
Cornwall
Coventry
Danbury
Deep River
Durham
Eastford
East Granby
East Haddam
East Hartford
East Lyme
Enfield
Essex
Farmington
Glastonbury
Goshen
Granby
Greenwich
Griswold
Groton
Guilford
Hampton
Hartford
Hebron
Kent
Killingworth
Lebanon
Litchfield
Madison
Manchester
Mansfield
Marlborough
Meriden
Middletown
Milford
Morris
New Britain
New Fairfield
New Hartford
Newington
New London
New Milford
North Branford
North Haven
Norwalk
Norwich
Old Lyme
Old Saybrook
Orange
Oxford
Preston
Redding
Ridgefield
Salisbury
Scotland
Seymour
Shelton
Sherman
Simsbury
Southbury
Southington
South Windsor
Stafford
Stamford
Suffield
Thomaston
Tolland
Torrington
Union
Vernon
Wallingford
Washington
Waterford
Watertown
Westbrook
West Hartford
Weston
Westport
Wethersfield
Wilton
Windham
Windsor

PART 2

AIR QUALITY

SECTION 1: STATE IMPLEMENTATION PLAN: HIGH SULFUR FUEL

The State Implementation Plan (SIP) for Connecticut was revised for two of its regulations in 1981: 1) the statewide sulfur-in-fuel limit was raised from 0.5 to 1.0 percent by weight, and 2) the state's secondary sulfur dioxide ambient air quality standard was repealed.

The raising of the sulfur-in-fuel limit was promulgated on the argument that it was unfair for Connecticut industry to pay high fuel bills when other states, such as New York, Pennsylvania, and Ohio have been allowed to burn cheaper, higher sulfur containing fuels for years. This was done while the state was reviewing the impact of acid rain within its borders. Increased sulfur emissions could increase this problem, if not in Connecticut then in the areas downwind.

It is a concern of Connecticut that the burning of high sulfur fuels by other states, especially the Ohio Valley, is causing much of the pollution on days of high levels of sulfur dioxide. It was noted that Connecticut in past years has been well under the primary standard ambient air quality standard for sulfur dioxide and that the raising of the sulfur-in-fuel content would not exceed the primary standard ambient air quality for sulfur dioxide (the primary standard ambient air quality is federally determined and concerns levels of emitted substances into the air potentially harmful to health). The doubling of the sulfur-in-fuel from 0.5 to 1.0 percent not only increases the amount of sulfur dioxide emitted by 59.4 percent but also increases the amount of particulates emitted when these fuels are burned. Particulates are small solid particles of a harmful substance such as the sulfates and nitrates. The extra particulates from the burning of high sulfur fuels are entering an atmosphere which in some sites is already in violation of the Clean Air Act. It must be noted that along with the particulates directly emitted by this burning, the sulfur dioxide gas emitted is converted into sulfate particulates in the air, which increases further the Total Suspended Particulates (TSP).

Though the levels of sulfur dioxide emitted will not exceed the primary standard for the state, the concern is for localized areas during special situations. These special situations are during a time of slow moving air masses or during an air inversion. An air inversion is when a cool air current traps a warm air mass over an area. Any pollutants emitted in an area during this time are held there and concentrated. These conditions coupled with the increase in Connecticut's emissions may be a serious threat to those afflicted with respiratory diseases. In localized areas the potential is greater that Connecticut will violate the primary standard for sulfur dioxide levels while overall, Connecticut would not be in violation.

The economic advantages from the burning of the 1.0 percent sulfur fuel was estimated to be between seventy-six and thirty-six million dollars for Connecticut businesses. In the testimony by the Utilities, a huge savings for the consumers would result from the burning of the cheaper fuel. This savings was estimated to be per month for the consumer. The economic disadvantages are that we are becoming closer to the primary ambient air quality standard for sulfur dioxide, which means that we have less room for flexibility. This revision results in Connecticut breathing dirtier air and the economic disadvantages cannot accurately be quantified, such as increased medical expenses.

The second regulation change was the repeal of the secondary ambient air quality standard. The secondary standard is a limit on the emission of substances which may be harmful to plant life or materials. The secondary standard was a more strict limit on the levels of pollution allowable and Connecticut was one of the last states to still have such a standard. The repeal of the secondary standard was necessary in order to bring about the change from 0.5 to 1.0 percent fuel. Without the repeal of the secondary standard, there would have been no way to pass the revision to high sulfur fuels. Not all of the secondary standrd was repealed. The 24-hour and annual measurement of emissions were repealed while the federally mandated 3-hour measurement was retained. This repeal of the secondary standards means that Connecticut now has less strict requirements on the pollution of our air.

One setback stemming from the change to higher sulfur fuels is that it weakens the position of Connecticut in its attempts to reuglate sulfur dioxide emissions of other states. As has been noted, Connecticut is concerned over emissions from other states such as New York, Pennsylvania, and ohio. Connecticut would have been in a much better position to present a case against these other states if we had not loosened our restrictions on our own sulfur dioxide emissions. Now we are in the precarious position of pushing for more strict regulation of other state's sulfur dioxide emissions while increasing our own.

SECTION 2: CONNECTICUT'S ACID RAIN TASK FORCE

An Acid Rain Task Force was set up by the legislature in 1981 and began its investigations in October of that year. The Task Force works closely with the Connecticut Agricultural Experiment Station. Its purpose is to study the effects and sources of acid rain in Connecticut. The Task Force is made up of three State Representatives from the Environment Committee of the legislature, a member representing a water company, the Connecticut Sportsman's Alliance, a utility, the Connecticut Business and Industry Association, the Department of Environmental Protection, the Connecticut Farm Bureau, the Farmington River Watershed Association, the Connecticut Lung Association, the Sierra Club, the Connecticut Audubon Society, and the Connecticut Agricultural Experiment Station. Each month the Task Force hears expert testimony in the form of reports to determine the effects on soil and water, on fish, on vegetation, on human health, and on structures. The legislation that set up this Task Force mandated that an interim report be presented before January 1, 1982, and that a final report be submitted before January 1, 1983. The interim report was completed and released on December 1, 1981.

