

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

RCRA-C
in
New York State:
Managing
Hazardous Waste

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RCRA-C In New York State: Managing Hazardous Waste

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RCRA-C In New York State: Managing Hazardous Waste

EXECUTIVE SUMMARY

New York State's strong commitment to protecting its citizens and environment from potentially devastating exposure to hazardous chemicals is illustrated in the Department of Environmental Conservation's (Department) RCRA-C program. The Department is committed to reducing, recycling and controlling hazardous wastes and restoring the State's natural resources. The Department implements the multi-faceted RCRA-C program in partnership with the United States Environmental Protection Agency (EPA), industry and commerce, and concerned citizens.

❖ **Authorization.** New York State initially received EPA authorization to implement and enforce the federal RCRA-C program on May 29, 1986. A comparative analysis of the national authorization status as of March 31, 1999 shows New York leading all the New England states and surpassing the only other EPA Region II state.

❖ **Manifest.** Key to controlling the State's hazardous waste is our manifest program. Hazardous waste is tracked from the time it leaves the generator facility to the place of ultimate disposal. Approximately 150,000 hazardous waste manifest forms are processed annually to track hazardous waste through a "cradle-to-grave" system

ensuring that hazardous wastes are transported from the generator to a regulated disposal facility without being tampered with or illegally disposed.

❖ **Fees.** Through the Hazardous Waste Special Assessment Fees and Regulatory Fees, more than \$200 million have been collected. These fees are used to pay a portion of the debt service associated with the 1986 Environmental Quality Bond Act and to fund other environmental program needs.

❖ **Reduction.** Through the Department's hazardous waste reduction efforts, initiated in 1991, the amount of hazardous waste generated in 1997 was reduced by 42 percent -- more than 12,000,000 tons.

❖ **Permits.** Through Part 373 permits, the Department ensures environmentally-protective standards in design, operation



Hazardous wastes must be properly managed to protect our environment.

and performance of hazardous waste treatment, storage and disposal facilities (TSDFs). Under RCRA-C, 315 TSDFs in New York State have been subject to Part 373 permitting requirements. Ninety-seven (97) percent (298) of these TSDFs have been closed or fully permitted. Only ten facilities remain to be closed or fully permitted. New York State is well ahead of the national average for meeting EPA's permitting goals.

- ❖ **Financial Assurance.** All permitted TSDFs have financial assurance mechanisms to ensure that owners/operators have the funding to provide closure and post-closure activities necessary to protect human health and the environment upon ceasing operation. The financial assurance also provides third party compensation resulting from accidental release of hazardous wastes. The Department holds a total amount of assurances in excess of \$400 million.
- ❖ **Corrective Action.** Nearly 200 RCRA-C corrective action projects have been completed since 1984, the first year of the program, resulting in cleaner air, water and soil at 65 RCRA-C facilities and surrounding properties. More than 15.5 billion gallons of contaminated groundwater have been pumped and treated, and more than one-half million cubic yards of contaminated soil have been excavated, followed by environmentally-sound treatment and disposal.
- ❖ **Inspections.** An average of more than 780 RCRA-C inspections are conducted statewide each year to monitor compliance with RCRA-C regulations. Through routine inspections of hazardous waste generators, transporters and treatment, storage and disposal facilities, RCRA-C

inspectors uncover serious offenses -- violations that, left undetected, could result in extreme, adverse consequences to human health and the environment.

- ❖ **Future Direction.** The Department will completely review the RCRA-C program to determine all the vital components that would constitute a comprehensive and successful statewide hazardous waste program. Upon review, the Department will establish a level of effort that is needed for each component and take steps to secure adequate long-term resources. There has been great progress made in the management of hazardous waste in the State and those successes must be expanded and maintained.

All facilities will be permitted, permits will be maintained, and all corrective measures completed and monitored for effectiveness. A process will be developed to work with those managing hazardous wastes to reduce their production to a minimum and provide for the safest management and maximum recycling of those wastes that have to be produced.

Continued implementation and improvement of our comprehensive inspection process is planned to ensure that the valuable resources of the State are being protected from hazardous waste mismanagement. We will expand and maintain a comprehensive data management system that will enable all involved with the management of hazardous waste to readily determine all who generate, manage, ship, treat or dispose of hazardous waste in the State. This system will continue to provide current information on the types and quantities of hazardous wastes generated, shipped and treated in the State.

RCRA-C IN NEW YORK STATE: MANAGING HAZARDOUS WASTE

INTRODUCTION

The RCRA-C hazardous waste management program, administered by the Department of Environmental Conservation, has gradually, but dramatically, changed the ways in which commerce and industry handle their most toxic forms of waste. Once improperly stored, inadequately treated and indiscriminately dumped, hazardous wastes are now stored, treated and disposed in an environmentally-sound manner. Hazardous waste is regulated in New York State from the moment it is generated to its final disposition to protect human health and the environment, a concept known as “cradle-to-grave” waste management. Furthermore, through the Department’s hazardous waste reduction efforts, the amount of hazardous wastes generated has been reduced by 42 percent compared to 1991.

The State’s RCRA-C program has made great strides. It has prevented the emergence of new superfund sites, cleaned up previously contaminated sites, and upgraded or closed poorly-designed facilities that spewed contaminants into the environment.

History. The State’s comprehensive hazardous waste regulatory program is based on Subtitle C of the Federal Resource Conservation and Recovery Act of 1976, known as the RCRA-C program. Regulations that implemented RCRA-C became effective on November 19, 1980, to address adverse impacts to human health and the environment that were

being discovered with increasing regularity as a result of unsafe waste handling and disposal practices. In general, New York State’s RCRA-C regulations, initially adopted in 1982, focus on: 1) the criteria to determine which wastes are hazardous; 2) the requirements for hazardous waste handlers: generators, transporters, and TSDFs (treatment, storage and disposal facilities); and 3) the technical standards for the design and safe operation of TSDFs. Regulations also address past environmental releases of contaminants through investigation and corrective action activities.

An understanding of RCRA-C in New York State requires a brief introduction to those legislative elements that drive the program. Appendix A is a time line that offers an overview of the program’s complex legislative framework. It is a list limited to the statutes and regulations that are significant to the program.

Authorization. New York State initially received EPA interim base authorization to implement and enforce the federal RCRA-C program on July 26, 1982, with final base authorization granted on May 29, 1986. Currently, following several authorization revisions, the State has adopted 101 percent of the federal program (101 percent includes some optional rules) and has been authorized for 76 percent of the federal program as of March 1999. A comparative analysis of authorization status as of March 31, 1999 illustrates that New York State leads all New England states and far surpasses the only other EPA Region II state by 31

percent (101 percent vs. 70 percent) for adoption and 62 percent (76 percent vs. 14 percent) for authorization. Further, authorization is pending from EPA for an additional 51 rules which will bring the New York State RCRA-C program in line with the federal program as of August 1997.

The federal RCRA-C program is dynamic and ever evolving. From August 1997 through July 1999, there have been 24 additional federal RCRA-C rule changes. The Department is continually revising its regulations to maintain consistency with the federal RCRA-C program.

RCRA-C authorization is advantageous to our regulated community. It means they deal with only one regulator – compliance with our State hazardous waste requirements equals compliance with federal laws and regulations for those portions of the State program that are authorized. In addition, due to our comprehensive working knowledge of local facilities, the Department offers quicker response to facility compliance needs and keener oversight of permit issues than possible under a federally-run program. The Department, through its nine Regional Offices, is able to more rapidly respond to citizen concerns.

Program Administration. The Division of Solid & Hazardous Materials has the

lead role in implementing the authorized RCRA-C Program in New York State. The program is administered from the Central Office in conjunction with the Department's nine Regional Offices. Activities such as regulatory development, permit reviews, closure and corrective action approvals, development of technical guidance, maintenance of data bases, and development of annual program work plans are handled in the Central Office. Regional Offices also participate in permit reviews and closure and corrective action activities. The Regional Offices conduct the vast majority of compliance inspections.

Other Units/Divisions in the Department also participate in certain elements of the RCRA-C Program. The Pollution Prevention Unit conducts activities related to waste reduction and minimization. The Division of Environmental Enforcement and the Division of Law Enforcement are involved in the enforcement of the State hazardous waste laws and regulations. The Division of Legal Affairs provides counsel for legal interpretation and meeting program legal needs. The Division of Environmental Permits coordinates the issuance of all permits in the Department, including hazardous waste facility permits.