The interim report conveys the message that no real conclusions can be reached on this complicated and controversial topic. It appears that there are too many conflicting reports on the hazards of acid rain while the source of acid rain is understood.

The source of acid rain is from emission of SO and NO into the atmosphere which are converted into sulfates and nitrates. These sulfates and nitrates are fine particulates which water coalesces to form rain. The addition of water to sulfates and nitrates forms dilute sulfuric and nitric acid. In simple terms, rain washes out the fine particulates and becomes acidic. The acidity has been measured as low as 4.3 (neutral water has a pH of 7). The acid rain which results is very dilute and has no direct health hazards such as the burning of skin or any like hazards. The problem is that the acid rain has been looked upon as causing our lakes to become more acidic, which results in the destruction of vegetation and fish such as in the Adirondack Region. Acid rain has also been linked with reduced crop yield.

The Task Force has heard testimony that Connecticut lakes are not in imminent danger of acidifiction at this time. Various debates as to the cause and effects of the lake acidification are still ranging. One thing is certain is that the impacts are being felt.

The Task Force has heard expert testimony that acid rain is only a part of the larger problem of air pollution in general. They have found that the "best way to control air pollution is by energy conservation--by not burning so much fuel in the first place." The interim report brings to our attention the important linkage between energy conservation, industrial revitalization and air pollution. In other words, if we can use less fuel in a more energy efficient plant then we can reduce our air pollution and raise our air quality.

The problem with the question of acid rain is it cannot be accurately proven the exact source of the sulfates and nitrates emitted. The Northeast Damage Report of the Long Range Transport and Deposition of Air Pollution

suggests that Connecticut's source is the heavily industrial Ohio Valley and the Midwest. The big problem for Connecticut is how to control other state's emissions in order to bring our air under some control from pollution. The pollution from the Ohio Valley is being transported and deposited in New England.

The Task Force will be continuing their investigation of the effects of acid rain in the coming year. They will be particularly interested in the deleterious economic effects of acid rain. As has been noted previously, the Task Force is not likely to come up with any clear conclusions on acid rain but the Task Force is trying to come to a common position on this question.

PART 3

WATER-RELATED ACTIVITIES

SECTION 1: WATER COMPLIANCE

The problem of water contamination is becoming greater every year. This situation is primarily a result of increased industrial activity which utilizes many substances foreign to the environment. The more chemicals produced, the greater the problem of disposal. Eventually, water contamination due to dumping into water supplies and seepage into groundwater occurs. Therefore, it is necessary to periodically test drinking water for toxic contaminations.

There are several relatively new analyzers such as atomic absorption, mass spectroscopy and gas chromatography available for detection. These methods are capable of detecting minute quantities of contaminants. The problem of water contamination, therefore, often seems even greater because of this increased ability to detect trace amounts. Many chemicals were probably drinking water all along but were never noticed.

Extensive research on trace chemicals has been done since their discovery and many substances have been classified according to their own level of toxicity. If the amounts of these chemicals rise above their toxic level, adverse health effects may result. Therefore, regulations on each chemical must be set down by the government to protect the public.

There are many laws concerning the regulation of water contamination. A listing of pertinent laws follow.

Solid Waste Disposal Act 1965

Amendments 1970

Water Quality Act 1965

Clean Water Restoration Act 1966

National Environmental Policy Act 1969

Water Pollution Control Act 1972

Amendments 1977

Federal Environmental Pesticide Control Act 1972

Safe Drinking Water Act 1974

Gonzalez Amendment 1977

Resource Conservation and Recovery Act 1976

Toxic Substances Control Act 1976

Response, Compensation and Liability Act 1980

These laws deal with identifying and limiting pollutants, running waste treatment facilities and cleaning up spills and toxic chemicals. A review of some of these laws are described in more detail below.

Federal Water Pollution Control Act

The Federal Water Pollution Control Act (FWPCA) was expanded in 1961 to apply to all navigable waters, not just interstate waters as before. This act was amended again in 1972. Standards were set up regulating the amount of a pollutant that can be disposed of during a set period of time. These are based mainly on available technology, not on standards set down by law.

Effluent standards for toxic pollutants were established. They were to be set up with an ample safety margin by the Administrator of the FWPCA, which was later changed to the Administrator of the Environmental Protection Agency.

The FWPCA also regulates the control of oil and hazardous waste spills and provides money for the construction of municipal sewage-treatment facilities.

The regulations in the Federal Water Pollution Control Act were established with a specific goal in mind. That was to eliminate the dumping of pollutants into navigable waters by the year 1985.

Water Quality Act

The Water Quality Act amended the FWPCA by establishing another means through which pollution could be controlled. It also extended power to allow for federal action if the states failed to act on the establishment and enforcement of standards for water quality.

Clean Water Restoration Act

The FWPCA was also amended by the Clean Water Restoration Act. The EPA's authority was broadened to include procedures involved in pollution from the United States resulting in threats to the environment and public health in a foreign country. This act also enabled the Administrator of the EPA to require detailed reports from companies on their pollutants and means of treatment for them.

Resource Conservation and Recovery Act

The management and control of hazardous waste is the main function of the Resource, Conservation and Recovery Act. It regulates waste from its production to its final disposal. The key points call for establishing criteria for identifying hazardous waste, creating a system to keep track of them through to their final disposal, and organizing a permit system for all parts of waste handling.

Toxic Substance Control Act

The Toxic Substances Control Act was passed in 1976. The purpose of this law is to investigate the harmful effects of chemicals before they are manufactured for commercial use. It enables the EPA to take action to prevent an unreasonable risk to health or the environment.

According to this law, it is the manufacturer's responsibility to report to the EPA several aspects of each chemical they utilize. The

report must include a description of the chemical, the quantity produced, and the number of industrial sites which either manufacture or use the chemical.

The responsibility of the EPA is to publish a listing of all known chemicals. The Environmental Protection Agency encourages companies to conduct studies on adverse health effects and environmental conditions. It is also granted the power to take action against the production of any chemical that poses a threat to public health or the environment.

Safe Drinking Water Act

The Safe Drinking Water Act was enacted December 16, 1974. The main purpose of this law is to protect drinking water sources from careless injection of pollution. The Act is composed of three stages:

1. Promulgation of National Interim Primary Drinking Water Regulations.

2. A study, which was conducted by the National Academy of Sciences (NAS), done on the human health effects of exposure to contaminants in drinking water within two years of enactment of the Safe Drinking Water Act.

3. Promulgation of Revised National Primary Drinking Water Regulations based on the NAS report.

The main concerns of this Act are to:

1. Provide an emergency action program.

2. Assure adequate supplies of necessary drinking water disinfectants.

3. Research health, economic and technological problems.

4. Establish minimum standards for bottled drinking water.

5. Make possible citizen suits against anyone in violation of the Act.

6. Establish a National Drinking Water Advisory Council composed of 15 members.

All public water systems with 15 or more piped drinking water service connections or systems that regularly serve 25 or more individuals are subject to the Safe Drinking Water Act. Examples of these systems include almost all public water supply systems in municipalities, a service station that has its own water supply that regularly provides water for at least 25 motorists, a trailer park with 15 service connections or 25 residents, and federal facilities such as a military base. However, water supply systems not covered by this Act may still be subject to state law and regulations.

The Safe Drinking Water Act provides for National Drinking Water Regulations. These are primary regulations for public health protection and secondary regulations for public welfare concerning the appearance,

taste, odor, etc., of the water. The Secondary Regulations are guidelines that may or may not be adopted by the state for enforcement.

The Interim Primary Drinking Water Regulations cover maximum contaminant levels (MCL), testing requirements and procedures, public notification and record keeping. A maximum contaminant level is the highest permissible level of a contaminant in the water. Contaminants are all measured at the consumer's tap except turbidity, which is measured at the entrance to the supply system.

Systems not meeting the guidelines set up by this law may apply for an exemption or variance. Exemptions were only valid up until January 1, 1981 and were granted to allow a system, not able to meet federal standards, time to raise the necessary funds or develop alternate water supplies. Regional systems have been allowed up until January 1, 1983 to comply.

A variance has no time limit. It allows a water system to exceed, or deviate from the federal guidelines, mainly because of poor quality of the raw water. An exemption or variance will not be granted if there is a possible risk to human health.

If a National Drinking Water Standard has been violated the public must be notified within three months, or on the first water bill, whichever comes first. Within 14 days after discovery of the violation there must be a notification in the newspaper for three consecutive days. Radio and television stations must be notified within seven days. The consumer will also be notified if the water supplier fails to monitor properly, fails to meet state compliance schedules, or a variance or exemption is granted.

Most violations of a Drinking Water Standard are not an immediate danger to health. The limit of the amount of each substance allowed in drinking water is based on the consumption of two liters of water or water-based fluids, every day for a lifetime without any adverse effects.

If a water supplier refuses to correct violations of national standards or does not do so within the time frame prescribed by law, the EPA, state, or a private citizen may take civil action against the supplier.

Contamination of ground water from human activities may come from:

Industrial Impoundments

Solid Waste Disposal

Industrial Landfills

Lagoons

Municipal Landfills

Septic Tanks

Onsite Sewage Disposal

Mining

Petroleum Production

Leaks and Spills

Agriculture

(also other sources)

Industrial Impoundments and Solid Waste Disposal

Wastes at industrial impoundments and solid waste disposal sites are a major source of ground water contamination. In 1978 the EPA estimated that approximately 57 million of the 378 million tons of liquid and solid industrial wastes were hazardous. Secondary sources of national importance are septic tanks, municipal waste water, mining, and petroleum exploration and production.

Industrial Landfills and Lagoons

The number of active industrial landfills has been estimated at 75,700. Two-thirds of these active and inactive sites may have potentially dangerous amounts of hazardous wastes.

Municipal Landfills

Of the more than 14,000 active municipal landfills in the United States, only 35% were in compliance with appropriate state regulations. There are no estimates of the number of abandoned or closed municipal dumps or landfills.

Septic Tanks and Onsite Sewage Disposal

Approximately 19.5 million housing units in the United States use onsite disposal systems. More than one trillion gallons of waste are discharged into the ground through leaching fields each year.

The highest total volume of waste water discharged directly to ground water is due to septic tanks and cesspools. These are the most frequently reported sources of fecal, toxic and other contamination.

The problem is magnified by the fact that in many areas; especially rural communities, the prevalance of septic tanks is parallelled by reliance on private wells for drinking water.

Septic tanks with a soil absorption field can provide reliable treatment for normal household waste water if the system is properly sited, designed, built, and operated.

On a regular schedule of every year or two, a septic tank requires cleaning to remove the accumulated sludge from the bottom. Otherwise sludge particles may enter the leaching fields and prevent adequate treatment of waste water.

Homeowners can also purchase septic tank cleaning fluids, most of which contain trichloroethylene (TCE), benzene, or methylene chloride. A gallon or less of the fluid, when flushed down a toilet dissolves the

sludge in a septic tank so that it flows into the soil absorption field. This causes two types of severe ground water contamination:

1. The sludge itself is a contaminant

2. TCE and other organic solvents spread with the ground water and can be very dangerous.

An estimated half million gallons of these septic tank cleaners were used by homeowners in 1979 in Long Island alone. This is lead to the closure of many public and private drinking water wells.