NEW YORK STATE'S RCRA-C PROGRAM

HAZARDOUS WASTE MANIFEST

The hazardous waste manifest program is a key element in controlling hazardous waste. Using a set of forms, reports and procedures, the manifest program tracks

hazardous waste from the time it leaves the generator facility where it is produced, until it reaches the off-site waste management facility that will store, treat or dispose of the hazardous waste. This cradle-to-grave tracking system ensures that hazardous waste is transported from

the place of generation to the place of ultimate disposal without being tampered with, dumped, or otherwise illegally disposed of along the way.

A manifest form specified by law accompanies every regulated shipment of hazardous waste originating or terminating in New York State. The information provided by the manifest system enables state environmental planning agencies, and local and private managers of hazardous waste to plan for the appropriate treatment, storage and disposal of hazardous waste. The manifest information supports annual reports, special assessment and regulatory fee programs; identifies generators and treatment, storage and disposal facilities that do not file required manifests; and is used to refer violators to the Divisions of Environmental Enforcement, Legal Affairs, Management and Budget, and other units and staff. It also assists in determining compliance during hazardous waste inspections.

Currently, approximately 150,000 manifest forms are processed annually. This process provides the following hazardous waste information:

- quantity and type generated in New York State;
- quantity and type brought in from other states;
- quantity and type shipped out-of-state;
- quantity disposed in New York State by each type of ultimate disposal method (i.e., landfill, incineration, chemical treatment, etc.);
- quantity that does not reach its intended destination; and
- those in non-compliance with hazardous waste manifest requirements.

HAZARDOUS WASTE FEES

More than \$200 million in hazardous waste fees have been collected through March 31, 1998 to pay a portion of the costs of remediating inactive hazardous waste sites and for administering the regulatory programs. There are two types of fees levied by New York State, special assessment fees and regulatory program fees.

Special Assessment Fees

Established in 1982 and amended in 1985, special assessment fees are levied on facilities in New York State that generate hazardous waste, and all treatment, storage and disposal facilities (TSDFs) receiving hazardous waste from out-of-state generators based on the amount of waste generated or received and the method of waste disposal. (Federal facilities and remediation at hazardous waste sites in New York State are exempt from the assessment.)

Assessments are levied on a scale ranging from \$27.00 per ton for land filling down to \$2.00 per ton for on-site incineration. The assessment is due on a quarterly basis and payable to the New York State Department of Taxation and Finance. One hundred percent of the revenue collected goes to the Hazardous Waste Remedial Fund's Industry Fee Transfer

Account which is used to pay 50 percent of the debt service associated with the 1986 Environmental Quality Bond Act (EQBA). Annual fluctuations occur in the revenues collected from the hazardous waste special assessment fees because of the year-to-year changes in the source, amount and method of management of the hazardous wastes. Appendix B-1 illustrates the annual special assessment fee schedule.

Regulatory Fees

Regulatory fees were established in 1983 through Article 72, Environmental Conservation Law, which authorizes the Department of Environmental Conservation to collect regulatory fees and penalties from certain public and private facilities required to have air, water (SPDES), hazardous waste and waste transporter permits and hazardous waste generators. Three categories of facilities that manage hazardous waste are charged annual regulatory fees in New York State. Fees are assessed according to facility type and the amount of hazardous waste generated. Appendix B-2 illustrates the annual regulatory fee schedule.

Annual invoices are prepared and sent by the Department to all TSDFs and to all required generators. Payments are sent to the Department and deposited into the Environmental Regulatory Account. Fifty percent of the regulatory fees collected is transferred into the Hazardous Waste Remedial Fund's Industry Fee Transfer Account. Fifty percent of the revenue collected is used to fund other environmental program needs.

HAZARDOUS WASTE REDUCTION

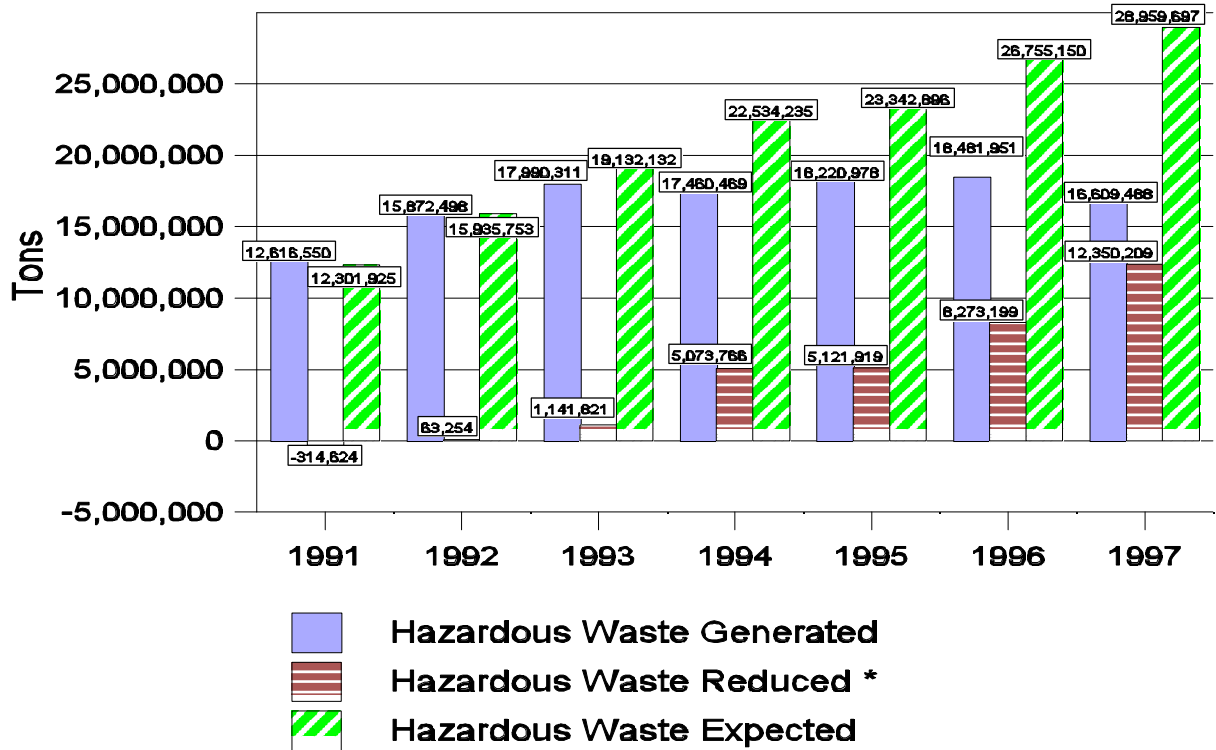
In 1997, a significant net reduction in primary hazardous waste in New York State--more than 42 percent, was achieved. The legislative goal is 50 percent reduction by the end of the year 2000.

Primary hazardous waste is the hazardous waste produced by actual industrial and commercial production processes and is the chief concern and focus of our RCRA-C program. Primary waste is often transported off the site of generation to be managed at a hazardous waste treatment, storage or disposal facility (TSDF).

The impressive 42 percent reduction is the result of the Department's Hazardous Waste Reduction Program. Since July 1, 1991, 535 generators of hazardous waste have prepared hazardous waste reduction plans. These plans evaluate the types of waste generated and the processes responsible for the generation. The plans also provide the implementation plan to reduce or eliminate the primary hazardous waste generated through technically and economically-feasible waste reduction processes, technologies or operational changes.

Our most recent analysis shows that waste reduction efforts had prevented the generation of more than 12,000,000 tons of primary hazardous waste in 1997. This is based on all measures implemented since the beginning of the hazardous waste reduction program. See Figure 1.

Hazardous Waste Reduction 1991-1997



* For each year, the Hazardous Waste Reduction figure represents the difference between Hazardous Waste Generated and what DEC calculates would have been generated, based on changes in production rates and efficiencies.

Figure 1

HAZARDOUS WASTE PERMITS

New York State's hazardous waste management permits ensure environmentally-protective standards in design, operation and performance of hazardous waste treatment, storage and disposal facilities (TSDFs). These permits also address prevention of and response preparedness for accidental releases to the environment and resulting environmental contamination, as well as facility closures.

TSDFs are the last link in the cradle-to-

grave hazardous waste management system. In recognition of the extensive potential for adverse environmental impact posed by mismanaged hazardous waste, the permitting process is executed methodically and thoroughly among all stakeholders: the permit applicant, the Department, the public and other interested parties in accordance with 6 NYCRR Part 373. Appendix C is a flow chart of the Part 373 permitting process.

All TSDFs in New York State that did not meet the required standards have been upgraded, have closed or are in the process of closing.



Hot oil furnace burning hazardous waste for energy recovery.

company with the majority of those wastes generated onsite. Non-commercial facilities that store the hazardous wastes they generate on site for greater than 90 days; combust or land dispose of the hazardous wastes at that site; or receive company hazardous waste from offsite (with a few exceptions) require a Part 373 Permit. There are currently 49 non-commercial TSDFs in New York State. These TSDFs handled 195,000 tons of hazardous wastes in permitted units in 1997.

Non-commercial facilities that solely store or treat in tanks, containers or containment buildings the hazardous wastes they generate on site for less than 90 days are exempt from Part 373 permitting and are regulated as hazardous waste generators.

Types of TSDFs

Commercial TSDFs. Commercial TSDFs manage large quantities of hazardous wastes from a myriad of generators. Whether a land disposal, combustion, storage or treatment facility, considerable resources and expertise are required to ensure that the wide variety of hazardous wastes are safely managed and that incompatible wastes are not blended. There are currently 19 commercial TSDFs in New York State. These TSDFs handled 714,000 tons of hazardous wastes in 1997. All commercial TSDFs in New York State have been permitted pursuant to Part 373.

Non-commercial TSDFs. Non-commercial TSDFs manage only hazardous waste generated by their own

Interim Status TSDFs. Interim Status TSDFs are those facilities that existed when the hazardous waste regulations went into effect in November 1980 or who subsequently became subject to permitting due to regulatory changes. A timely submittal of a Part A permit application allows the existing facility to continue operation until a final Part 373 Permit is obtained. Approximately 740 companies filed a Part A permit application.

Closure Achievements

The New York State RCRA-C facility universe requiring permits is significantly smaller than anticipated when RCRA-C went into effect. Upon careful evaluation by the Department, it was determined that 432 companies of the 740 that filed Part A applications were "protective filers" --

companies that filed to protect their ability to have legal status as TSDFs but subsequently did not require a Part 373 Permit. These companies managed their wastes in a manner not requiring a permit.

The remaining 308 facilities that filed Part A applications were considered to be TSDFs. All TSDFs are subject to Part 373 Permit requirements. Subsequently, 240 of the 308 facilities have closed in accordance with Part 373 closure requirements. Many of these closed TSDFs continue to operate their businesses as generators and their waste is now handled by commercial facilities that meet the stringent permitting requirements.

Closure requirements include removal of all wastes, clean up of contaminated surfaces and soils, and when necessary, installation of final cover, and post-closure monitoring which prevent exposure of humans and the environment to toxic wastes. Appendix D is a flow chart of the Part 373 closure process.

Land Disposal Unit Closures. *The number of TSDFs operating hazardous waste land disposal units in New York State has been reduced from 39 to two through the RCRA-C closure process. The two remaining TSDFs that currently operate hazardous waste land disposal units in the State are fully-permitted hazardous waste landfills. They meet or exceed all federal and State regulatory standards pertaining to design, construction, operation, maintenance and long-term monitoring.*

Since the majority of TSDFs operate two or more hazardous waste land disposal units, *the closure of these facilities resulted in the closure of 108 land disposal units.* RCRA-C defines land disposal units

subject to its regulations as landfills, surface impoundments, waste piles and land treatment units used for the management of hazardous waste on or after November 19, 1980. The following is a break down of the 108 land disposal units that have been closed since 1981:

- Twenty-five (25) landfills and 13 waste piles containing approximately 8.5 million cubic yards of hazardous waste were closed. The closure of one two-acre landfill and the 13 waste piles resulted in the removal of approximately one-half million cubic yards of hazardous waste to regulated hazardous waste disposal facilities. Twenty-four of the landfills were capped using a final cover system in accordance with regulation, which will prevent the generation of an estimated 211 million gallons per year of hazardous waste contaminated leachate that could pollute surface and ground waters.
- Seventy (70) surface impoundments were closed and three additional surface impoundments have ceased operation and initiated the RCRA-C closure process. The closure activities at these 73 surface impoundments have resulted in the removal of approximately 220 million gallons of hazardous wastewater and approximately 350 thousand cubic yards of hazardous waste sludge and soil to regulated hazardous waste disposal units.

Combustion Unit Closures. A total of nine combustion units have been closed at eight sites across the State. The units were potentially harmful to the environment and human health and their operators chose to close rather than upgrade them to meet current regulatory requirements.

Permit Achievements

Of the original 308 TSDFs, 298 facilities (or 97 percent) have been either closed or fully permitted.

Currently, 68 hazardous waste TSDFs operate in New York State: one is a landfill, one operates both a landfill and combustion units, eight others operate combustion units and 58 are solely storage and/or treatment facilities. Part 373 Permits have been issued for all of the hazardous waste units at 58 facilities in the state, including the two land disposal facilities and all but two of the combustion facilities.

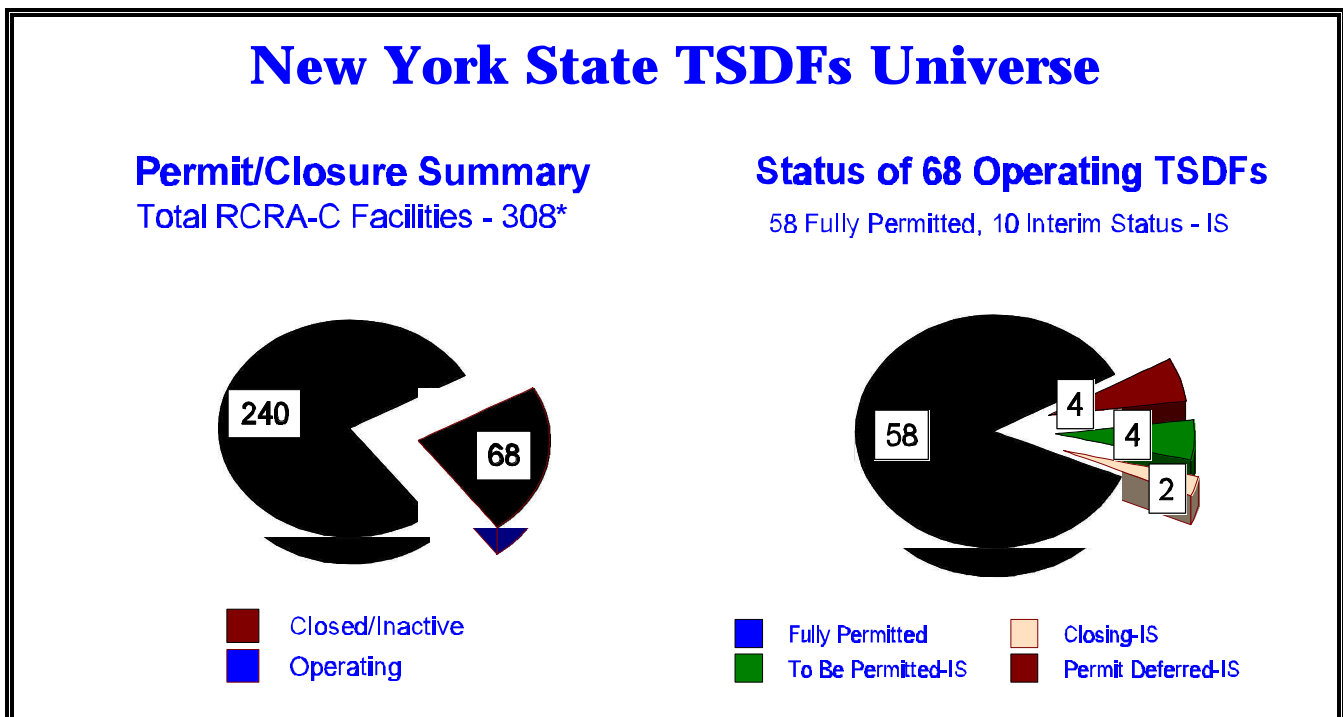
Only ten TSDFs remain that are not fully permitted. Two of these have decided to close rather than pursue Part 373 Permits. Permitting for four of the facilities has been deferred pending EPA rulemaking

that is expected to exempt these facilities from Part 373 Permit requirements since they manage mixed radioactive/hazardous wastes that are already regulated by the Atomic Energy Act (AEA). The remaining four facilities are planned to be permitted in the next few years; two of these four facilities already have Part 373 Permits that cover all but one of their hazardous waste units. See Figure 2.

National Status. New York State is well ahead of the national average for all states in meeting EPA's permitting goal of 90 percent of existing TSDFs by 2005.

Permit Renewal and Modification Achievements

Permit Renewals. Part 373 Permits are issued for a period of up to five or ten years depending on the type of facility. To continue operation upon expiration of



* Originally 740 companies filed; 432 were "protective filers", leaving 308 facilities.

Figure 2

its permit, a TSDF is required to obtain a permit renewal. The full permitting process, including public participation and the incorporation of any regulatory changes that occurred subsequent to the issuance of the original permit, must be met to renew the Part 373 Permit.