Mining and Petroleum Production

There are many active coal, metal, and nonmetal mines in the United States. Ground water contamination from these mines is caused not only by waste disposal facilities, such as slurry lagoons, tailing ponds, and slag piles but also by the failure to reclaim mined land. The Surface Impoundment Assessment identified approximately 25,000 mining impoundments or disposal sites.

Petroleum production activities have caused substantial contamination in the South Central and Southwest states. In Texas alone, 23,000 cases of ground and surface water contamination caused by petroleum activity have been reported. Brine pits to dispose of saline byproducts of drilling are almost completely banned by the states. The use of ground water has been limited in many areas due to the use of brine pits for the past 80 years. The EPA's Surface Impoundment Assessment has identified nearly 63,000 active petroleum production impoundments. This is more than twice the number of other industrial disposal sites.

Leaks and Spills

The amount of oil spilled from tankers in 1979 was the highest on record, 65 incidents spilling 724,000 tons of oil. It was in this same year that the Campeche Bay offshore well blowout caused the largest oil spill in history from any source. The well spilled 10,000-30,000 barrels per day from June 3, 1979, until March 23, 1980 when it was finally capped. The total loss may well exceed 3 million barrels (about 425,000 metric tons).

Agriculture

Erosion of topsoil has reached 4.8 billion tons per year. Water-induced soil losses total 3.8 billion tons. This loss seriously affects not just productive capacity but also the quality of the waters into which much of this soil flows. Scientists estimate that approximately one-half of the sediment entering streams, rivers, and lakes stems from soil erosion on cropland. In Illinois, at least 181 million tons of soil wash from cropland in an average year-about 2 bushels of soil from each bushel of corn produced in the state.

Agricultural runoff contains nutrients from fertilizers and the soil; they can drastically upset natural ecological balances. In 1979, farmers used about 51 million tons of commercial fertilizers, containing roughly 21

percent nitrogen, 11 percent phosphorus, and 12 percent potassium. As much as 7.5 million tons of nitrogen and 600,000 tons of phosphorus from all agricultural sources run off into surface water each year.

SECTION 2: CONSTRUCTION GRANT PROGRAM

The Construction Grants Program, as a subdivision of the DEP Water Compliance Unit encompasses the numerous technical and administrative functions of the grant process which are necessary to ensure the flow of federal funds for use by the State in constructing water pollution treatment facilities. The formulation of preliminary engineering reports, the design of control facilities, as well as follow-up studies are all part of the program's activities, which, if carried out properly, ensure the State of up to 85 percent of the capital needed for construction of such facilities.

Since the implementation of this grant program, the many new and upgraded treatment plants have significantly improved the water quality of the State. Connecticut's water supply is most significantly impacted by inadequate municipal wastewater treatment and stormwater-induced sewage discharge. For this reason, the DEP emphasis over the next few years will be placed on advanced secondary treatment plants and on the elimination of combined sewer overflows.

Although the status of combined sewers for future Federal funding is questionable, due to the proposed amendments to the Federal Clean Water Act, these projects will continue to receive high priority from the State. Subsequently, citizens of Connecticut can expect to see an increase in activity of State grants in this area by at least 30 percent in the near future.

Because the individual wastewater treatment facilities projects are the funding source for the Construction Grants Program of the Water Compliance Unit, this program will not be affected by Federal or State budgets as will other divisions of the DEP. In 1981, this Congressionally-appropriated Federal grant amounted to 1.2 million dollars for construction in Connecticut. This appropriation is not expected to vary greatly over the next few years, and consequently no change in priorities or reduction in staff is expected. Many municipalities have already taken advantage of these grants, and it will be a program goal to maximize the usage of funding, as the DEP is expecting an increase in workload within the department over the next few years.

PART 4

UPDATE

SECTION 1: THE GYPSY MOTH IN CONNECTICUT

The 1981 Infestation

Gypsy moth caterpillars defoliated an estimated 1.5 million acres in Connecticut in 1981. This was the most widespread infestation in the ninety year history of the gypsy moth in this state.

Although entomologists and forest scientists agree that gypsy moths do not pose a threat to the health of humans, wildlife, forests or even most trees, the public concern was considerable. State and local government offices were flooded with phone calls by residents who feared for the safety of their trees.

The Nuisance Problem

Gypsy moth caterpillars are considered to be only a short-lived nuisance -- not a serious problem -- by scientists, but the infestations are ugly indeed. Forest and park areas suffering near-total defoliation were virtually unusable for traditional recreation such as camping and picnicking. Frass, the technical name for caterpillar droppings, fell so regularly as to sound like rain hitting the forest floor. Residential areas were plagued by masses of caterpillars climbing the walls of houses.

Several newspapers reported in May of 1981 that cases of gypsy moth "bites" were appearing at many hospitals. Most accounts were corrected later to report that the apparent bites were actually welts caused by contact with maturing caterpillars. A minority of humans are susceptible to this non-serious condition, which turns up most frequently during severe outbreaks.

Effects of Gypsy Moths on Trees

The Connecticut Agricultural Experiment Station in New Haven issued two Bulletins in April of 1981:

Bulletin 797 - The Gypsy Moth in Connecticut;

1) Defoliation 1975-1980
2) Review of Biological Control Studies
(John F. Anderson and Ronald M. Weseloh)

Bulletin 796 - Defoliation and Mortality in Connecticut's Forests
(George R. Stephens)

Among the conclusions are:

1) A single defoliation in a decade had no effect on mortality.

2) Mortality varied among tree species. While repeated defoliation led to slightly increased mortality in all species, among oaks it was large trees that tended to die and among maples and birches it was small trees.

3) Gypsy moths do not kills trees; trees weakened by defoliation are apparently more susceptible to shoestring fungus and the twolined chestnut borer.

4) Oaks may experience increased mortality, and less susceptible tree species such as birch and maple will increase in the forests. "Although forest composition may be altered, it seems unlikely that defoliation will completely destroy the forest." (Stephens)

Indeed, Connecticut's forests have been home to the gypsy for nearly a century, and while no outbreak every covered so many acres, many areas have been defoliated several times, and we still have our forests. (Connecticut's forests suffered a much more serious blow when the chestnut -- previously the dominant tree in our woodlands -- was eliminated from the forests by a blight earlier this century.)