Because of the numerous changes in the RCRA-C program over the years, the permit renewal process for most facilities has been as extensive as that for the original permit. As the initial Part 373 Permits for the remaining TSDFs are being completed, resources are being allocated to process the permit renewals. Since 1990, 13 permit renewals have been completed.

Permit Modifications. Manufacturing and other business operations are dynamic, frequently modifying or adding new processes. Such changes often require modifications to Part 373 Permits. Minor permit modifications follow a simplified permitting process. However, modifications defined in regulation as “major” require the same permitting procedures, including public participation, as the original permits.

Since 1989, the Department has issued more than 320 modifications to Part 373 Permits. The majority were minor modifications.

FINANCIAL ASSURANCE

All hazardous waste treatment, storage or disposal facilities operating in New York State have provided financial assurance in accordance to 6 NYCRR Subpart 373-2.8.

Financial assurance ensures that the

owner/operator of a TSDF is able to provide closure and post-closure activities necessary to protect human health and the environment upon ceasing operation. A separate financial assurance requirement provides the insurance for third party compensation resulting from any sudden release (i.e., a release identified with an accidental event such as fire or explosion) or gradual release (i.e., a release that begins some time prior to discovery as a result of non-catastrophic containment failure such as impoundment liner leakage).

Financial assurance for closure or post-closure must demonstrate that funds will be available through one of six mechanisms: Trust Fund, Surety Bond (payment bond), Letter of Credit, Insurance, Financial Test, and Corporate Guarantee. Estimates of the cost of closure, post-closure and corrective action activities provide the base figure for the amount of financial assurance required.

The Department holds a total amount of assurances in excess of \$400 million as illustrated in the following table:

TSDF Financial Assurance for Closure and Post Closure Activities	
Trust Fund	\$ 1,200,000
Insurance	20,000,000
Letter of Credit	18,500,000
Payment Bonds	60,000,000
Financial Tests & Corporate Guarantee	300,000,000+

CORRECTIVE ACTION

RCRA-C corrective action projects have prevented human exposure to toxic chemicals; protected ground and surface sources of potable water; allowed beneficial reuse of formerly-contaminated land; rehabilitated river and stream habitats; restored wetlands; and improved fish and other aquatic life populations.

The RCRA-C Corrective Action Program investigates and cleans up existing environmental pollution caused by past activities at currently operating industrial and commercial facilities which presently or formerly treated, stored, or disposed of hazardous wastes.

Nearly 200 RCRA-C corrective measure projects have been completed since 1984, the first year of the program, resulting in cleaner air,

water and soil at 65 RCRA-C facilities and surrounding properties. *More than 15.5 billion gallons of contaminated groundwater have been pumped and treated, and more than one-half million cubic yards of contaminated soil have been excavated, followed by environmentally-sound treatment and disposal.*

RCRA-C authority extends to

contaminant releases from all waste management units (units), including releases to property beyond the facility boundary. A unit is any discernible area where solid or hazardous wastes have been placed at any time, or any area where wastes have been routinely and systematically released. The majority of RCRA-C treatment, storage or disposal facilities have more than one unit.

Corrective Action Process

The corrective action process is structured around the following elements: a preliminary site assessment; followed, as

necessary, by an extensive characterization of any contamination, and an evaluation and implementation of cleanup alternatives, both interim and final. The process elements, described below, are intended to be flexible, and not every component may be necessary for each project. A determination of “no further action required” may be

made at any step of the process.

RCRA Facility Assessment (RFA).

RFAs evaluate existing information on environmental conditions, including information on actual or potential releases. A visual site inspection is performed, and sampling of water or soil may occur to determine if a release of



Restoration of wetland near Onondaga Lake by excavation of 12,000 cubic yards of PCB contaminated soil and flushing of contaminated sediment from sewer pipelines.

hazardous waste has occurred. At most active industrial facilities, sewer system evaluations are included in the RFA. Sewer inspection and leak testing have often identified deteriorated or broken sewer pipelines which are leaking significant volumes of contaminated wastewater that threaten groundwater resources.

To date, the RCRA-C program has required the assessment of more than 137,000 linear feet of subsurface sewers. Nearly 30 percent of these sewer lines were removed from service and several thousand feet were replaced, relined, or repaired.

RCRA Facility Investigation (RFI).

RFIs are full-scale site characterizations that determine the nature and extent of contamination caused by releases identified during the RFA.

RFIs range from small investigations, such as contamination of surface soil at a waste container storage location, to a complex study that covers numerous areas of a site having releases to air, soil, surface water, and groundwater.

Through March of 1999, the Department has approved 212 RFI work plans that have been or are currently being conducted at 77 industrial facilities.

Once complete, the RFI results are reviewed by the Department and the facility is directed to undertake the next phase of the corrective action process. In many cases, a supplemental investigation is necessary because the initial investigation did not sufficiently define the

full extent of contamination.

The Department has approved reports for 167 completed RFIs conducted at 58 industrial facilities.

Interim Corrective Measure (ICM).

ICMs are temporary actions essential to control or minimize ongoing threats to human health or the environment while site characterizations (i.e., RFAs, RFIs) are underway or before a final remedy is selected.

Examples of ICMs include: removing the contamination source (i.e., leaking tanks); fencing off the contaminated area; providing alternative drinking water sources; or installing a presumptive remedy to collect performance data (i.e., groundwater pumping with effectiveness monitoring). Leaking tanks and associated piping are major contributors to subsurface contamination to both soils and groundwater. RCRA Facility Assessments (RFAs) and RCRA Facility



Deteriorating underground tank is lifted by crane in tank removal effort to prevent release into the environment.

Investigations (RFIs) have identified several hundred poorly-maintained underground storage tanks at many facilities throughout the State. As a result, these deteriorated underground storage tank systems have been removed and replaced with new tank systems; most of which are above-ground.

The Department has approved the implementation of 142 ICMs at 58 industrial facilities throughout the state. Many large and/or older facilities have required several ICMs.

Corrective Measure Study (CMS). A CMS identifies and evaluates different alternatives to remediate a site.

A facility performs a CMS when a potential need for cleanup is determined as a result of the RFI process. The goal of the CMS is to select final remedies from among several realistic alternatives. In some instances, however, a single alternative is the most practical remedy for a specific type of contamination and that alternative is the focus of the CMS. The CMS will also assess the effectiveness of any ICMs that have been implemented and how they fit into the overall final remedy selection for the facility. In several cases, the CMS addresses potential remedial actions for property that extends beyond the facility boundary.

Under the Department's RCRA-C program there have been 55 corrective measure studies completed at 43 facilities.

An important element of the CMS is the public participation phase during which the RFI, CMS, and any other relevant



Construction of an underground slurry wall at a western New York landfill to prevent surface and groundwater contamination.

information is available for public review and comment. To facilitate public participation, the Department's RCRA-C staff prepares a summary document called the "Statement of Basis" which describes the rationale for the proposed remedy selection and contains an explanation for the chosen cleanup goals. After public review and comment, the final remedies for a facility are selected by the Department.

Corrective Measures Implementation (CMI). The CMI includes detailed design, construction, operation, maintenance, and monitoring of the selected remedy.

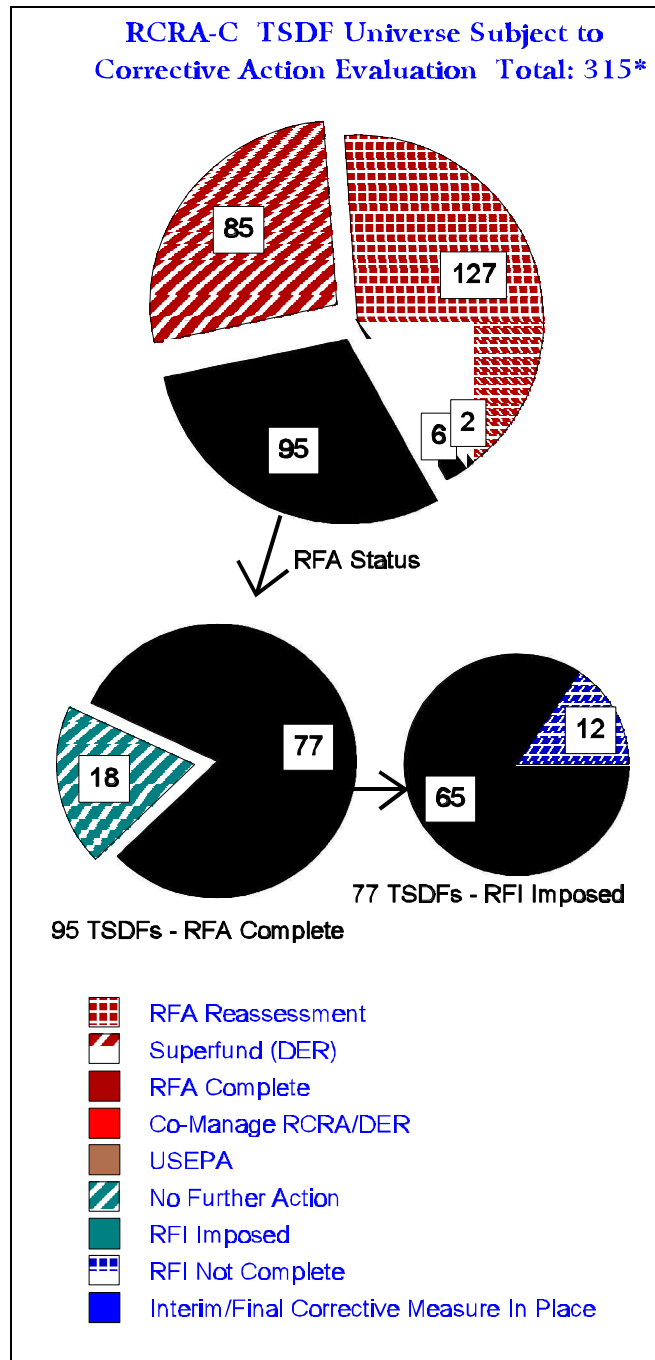
Upon completion of the public participation process and approval of the