Effects of Gypsy Moths on Wildlife

The DEP Wildlife Unit reported in January of 1982 that the 1981 gypsy moth infestation had no serious effects on game species. Acorn production suffers when oaks are defoliated, but most animals can find substitute foods for the winter.

Some wildlife species thrive during moth outbreaks, most notably the otherwise uncommon cuckoos (two species, black-billed and yellow-billed). Birdwatchers noted with satisfaction the abundance of cuckoos in heavily infested areas.

Less obvious effects, such as exposure of small animals to increased predation from hawks and owls in a defoliated forest, have not been studied.

Life Cycle and History

Since the accidental introduction of the gypsy moth to New England late last century, the gypsy moth has followed a "boom and bust" cycle (see Table 1).

Typically, a local gypsy moth population will build until it defoliates all available preferred food trees. At that point, starvation makes the caterpillars very susceptible to wilt disease (a virus) and the population collapses and remains at a low level for several years. This collapse could be seen in areas that were defoliated in 1981.

One factor that led to the widespread outbreak of 1981 was strong winds at the time the very young and small caterpillars were dispersing, as they usually do, by floating on silken threads. The winds helped blow the young caterpillars into areas that were not expecting outbreaks.

Because of the influence of wind, gypsy moth infestation in Connecticut tend to move from west to east. Most defoliations occurred in the western half of the state in 1981. In 1982, many of the areas affected in 1981 will not be affected, but many areas in the eastern half of the state will.

Control Options

Until a few years ago, scientists believed that the gypsy moth could be eradicated by massive aerial spraying of pesticides. DDT was used for

this purpose.

Scientists now concede that the gypsy moth cannot be eradicated; we must work towards and be satisfied with a reasonable level of control. State pesticide regulations now prohibit the aerial spraying of chemical insecticides for gypsy moth control. Bacterial sprays may be sprayed from the air.

Most entomologists and foresters now agree that widespread spraying of woodlands is not warranted, in part because most trees can withstand a defoliation. In fact, spraying of forests will often prolong an outbreak. The best control is to let the population build and crash naturally.

Heavily used wooded areas may warrant gypsy moth control measures if they are used for picnicking, camping, etc. Also, homeowners often want to protect valuable shade and ornamental trees.

Connecticut residents have the option of using any of several registered chemical pesticides: diflubenzuron, carbaryl, trichlorforn, and acephate. The most commonly used is carbaryl, marketed under the trade name of Sevin.

Two biological insecticides are registered for use: Bacillus thuringensis (Bt), a bacteria which is specific to caterpillars, and nucleopolyhedrosis virus (Gypchek), a prohibitively expensive viral spray specific to gypsy moths.

The limitations of Bt (marketed under trade names such as Dipel) are that it usually requires two applications and is twice as expensive as the chemical sprays. Its advantages are that it is regarded as safe to humans and most wildlife, and it can legally be sprayed from the air.

The problems with carybaryl (Sevin) are that it is a suspected teratogon (birth defect causing agent) and it kills beneficial insects, most notably honey bees. The fact that a pesticide such as carbaryl is registered by the U.S. Environmental Protection Agency is no guarantee of its safeness; many medical authorities encourage pregnant women to avoid all contact with carbaryl. Carbaryl cannot be sprayed from the air in Connecticut for the control of gypsy moths, though it can be aerially applied for pest control on farm crops.

At low gypsy moth population levels, homeowners can protect individual trees and help keep the population low by destroying egg masses, trapping the caterpillars during their diurnal migration down the trunks of trees, nourishing and watering their trees, and managing their developed habitats to encourage natural predators such as white-footed mice, shrews, and birds.

1981 Control Efforts

State-owned Land: In January of 1981, the State issued a Finding of No Significant Impact for their 1981 gypsy moth spraying program on state-owned land. Their plan called for spraying a maximum of 2,000 acres in state parks, state forests and rest/picnic areas. By statute, the DEP had approximately $4,000 at their disposal for spraying high-use areas.

The DEP plan called for using Sevin (because of its lower cost) on areas which they could close for 24 to 48 hours to minimize human contact

with the spray. Areas that could not be closed were to be sprayed with the safer Bt. Eighty-seven acres were actually sprayed with Sevin by the State.

Interestingly, on the day after the deadline for public comment on the Finding of No Significant Impact, the DEP issued a statement to the effect that private landowners should not use Sevin. The Council on Environmental Quality called attention to this apparent discrepency in DEP policy and it created some stir in the media.

Town Spraying

According to Section 22-91a to 22-91f inclusive, of the Connecticut General Statutes, an amount not to exceed $37,500 of the general fund can be distributed to towns for 50% reimbursement of their roadside spraying programs. The only requirement for the town is that the State Entomologist must declare that an outbreak is imminent, based on a winter count of the gypsy moth egg masses.

In 1981, fourteen towns applied for state funds. Their requests totalled $34,360, for an average town reimbursement of less than $2,500.

Thirteen of the fourteen towns used chemical sprays. Some environmentalists were alarmed that the towns did not use as much caution in protecting human health as the State did in its spraying program, and yet the State reimbursed the towns.

1981 Research Efforts

The Connecticut Agricultural Experiment Station in conjunction with the United States Forest Service tested the effectiveness of aerially sprayed Bt on Connecticut deciduous woodlands. They sprayed 40 acre plots in the Harwinton area and compared defoliation in unsprayed areas with areas sprayed once and areas sprayed twice. The results:

Plot	% Defoliated
Unsprayed	61
one application of Bt	35
two applications of Bt	15

These results serve to indicate that Bt is somewhat effective when applied once, but really should be applied twice for maximum effectiveness.

Research efforts in 1982 will be conducted in the Lyme area to see if stronger doses can result in satisfactory results after only one application.

The Future

Many of the areas hit hard by the gypsy moth in 1981 will not be affected in 1982 because of the collapse of the population. Nonetheless, scientists at the Connecticut Agricultural Experiment Station predict a comparable number of acres to be defoliated with increased defoliation in the eastern half of the state.

Research by federal agencies is being conducted on finding effective predators that will keep the gypsy moth population at low levels. A number of beetles and wasps prey on or parasitize some stage of the gypsy moth (egg, larva, pupa, or adult moth), but total success in controlling population levels through predation is unlikely. Even Europe, original home of the gypsy moth, is subjected to periodic mass defoliation.

In the long run, Connecticut residents will have to adjust psychologically to seeing their trees defoliated once or twice a decade. Frantic action borne of panic and a less-than-perfect understanding of the phenomenon has resulted in efforts by some citizens and legislators to loosen the pesticide spraying laws and to appropriate greater sums of money for spraying. This is not the answer. Appropriate State action would be to educate the citizenry as to the real nature of gypsy moth infestations, and to help efforts aimed at maintaining the gypsy moth population at low levels.

ACREAGE NOTICEABLY DEFOLIATED BY THE
GYPSY MOTH IN CONNECTICUT, 1935-1980

Year	Acres	Year	Acres
1935	67	1958	117
1936	0	1959	6,000
1937	0	1960	20,000
1938	1,131	1961	15,800
1939	1,759	1962	83,300
1940	0	1963	40,140
1941	0	1964*	93,552
1942	0	1965*	86,009
1943	0	1966*	15,895
1944	14	1967	2,731
1945	16	1968	16,416
1946	496	1969*	52,635
1947	0	1970*	425,039
1948	0	1971*	654,102
1949*	0	1972	508,460
1950	475	1973	333,215
1951*	200	1974	120,980
1952*	1,500	1975	63,411
1953*	20,000	1976	9,809
1954*	14,000	1977	0
1955*	6,842	1978	3,835
1956*	3,458	1979	8,619
1957*	4,800	1980	372,216

Source: Anderson, John F., Frontiers of Plant Science: The Gypsy Moth, Vol. 32, Number 3, October 1980

(NOTE: Do not be confused by figures that quote defoliation figures up to 800,000 acres in 1980 and 5 million acres in 1981--those are nationwide estimates, of little relevance to the Connecticut problem.)

SECTION 2: SALMON RESTORATION PROGRAM

Prior to its disappearance from all but a few New England rivers, the Atlantic Salmon was a popular commercial and game fish, distributed from the Delaware River into the Hudson Bay region. The Connecticut River was well-known for its fine salmon runs.

The salmon disappeared, not because of over fishing or pollution, but because industrial dams were built which blocked the passage of the big fish as they swam upstream to spawn. The first of these impassible dams was built in 1798 at Hadley Falls, Massachusetts. Soon there were others, until by 1814 the Atlantic Salmon runs on the Connecticut River had been eliminated.

Restoration Program

In 1966 the four states in the Connecticut River Basin began work with the U.S. Bureau of Sport Fisheries and Wildlife and the National Marine Fisheries Service to restore the Atlantic Salmon.

A federal hatchery for salmon smolts has been planned for Bethel, Vermont. But before the hatchery begins operation the dams will have to be bypassed.

Fortunately, water pollution is not considered a barrier to the return of the salmon. Biologists are confident that the water throughout most of the Connecticut River system is of sufficient quality to enable salmon to survive and spawn.

Salmon Stocking Report

A small percentage of the smolts stocked in Connecticut were raised in the past at the Burlington and Kensington Hatcheries from eggs collected in New Brunswick and Quebec. In addition, some disease-free eggs from Newfoundland have been handled at the Quinebaug Valley Hatchery which accepts only disease-free eggs. Currently, the Kensington Hatchery is raising two year old smolts to be released into Connecticut River tributaries. This hatchery will no longer rear trout, passing its responsibilities over to Burlington and Quinebaug Valley. The state is hoping that it can increase the annual production of released smolts to 150,000 fish.

Rearing salmon presents hatchery personnel, who normally raise almost 700,000 trout annually, with special problems.

1) Salmon eggs are difficult to obtain. Most are gathered from wild fish in several areas in Canada and are in limited supply.

2) Hatchery production is geared for trout which means the hatchery staff must modify their operations to accommodate the salmon.

3) Salmon are more difficult to raise than trout.

In a river where salmon have lived and bred for centuries, only three to four percent of the smolts survive a year or two at sea and return to

spawn. In the Connecticut, the stocked smolts are produced from eggs taken from fish whose home was 1,000 miles away. So far this season, 55 salmon have been trapped at a fishway on the Salmon River in East Haddam, 29 at a fishway on the Farmington River in Windsor and 115 at the Holyoke Dam in Massachusetts. Some biologists expect the run this year might right 250 because substantial numbers of young fish were stocked in the river two years ago.

Connecticut's salmon stocking effort so far has been limited, almost experimental. Full-scale stocking will have to wait until the federal hatchery begins production. Until then, Connecticut, Massachusetts, Vermont and New Hampshire will continue working toward making the Connecticut River System suitable again for this splendid fish.

SECTION 3: NON-GAME MANAGEMENT

Management of the populations and habitat of game animals is an ongoing project across the country. In Connecticut, as in other states, the wildlife unit has always been game oriented, as it is financed through taxes on guns, ammunition and hunting licenses. But according to the Wildlife Management Institute, "Some critics of the American system of wildlife management have charged that because hunters and fishermen carry the financial burden of wildlife conservation, the state agencies favor game species in their programs and ignore non-hunted species."