Final Statement of Basis by the Department, the facility enters the CMI phase of the corrective action process. The CMI phase is often the culmination of several years of effort by the facility and the Department's RCRA-C staff. It usually signifies that all areas of a facility that were known to be, or are currently used for the management of solid and/or hazardous wastes have been thoroughly investigated and impacts to the environment defined. In the case of very large facilities, the site may be divided into manageable parts with each part undergoing its own corrective action process according to an approved schedule. The corrective measures that are constructed and operated often are long-term actions, such as groundwater pump and treatment systems, that must be periodically evaluated to determine if cleanup goals are being achieved.

Corrective Action Achievements

Currently, 315 facilities in New York State are subject to corrective action evaluation under the RCRA-C program. The 315 facilities include seven projects that do not require permits under 6 NYCRR Part 373. These facilities vary in size from a one-acre facility with one unit to a facility comprising 2,200 acres and 667 units.

The following is the management responsibility and implementation status of these 315 RCRA-C facilities. See Figure 3.



* Includes the 308 facilities that are subject to Part 373 permitting.

Figure 3

- **RFA Reassessment.** 127 facilities partially evaluated by EPA approximately ten years ago are currently being reassessed by the Division of Solid & Hazardous Materials to determine whether an in-

depth investigation is warranted.

- **Superfund.** Eighty-five (85) facilities have superfund elements and are, therefore, under the management of the Division of Environmental Remediation (DER). These 85 facilities are in various stages of investigation and remediation.
- **EPA.** Two (2) are facilities for which EPA maintained the management lead due to previous project involvement. These projects are at various stages of investigation and remediation.
- **Co-Managed by the Division of Solid & Hazardous Materials and the Division of Environmental Remediation.** Six (6) facilities are co-managed between the Divisions of Solid & Hazardous Materials and Environmental Remediation due to previous involvement with specific project aspects by both Divisions. These projects are at various stages of investigation and remediation.
- **RFA Completed.** Under Division of Solid & Hazardous Materials' management, 95 facilities have completed the RCRA-C Facility Assessment process. The following is the status of these 95 facilities:
 - " **No further action required** - 18 facilities require no further action.
 - " **RFI** - 77 facilities have entered the RCRA-C Facility Investigation phase. More than 84 percent (65) of these facilities have completed RFIs, have implemented the required corrective measures, and

are operating in a manner that is protective of human health and the environment. The remaining 12 facilities are in the investigation stage and several of these have partially implemented required corrective measures.

Of the 65 facilities that have implemented corrective actions, 32 facilities have implemented treatment and disposal of contaminated soils. See text box on page 15 for the soil remediation totals from 1985 through 1998 and the 1999 projection, based upon approved interim and final corrective measure plans.

All 32 of these facilities have groundwater monitoring systems in place to ensure that adequate cleanup has been achieved to prevent any adverse impacts to groundwater resources. The remaining 33 of the 65 facilities have implemented groundwater pump and treatment. *Since 1984, more than 15.5 billion gallons of contaminated groundwater have been intercepted/removed/treated prior to discharge to surface waters.* Fifteen and one-half billion gallons of clean water would supply the water needs of more than 400,000 people for a full year.

Progress made in containing contamination through pump and treatment of groundwater is illustrated in the three-dimensional chart in Figure 4. Currently, 79 percent of RCRA-C facilities have achieved hydraulic containment site-wide and 21 percent have achieved hydraulic control at most portions of their site. A few site-specific examples of progress made related to improving the groundwater conditions at RCRA-C



Excavation of 35,000 cubic yards of arsenic contaminated soils from a Niagara County school athletic field.

Contaminated Soil Remediation 1985 - 1998 (cubic yards)

Soils Treated & Disposed On-site	293,650
<u>Soils Transported Off-site for Disposal</u>	<u>210,825</u>
Total Soils Remediated (prior to 1999)	504,475

Projected Soil Remediation 1999

Total Soils Projected for Remediation	270,000
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facilities for the protection of human health and the environment are:

- Allied Amphenol - The groundwater pump and treatment system at this facility has provided protection of the entire Village of Sidney water supply. A dramatic reduction -- approximately 95 percent -- in the plume concentration of volatile organic contaminants (VOCs) of common industrial solvents has been achieved. A groundwater pump and treatment system in operation at the facility from January 1987 through May 1995 reduced the stabilized plume core from 3,000 parts per billion (ppb) to less than 20 ppb. Post-remedial monitoring indicates that groundwater standards at the plume perimeter have

remained below the five ppb groundwater protection standards and continue to decline as a result of natural recharge and flushing of the aquifer.

- Channel Master - Groundwater

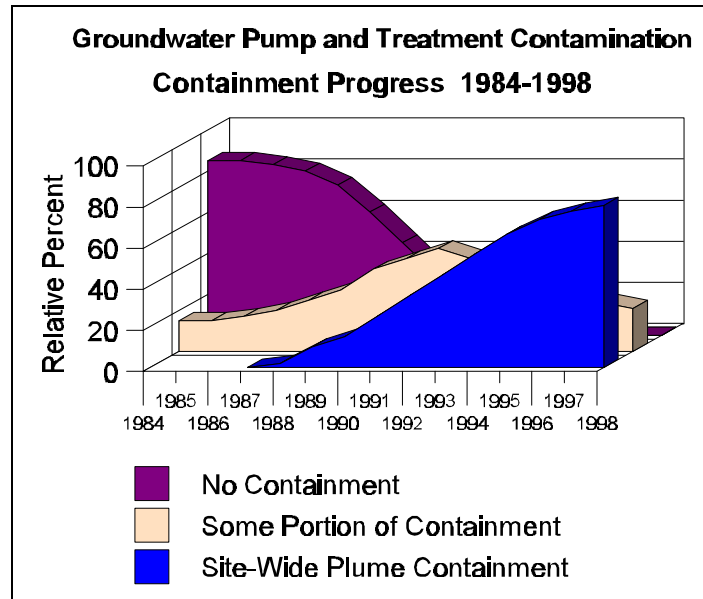


Figure 4

pump and treatment systems have effectively contained the VOC plume beneath the manufacturing building since implemented in 1987. *Contaminant concentrations have been reduced from a pre-pumping level of 500 parts per million (ppm) to less than ten ppm.* Groundwater contamination beneath a former surface impoundment at the site has declined to, and remains at, levels not requiring any additional remedial action.

- IBM Kingston - Groundwater pump and treatment systems and a groundwater collection trench has provided containment of the major VOC plume that covers approximately 100 acres of the site. *Maximum VOC concentrations have been reduced from more than 150,000 ppb in 1984 to less than 2,000 ppb in 1999.* More than three-fourths of the performance monitoring wells show a substantial decrease in VOC concentration.

- Ciba-Geigy Main Plant - A groundwater collection system installed in 1992, along an 800 foot section of the Hudson River has restricted the discharge of volatile and semi-volatile organic contaminants into the River. *Approximately 7,500,000 gallons of contaminated groundwater has been collected and treated by the system.*

- Fort Drum - Installation and operation of

groundwater remedial systems at four separate areas have resulted in the *recovery of over 30,000 gallons of gasoline and the removal and treatment of 50 million gallons of contaminated groundwater.*

COMPLIANCE INSPECTIONS

The compliance inspection program monitors compliance with RCRA-C regulations, identifies violators and initiates enforcement action to bring violators into compliance with RCRA-C regulations or close down those who cannot achieve compliance. Through routine inspections of hazardous waste generators, transporters and treatment, storage and disposal facilities, RCRA-C inspectors often uncover serious offenses that, left undetected, could result in extreme, negative consequences to the State's public health, and environment.