In recent years, however, other states have begun to develop non-game programs not oriented towards hunting. Research work on endangered species, non-hunting recreation, education as well as attention to urban wildlife have all been major aspects of non-game programs in a number of other states. Connecticut has lacked funds in the past to set up a program of this sort, aside from a couple of small scale projects. Indeed, until 1981, laws in Connecticut regulating the removal of fish and mammals from the land did not cover animals that are not traditionally considered game species. When it was discovered that a good number of people were collecting several species of salamanders and snakes, as well as bog and wood turtles for exotic pet stores and laboratories, the first steps towards a comprehensive wildlife law were taken.

In the spring of 1981, a bill was passed which sufficiently reworded the state statute to cover the management of all wild animals. Before the bill took effect in October, 1981, the law said that the DEP shall develop regulations governing the taking "game birds and wild quadrupeds" (usually mammals). If the DEP wanted to protect snakes, turtles or non-game birds, it could not under this law. The new bill, however, substituted the word "wildlife" into the statute which in effect enables the DEP to determine what animals can be protected, and how this stewardship can be best carried out. Although the law itself does not actually protect specific species, it does call for conservation measures to be enforced for both game and non-game species.

The change in the wording of this law has paved the way for a larger task. The Connecticut Audubon Society and the DEP are presently designing a comprehensive non-game wildlife program for the state. The Connecticut Audubon Society has put together a blue ribbon committee of ten wildlife experts which first met in the fall of 1981. The committee is giving themselves one and one half to two years to come up with a non-game program that will complement wildlife programs already in existence. Although funding will be difficult, the committee hopes to combine the needs of wildlife with the needs of the people, and what Connecticut residents want the state to do for wild animals.

At present, the Connecticut Wildlife Conservation Committee, as the blue ribbon committee is known, is studying non-game programs in other states, analyzing successes as well as failures. The Committee hopes to establish educational programs and land owner associations in the future as well as ensure preservation of critical habitat for certain endangered species.

SECTION 4: FARMLAND PRESERVATION

Prime farmland, a valuable and essential resource, is disappearing at an alarming rate of one million acres each year nationally. Connecticut alone has lost 40,000 acres of prime agricultural land from the years 1975-80. A Food Production Plan for Connecticut published in March of 1980, took a systemic look at agricultural production in the state. To sustain a reasonable level of production, the report recommended that 83,000 acres of prime farmland be preserved.

According to the Federal CEQ, "prime farmlands are the most efficient, energy conserving, environmentally stable lands available for meeting food and fiber production needs. These open lands serve as buffers for natural areas, help maintain water supplies, control run off, flooding and sediment damage, absorb pollutants, provide diversity of habitat and are aesthetically pleasing in themselves."

There are many reasons for the conversion of farmland to other uses. One of the prime contributors is the high price for land offered by developers. Other factors encourage farm abandoment include declining farm profits an uncertain future, prohibitive beginning capital costs, and pressure from the surrounding developed areas.

Farmland Preservation Program

Connecticut has taken steps to preserve its remaining farmlands by establishing Public Act 78-232. This act allocates a five million dollar pilot program, later increased to 7 million, which enabled the state to purchase development rights for endangered farmland. Under the program, the state pays the difference between the value of the land as is and the value of the land if developed to the owner. Afterwards, the land may only be used for agricultural purposes but the owner is compensated for his loss of not selling at the higher development price.

Due to the limited funding for the preservation project, criteria for inclusion in this program must be prioritized. This is based on the probability that the land would be sold for development, potentially productivity, soil classification and the need to retain the type of agriculture for which the land is used. The value of the land is then assessed by two appraisals done by outside consultants, reviewed by the DEP, and screened by a committee including an appraiser, a bank president and an agricultural economist among others.

While the pilot program has been made permanent it seems that some changes are required to do away with difficulties. The legislation passed in 1980 was broad, and offered criteria without specific guidelines. As a result changes have been made to make the program stronger and to avoid criticism, such as a provision that the land be kept open and productive. This would prevent agri-industries from consuming prime farmland better used for crops.

Some federal legislation that will affect Connecticut farmers, deals with price supports and overproduction. The federal government does not

want to maintain price supports, instead the government wants to increase trade and foreign export. Connecticut is not an exporting state. It is an importing state, producing about 50% of its needs. One bill in Congress would place all farmers currently in production under a quota system; new farmers could not start up without a quota, and quotas are not given to new farms. Exemption should be encouraged for dairy deficient states such as Connecticut.

Other means of preservation

Alternative means of farmland protection include the institution of agricultural zones regulating the size of land that accompanies each dwelling unit. In addition to efforts aimed specifically at rural areas, a strong urban revitalization policy is also important. Citizens, towns, and private organizations must work together. Towns must become involved. They must inventory and rank their soils, decide what their town plans and goals are and coordinate them with planning and zoning. Regulatory aids are also needed. Towns and private organizations must approach farmland preservation creatively. They might look at deed restrictions, tax laws bargin sales, and land trusts. A private organization might purchase a farm property and hold it for the state, or a landowner might consider donation for a tax benefit.

Whatever the means used, the goals of farmland preservation must be met. The propect of less dependence for food, greater pollution absorption capacity and other cultural, economic and environmental benefits should be incentive enough. Farmland preservation is not only for farmers and rural dwellers, it is in the best interest of everyone.

SECTION 5: NOISE CONTROL

Noise presents a health and safety hazard above and beyond simple annoyance. These simple everyday annoyance sounds such as sirens, traffic, airplanes, and barking dogs, are considered to be a nuisance by some people.

Since noise is invisible, this makes its impact difficult to define. Therefore recognition of noise as a pollutant has been slow. Steps have been taken at the federal level to control noise through legislation such as the Occupational Safety and Health Act and the Quiet Communities Act, but few states or municipalities have followed this example.

The most common health problem associated with excessive noise is loss of hearing. Unlike other forms of hearing problems, those due to noise are permanent and not correctable with hearing aids. Other informaties linked to noise through various studies are: high blood pressure, heart and circulatory diseases, increased cholesterol levels, liver damage, ulcers, low birth weight and birth defects. The stress brought on by excessive noise has also been associated with insomnia, learning disabilities in children, antisocial behavior and other physical and mental problems.