An average of more than 780 RCRA-C inspections have been conducted statewide each year since State fiscal year (SFY) 1989/90



Groundwater sampling at RCRA-C site.

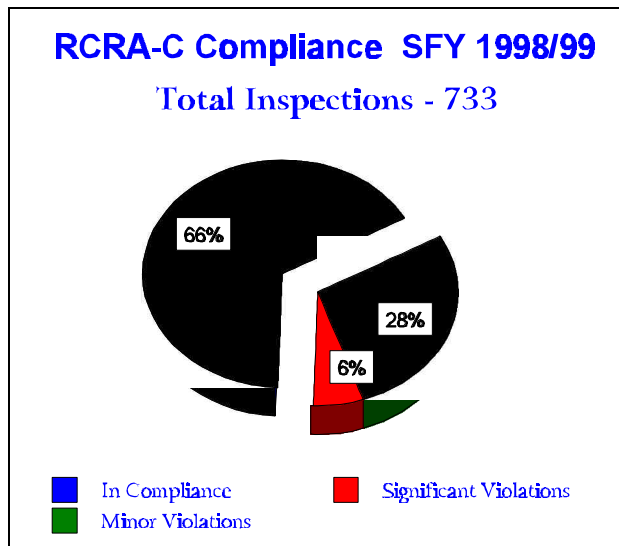


Figure 5

through the collaborative efforts of the DEC Central Office and the nine DEC Regional Offices. Currently, there are 44 inspectors certified by the Commissioner to conduct hazardous waste inspections and six inspectors in training.

During SFY 1998/99, 733 inspections were conducted statewide as follows: 87 of a universe of 88 operating and closed TSDFs (apx. 99 percent); 220 of a universe of 2,600 large quantity generators (apx. 8.5 percent); and, 426 of a universe of 6,100 small quantity generators (apx. 7 percent).

Upon inspection, facilities with no violations are sent a copy of the inspection report with a letter indicating that no violations were found and thanking them for their cooperation. When violations of RCRA-C regulations are noted, they are categorized as minor (e.g., administrative or record keeping) or significant (i.e., a potential threat to the environment). Minor violators are sent letters noting the violations and specifying a time period in which they must be corrected.

Compliance is confirmed either through certification by the facility or follow-up inspection.

Enforcement against significant violators includes administrative action that requires paying fines and entering into a consent order that results in compliance or a referral to the Office of the State Attorney General for formal legal action. The goal of enforcement is to achieve full regulatory compliance and assure that any environmental damage or potential environmental threats are mitigated as soon as possible.

The RCRA-C inspection program is considered a deterrent to non-compliance. In the past ten years almost 8,000 hazardous waste inspections have been conducted. *For the 733 inspections conducted in 1998/99, approximately 66 percent of RCRA-C inspections indicated substantial compliance with State rules and regulations. Of the 34 percent in violation, approximately 28 percent were in violation of minor provisions of the regulations and only six percent were significant violators.* See Figure 5. This reflects a ten percent compliance increase from SFY 1989/90.

Most minor violators are brought to compliance within 90 days of the initial day of inspection. For significant violators, formal enforcement action is usually taken within 120 to 150 days from the date of inspection.

Inspections. The following examples illustrate how inspections protect human health and the environment:

- Spectrum Finishing Corporation - This aircraft parts plating facility was a large quantity generator of hazardous waste

situated over a sole-source aquifer. The facility closed and left all hazardous wastes on site stored in numerous containers and tanks. During a routine RCRA-C inspection it was noted that the drums were in poor condition. Most were rusted, one 55 gallon drum with unidentified liquid had a hole on its side, and some were left open. Any leaks from the containers would have flowed through the surrounding soil and into the groundwater/water supply. Through prompt DEC action EPA conducted an emergency removal action that mitigated this imminent threat to public health and the environment.

- United Plating - Inspection of this electroplating company exposed dozens of drums of hazardous waste stored on-site and that hazardous waste was being treated without a permit. Located in a residential neighborhood and near a school, the company's illegal practices greatly jeopardized the welfare of the



Hazardous waste illegally stored in open containers.

neighborhood.

After the Department referred the case to the Attorney General, the owner pled guilty to a Class E felony and was sentenced to one to three years imprisonment and the corporation paid a penalty of \$150,000. In addition, since the company had no money for cleanup, an emergency drum removal was conducted by EPA. State Superfund is involved in the remaining clean up of the site.

OTHER PROGRAM ACTIVITIES

POLLUTION PREVENTION (P2)-- ACTIVITIES FROM 1993 to PRESENT

The objective of pollution prevention is to substantially reduce pollutant generation and release through integrated facility management. Through outreach and technical assistance activities the Department facilitates the achievement of this objective.

P2 Outreach:

Small Quantity Generator Program.

This multi-component outreach program provides this segment of the regulated community with information through a hotline, workshops, meetings, or other events.

Annual Pollution Prevention

Conference. The Annual Pollution Prevention Conference is the Department's primary forum to inform interested parties of advances and new technologies in the area of pollution

prevention.

Annual Governor's Awards for P2. This Awards Program provides public recognition of outstanding efforts in implementing pollution prevention projects.

Exhibits, games that can be used to teach P2 principles to children, and a variety of publications are tools employed to reach stakeholders and others.

P2 Technical Assistance:

Small Business Workshops. These workshops are an integral and important component of the Department's effort to provide assistance to the small business community.

M2P2 Annual Report/Program Analysis. This includes an analysis of activities being undertaken by facilities that are related to the multi-media pollution prevention (M2P2) initiative. As part of this effort, inspection reports are reviewed to identify pollution prevention opportunities.

Strategic Goals Program (SGP). New York State is a charter state in this program and will be implementing the SGP for Metal Finishers. Through this effort, the Department will work with charter industries and publicly owned treatment works (POTWs) to achieve program goals.

Integrated Permitting Pilot Initiative. This initiative will provide an evaluation of the costs and benefits of coordinating, interrelating, and synchronizing certain regulatory requirements and activities at industrial facilities.

Additional technical assistance is provided through the maintenance of a clearinghouse of P2 technical resources and the development of environmental indicators that provide outcome rather than activity measures.

HAZARDOUS WASTE MINIMIZATION

Toxic Release Inventory (TRI)/Hazardous Waste Measurement. Reports are prepared on TRI releases and hazardous waste generation at 400/95 facilities along with comprehensive TRI assessment of toxic chemical releasers in-State.

Waste Minimization Strategy. The Department works with EPA Region II, to develop and implement programs directed at reducing releases of persistent bioaccumulative toxics.

Promoting Improved Performance. Through this program facilities can closely interact on a voluntary and cooperative basis with the Department.

PROJECT XL

The Department is a participant in EPA's Project XL, part of the National Performance Review Regulatory Reinvention Initiative. Project XL gives regulated entities an opportunity to demonstrate e[X]cellence and [L]eadership by providing the flexibility to develop alternative strategies that will replace or modify specific environmental regulatory requirements where these strategies can produce superior protection of public health and the environment. Presently, two XL projects have been approved for New York State and a third is in process:

HADCO. HADCO produces printed wire boards and generates both hazardous and non-hazardous copper-rich sludges. HADCO is seeking a variance that will make all of their sludges non-hazardous when sent to a smelter for metals recovery. The basis for this variance is the similarity of HADCO's sludges to copper-bearing ores. In return, HADCO will reinvest their savings in recycling their non-hazardous sludges which are currently being landfilled.

Public Utilities in New York State.

These utilities will be able to streamline and improve their handling of hazardous wastes generated at remote locations, such as manholes, by consolidating these wastes at a central location. This will not only be more economical, but will eliminate unsafe storage on location. The utilities must reinvest one-third of their savings into environmental benefit projects, which may include multi-media waste minimization. The Department is the actual sponsor of this project.

IBM. IBM generates hazardous metal-finishing sludges. They are seeking to remove the sludge from hazardous waste regulation, based on use of the material as an ingredient in making cement and the low levels of hazardous substances present. IBM is in the process of seeking XL status for the sludge.

FUTURE DIRECTION

The RCRA-C program has received federal grant funding at the same dollar amount for the last six years. As a result, the number of staff dedicated to the program has declined over the years and is approaching a level that may be

inadequate to support an effective comprehensive program. A return to those years of limited or no regulatory oversight must be avoided. Consequently, a complete review of the RCRA-C program to identify all those vital components necessary for a comprehensive and successful statewide hazardous waste program is required. Once these components are identified, the associated level of effort will be determined and the program resource needs established. The review will consider the fact that as some of our hazardous waste regulatory activities mature, some staff resources will become available to meet these needs. However, new monies will be necessary.

Utilizing available staff, the hazardous waste facility permit program will focus on completing the permitting of the few remaining interim status facilities and on developing/implementing a permitting process that provides for timely processing of permit renewals, modifications, and closures. Routine review of permit renewal applications for closed land disposal facilities must also continue. These are facilities that require, by regulation, permits known as "post-closure permits." The program also must focus on the implementation of the new Maximum Achievable Control Technology (MACT) and RCRA-C regulations for hazardous waste combustion facilities, including approving permit modifications for upgraded Air Pollution Control Equipment (APCE), trial burn plans and reports, multipathway risk assessments and performance tests. In addition, there is a need to evaluate instituting a new focus on reducing the amount of persistent, bioaccumulative toxics generated as part of hazardous waste streams.

Given adequate staff, the level of inspections of small quantity generators, conditionally exempt small quantity generators and used oil facilities should be increased. Also, additional inspections should be performed in certain geographic areas to better protect sensitive environments such as sole-source aquifers and watersheds for drinking water supplies and reduce impacts in areas where cumulative impacts are disproportionate. Increased inspections of facilities that claim exemptions from hazardous waste regulations should also be conducted.

Efforts should be made to more closely integrate the various hazardous waste data sets for any given facility to create a comprehensive picture of past and present waste management activities at facilities. This information should be readily available to all Department regulatory programs and the public over the intra/internet. Work will continue to promote electronic reporting of hazardous waste information by the regulated community to make it easier to report data and increase the quality of that data. At the same time, federal changes to the manifest system procedures must be monitored so they can be implemented as necessary.

The updating of the hazardous waste regulations to incorporate changes in federal regulations is an ongoing activity that has to be maintained so the State has a high level of EPA authorization. Another important ongoing activity is to promulgate regulations incorporating reforms resulting from the evaluation of areas where current state regulations are more stringent than their EPA counterpart. In addition, efforts are necessary to facilitate the better

management of small volumes of hazardous waste from numerous small commercial, retail, and industrial sources by expanding the availability of the universal waste rule to add additional categories of hazardous waste.

As the corrective action program matures over the next three years, there will be a gradual shift in emphasis away from site investigation and remedial system development toward measuring the effectiveness of remedies, and where necessary, enhancing existing remedial systems. Following remedy implementation, many sites will require institutional care for decades or longer. It will be necessary for staff to monitor closed sites to be sure that the original remedies remain protective of public health and the environment. Finally, insuring that formerly contaminated sites are capable of productive use in the future will continue to be an important outcome of the RCRA-C corrective action program.

Appendix A

New York State RCRA-C

Time Line

RCRA-C In New York State: Managing Hazardous Waste

RCRA-C Time Line

- 1965 Federal Solid Waste Disposal Act:** This is the first federal statute to specifically focus on improving solid waste disposal methods. It established economic incentives for states to develop planning, training, research, and demonstration projects for management of solid waste.
- 1976 Resource Conservation Recovery Act (RCRA) (October 31):** RCRA amended the Solid Waste Disposal Act addressing the following major issues: substantial remodeling of the nation's solid waste management system through Subtitle D; initiation of the regulation of underground storage tanks through Subtitle I; and the basic framework of the current hazardous waste management program through Subtitle C. RCRA also provides EPA with the authority to enforce these provisions of the Act.
- 1978 State Industrial Hazardous Waste Management Act (IHWMA):** Established New York State hazardous waste management program by providing regulatory authority to control the transfer, storage and disposal of hazardous wastes.
- 1980 RCRA-C Federal Regulations (40 CFR Parts 260, 261, 262, 263, 264 & 265) (November 19):** Pursuant to RCRA Subtitle C, EPA issued these first hazardous waste regulations to provide a system of permits and manifests, and to define procedures to facilitate the proper identification and classification of hazardous waste as follows:
- Part 260: provides general information on the hazardous waste system, including definitions.
 - Part 261: identifies and lists hazardous wastes.
 - Part 262: imposes standards on generators of hazardous waste.
 - Part 263: governs the transport of hazardous wastes.
 - Part 264: contains standards for managing hazardous waste at permitted treatment, storage and disposal facilities (TSDFs).
 - Part 265: contains standards for managing hazardous waste at interim status TSDFs. Interim status was granted to a facility in operation or under construction on November 19, 1980 that notified EPA of its hazardous waste operations by filing a RCRA Part A permit application. A facility with RCRA-C interim status was treated as permitted until EPA made a final determination on its Part B permit application.

1982 Federal Regulations (Amended 40 CFR 264 and 265) (July 26): Pursuant to RCRA Subtitle C, EPA amends its regulations adding specific groundwater detection, contaminant characterizing, and corrective action monitoring requirements for releases of hazardous constituents from hazardous waste land disposal units. Landfills, surface impoundments, waste piles, and land treatment units that receive hazardous waste after this date are known as “regulated units” and must comply with these monitoring requirements.

State Regulations (6 NYCRR Parts 360, 365 & 366) (March 9):

- Part 360: treatment, storage or disposal facilities.
- Part 365: manifest.
- Part 366: identification and listing of hazardous wastes.

USEPA Delegates Interim Authorization to New York State to Manage the Base RCRA-C Program (July 26): The *Base* RCRA-C Program reflects federal RCRA-C regulations promulgated through July 26, 1982.

Hazardous Waste Special Assessment Fees (ECL 27-0923) (July 27): Established special assessment fees on all facilities in the State that generate hazardous waste, and all treatment, storage and disposal facilities (TSDFs) receiving hazardous waste from out-of-state generators based on the amount of waste generated or received and the method of waste disposal. These fees were amended in 1985.

1983 Federal Regulation (40 CFR Part 270) (April 1): Pursuant to RCRA Subtitle C, EPA issued these regulations to provide for the administration of RCRA-C permitting by setting forth the following:

- general and specific permit application requirements.
- conditions that must appear in permits.
- procedures for handling revisions to permits.
- special types of permits.
- guidance on determining interim status and duration and continuance of permits.

Regulatory Program Hazardous Waste Fees (ECL 72-0201) (April 1): Authorized the DEC to collect regulatory fees and penalties from certain public and private facilities and sources required to have air, water (SPDES), hazardous waste and waste transporter permits.

1984 Hazardous and Solid Waste Amendment of 1984 (HSWA) (November 8): Amended RCRA to expand the scope of Subtitle C by adding new corrective action requirements, land disposal restrictions, and technical requirements.

1985 Federal Regulations (40 CFR Part 266) (January 4): Pursuant to HSWA, EPA issued regulations to provide regulatory standards for materials being recycled/reused.

Federal Regulations (Amended 40 CFR Parts 260, 261, 264, 265, 266 & 270) (July 15): Pursuant to HSWA, EPA issued regulations as follows:

- Part 260: revisions to conform with HSWA.
- Part 261: requirements for hazardous waste generated by small quantity generators.
- Part 264: added RCRA-C permit requirements: corrective action; financial assurance; compliance schedule (within facility boundary).
- Part 264/265: expanded technological standards for hazardous waste.
- Part 266: added prohibition and labeling regulations for fuels containing hazardous waste.
- Part 270: revisions to conform with HSWA.

State Regulations* (6 NYCRR Parts 370, 371, 372, Subparts 373-1, 373-2 & 373-3) State Regulatory Adoption of the RCRA-C Program (July 14): Moved hazardous waste regulations from the Part 360 series and expanded the regulations to include federal amendments to RCRA-C.

- Part 370: hazardous waste management system: general.
- Part 371: identification and listing of hazardous waste.
- Part 372: standards applicable to generators and transporters of hazardous waste.
- Subpart 373-1: hazardous waste permit program.
- Subpart 373-2: first permit standards for owners and operators of hazardous waste treatment, storage and disposal facilities.
- Subpart 373-3: interim status standards for owners and operators of hazardous waste treatment, storage and disposal facilities.

1986 USEPA Delegates Final Authorization to New York State for the RCRA-C Base Program. (May 29): Authorizes NYSDEC to implement federal RCRA-C regulations promulgated by EPA through July 26, 1982.

Proposed Federal Regulations (Amended 40 CFR 264) (October 24): Pursuant to HSWA, EPA proposed regulations for demonstrating financial assurance for completing corrective action at facilities seeking a permit. Such assurances would be limited to covering the costs associated with the design, construction and operation of the final remedy. The regulations have not been finalized, but serve as guidance.

State Regulations* (6 NYCRR Subpart 374-1) (July 1): Established Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities.