In the early 1970's Connecticut was among the first states to institute noise control regulations. Sections 22a-67 of the Connecticut General Statutes provide for a statewide program of noise regulation and require standards for major stationary noise sources. The Motor Vehicles Department is responsible for standards for moving sources. Noise limits are determined by land use category as follows:

Class A Noise Zone: general residential uses or areas where serenity and tranquility are essential to the intended use of the land (example, private homes, religious facilities, and forest preserves).

Class B Noise Zone: generally commercial in nature, areas where human being converse, and such conversation is essential to the intended use of the land (example, retail trade, educational institutions, government services).

Class C Noise Zone: generally industrial where protection against damage to hearing is essential (example, manufacturing activities, transportation facilities).

Certain noises are exempt from these regulations, however, and tend to weaken the effect of the legislation. Among those exemptions are major noise contributions, such as construction equipment, airplanes, and farm equipment. The Noise Control Program is further weakened by staff shortage and budget constraints within the state.

Currently, there is one noise control program in the state. This is the EPA sponsored ECHO (Each Community Helping Others) program now in its third year of a three year, $105,000 EPA grant. ECHO's emphasis is on expanding local community involvement in abating noise pollution. Citizen volunteers are assigned to communities seeking assistance with noise problems that the volunteer is experienced in. ECHO also enables the DEP to work with interested communities in preparing local noise ordinances by providing them with technical assistance and advice, the loan of equipment, and

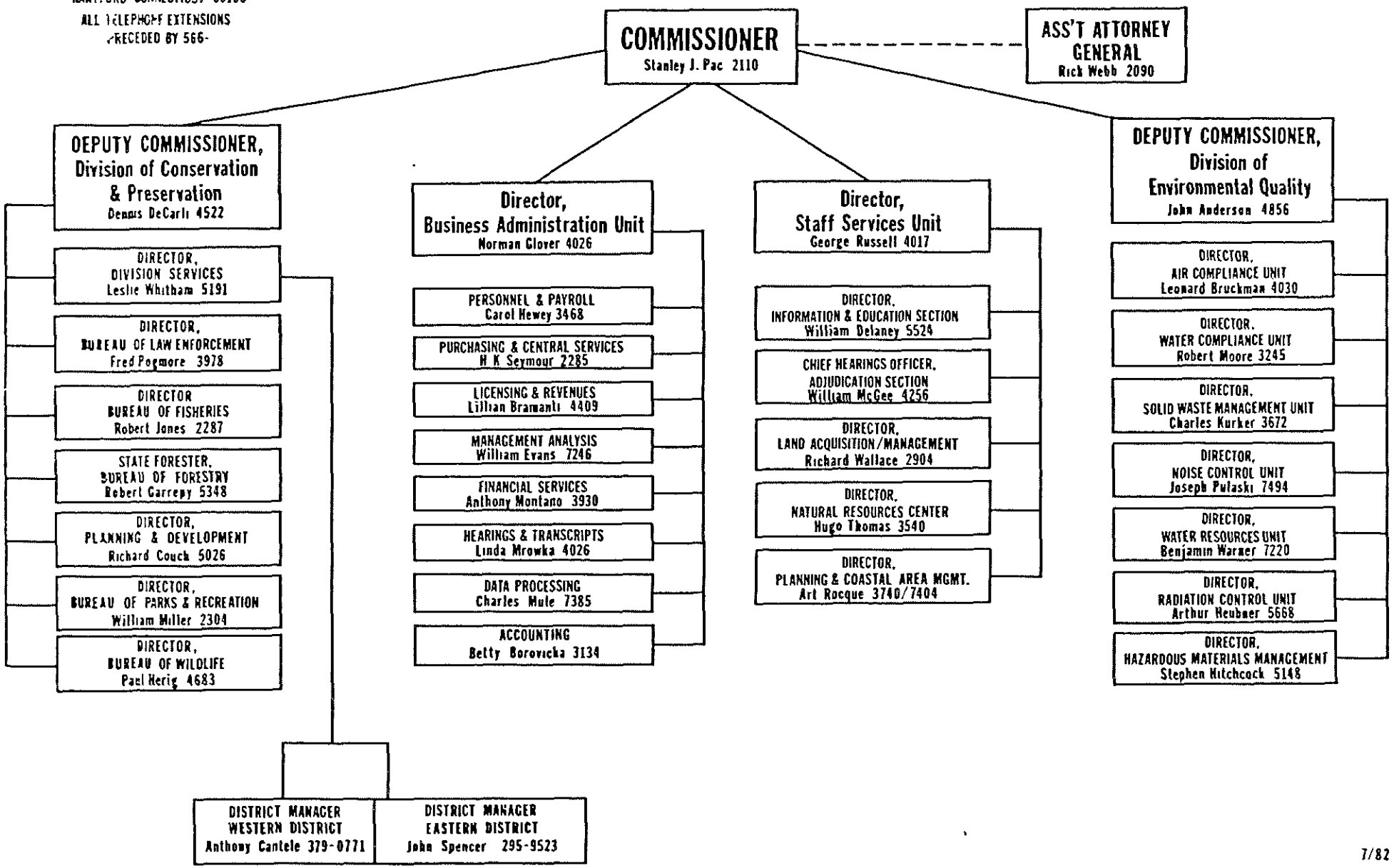
training on a continuing basis.

Noise is nationally recognized as a threat to health and the overall quality of life. It deserves some attention in a state once considered a national model for anti-noise campaigns. The technology exists, all that is needed is a serious committment.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

General Mailing Address:

STATE OFFICE BUILDING
HARTFORD CONNECTICUT 06106
ALL TELEPHONE EXTENSIONS
PRECEDED BY 566-



7/82