1987 Federal Regulations (Amended 40 CFR Part 264 and 270): Pursuant to HSWA, EPA issued regulations as follows:

- Part 264: added RCRA-C permit requirements: corrective action; financial assurance; compliance schedule (for releases beyond facility boundary).
- Part 270: added descriptive and release information requirements for all solid waste management units for Part B applications.

1988 RCRA Corrective Action Plan (CAP) (June): Interim USEPA guidance for implementing RCRA corrective action. See final CAP (1994) below.

1989 USEPA Delegates the First Revised Authorization to New York State (July 3): This authorization reflects State incorporation of 16 federal regulatory revisions including but not limited to the following components: biennial reporting; manifesting; household hazardous waste; satellite accumulation; and TSDF interim status standards.

1990 USEPA Delegates the Second Revised Authorization to New York State (May 7): This authorization reflects State incorporation of eight federal regulatory revisions including but not limited to the following components: radioactive mixed waste; liability coverage; tank systems; groundwater monitoring constituents; container and inner liner residues.

Proposed Federal Regulations (Amended 40 CFR 264) (July 27): Pursuant to HSWA, EPA proposed additional regulatory requirements for implementing corrective action for releases of hazardous waste and constituents from solid waste management units (SWMUs) at facilities seeking a RCRA permit. It addresses requirements for conducting remedial investigations, evaluating potential remedies, and selecting and implementing remedies. The proposed regulatory requirements follow the guidance set forth in the interim RCRA CAP. To date, most of the regulations except those pertaining to corrective action management units (CAMUs) and the definition for "facility" subject to corrective action have not been finalized, but serve as guidance.

State Hazardous Waste Reduction Act: Requires hazardous waste generators to prepare hazardous waste reduction plans that evaluate the volume and types of waste generated and the processes responsible for that generation. The plan must also provide an implementation plan to reduce or eliminate the hazardous waste generated.

1991 USEPA Delegates the Third Revised Authorization to New York State (October 29): This authorization reflects State incorporation of one federal revision addressing inclusion of research, development and demonstration permits.

1992 State Regulations* (6 NYCRR Part 376) (January 31): Established Land Disposal Restrictions.

USEPA Delegates the Fourth Revised Authorization to New York State (May 22): This authorization reflects State incorporation of 58 federal regulatory revisions including but not limited to the following components: land disposal restrictions; miscellaneous units; waste minimization; and corrective action.

1993 Federal Regulations (Amended 40 CFR Part 264) (February 16): Pursuant to HSWA, EPA amended this regulation to, during corrective action of remediation hazardous waste, allow for the creation and subsequent closing of corrective action management units (CAMUs) and temporary units which must be designated in a permit or in an order for interim status facilities. Placement of remediation hazardous waste in a CAMU does not constitute land disposal and does not trigger land disposal requirements (LDRs) or minimum regulatory technological requirements for hazardous waste land disposal units. Temporary tanks and containers used to store or treat remediation hazardous waste may have their regulatory design, operating and closure requirements substituted with alternatives protective of public health and the environment.

1994 RCRA Final Corrective Action Plan-CAP (May 31): The CAP provides a framework for developing a site-specific schedule of compliance to be included in a RCRA permit or corrective action order. It does so by laying out scopes of work for the four main components of a corrective action program. These components and their objectives are as follows:

- Interim Corrective Measures (ICMs) - to control or abate hazardous waste releases and prevent or minimize further spread of contamination.
- RCRA Facility Investigation (RFI) - to evaluate the nature and extent of the releases of hazardous waste and constituents.
- Corrective Measures Study (CMS) - to develop and evaluate alternative corrective measures and recommend the final measure(s).
- Corrective Measures Implementation (CMI) - to design, construct, operate, maintain and monitor the performance of the corrective measure(s) selected.

1995 USEPA Delegates the Fifth Revised Authorization to New York State (August 28): This authorization reflects State incorporation of 13 federal regulatory revisions including but not limited to the following components: land disposal restrictions; miscellaneous units; waste minimization; and corrective action.

State Regulations* (6 NYCRR Subparts 373-4 & 374-2) (January 14):

- Subpart 373-4: facility standards for the collection of household hazardous waste and hazardous waste from conditionally exempt small quantity generators.
- Subpart 374-2: standards for the management of used oil.

1996 Corrective Action Advanced Notice of Proposed Rulemaking (May 1): This notice served three purposes:

- introduced EPA's strategy for promulgating regulations governing corrective action for releases from SWMUs at hazardous waste facilities under RCRA and requested information to assist in the identification and development of potential improvements to the protectiveness, responsiveness, speed, or efficiency of corrective actions.
- provided a status report on the corrective action program including its evolution, and further guidance on the July 1990 proposal.
- emphasized areas of flexibility within the current program and described program improvements currently underway or under consideration.

1997 USEPA Delegates the Sixth Revised Authorization to New York State (October 14): This authorization reflects State incorporation of 54 federal regulatory revisions.

1998 Federal Regulations (Amended 40 CFR Parts 264 and 270) (November 30): Pursuant to HSWA, EPA amended Parts 264 and 270 as follows:

- Part 264: during corrective action of remediation waste, allows for the design, operation and subsequent closing of a staging pile which must be designated in a permit or in an order or closure plan for interim status facilities. Staging piles are temporary and do not trigger land disposal restrictions or regulatory technological requirements for containment buildings used for storing piles of hazardous waste.
- Part 270: allows a RCRA facility to apply for and be issued a special form of permit called a Remediation Action Plan (RAP). The RAP could authorize treatment, storage, or disposal of hazardous remediation waste at a specific remediation management site and not require site-wide corrective action. Also, many traditional RCRA permit requirements considered unnecessary would not be in a RAP. A RAP may be issued to an interim status facility or, through a major permit modification, to a facility with a RCRA permit.

State Regulations* (Amended 6 NYCRR Part 374 to add Subpart 374-3) (November 28): Established Standards for Universal Waste Management.

State Submits Draft Package for Authorization (December 11): State incorporation of 51 federal regulatory revisions.

* ***State regulations are continually revised in response to revisions to federal regulations. Authorization amendments address these revisions.***

Appendix B

Hazardous Waste Fee Schedules

Special Assessment Fee Schedule
Regulatory Fee Schedule

APPENDIX B-1

Special Assessment Fee Schedule		
Category	Handling Disposition	Rate (per ton)
Hazardous Waste Generators	Shipped to off-site Landfill	\$27
	Shipped to off-site Treatment	\$16
	Shipped to off-site Incineration	\$ 9
	Incinerated on-site	\$ 2
Treatment, Storage and Disposal Facilities (TSDFs) for Waste Received from Out-of-State	Landfilled	\$27
	Treated	\$16
	Incinerated	\$ 9

APPENDIX B-2

Annual Regulatory Fee Schedule								
Category	Amount Generated	Annual Fee						
Hazardous Wastewater Generators	At least 15 tons of wastewater	\$ 3,000 *						
Hazardous Waste (Non-Wastewater) Generators	Less than 15 tons	No fee						
	15-100 tons per year	\$ 1,000						
	100-500 tons per year	\$ 6,000						
	500-1,000 tons per year	\$ 20,000						
Treatment, Storage and Disposal Facilities (TSDFs)	More than 1,000 tons per year	\$ 40,000						
	1,000 tons per year or less**	\$ 12,000						
	More than 1,000 tons per year	\$ 30,000						
In addition, annual fees are charged for the following:								
Surface Impoundment		\$ 24,000						
Incinerator (each)		\$ 10,000						
Incinerator for energy recovery		\$ 10,000						
Permit post-closure care period		\$ 3,000						
Landfill used only for own generated waste		\$100,000						
Landfill accepting other generators' waste		\$100,000 - 300,000 ***						
<p>* There are approximately 250 facilities in this category.</p> <p>** A TSDF required to obtain a hazardous waste permit or certificate is still subject to the annual fee even if no waste is received in a particular year.</p> <p>*** Effective 4/1/98, a landfill disposal fee is based on gross receipts tax per facility as follows:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">Gross receipts tax < \$3.3M</td> <td>\$100,000</td> </tr> <tr> <td>Gross receipts tax ≥ \$3.3M but < \$4.4M</td> <td>200,000</td> </tr> <tr> <td>Gross receipts tax ≥ \$4.4M</td> <td>300,000</td> </tr> </table> <p>Currently, there is only one commercial hazardous waste landfill in New York State accepting waste from other generators and subject to the above schedule.</p>			Gross receipts tax < \$3.3M	\$100,000	Gross receipts tax ≥ \$3.3M but < \$4.4M	200,000	Gross receipts tax ≥ \$4.4M	300,000
Gross receipts tax < \$3.3M	\$100,000							
Gross receipts tax ≥ \$3.3M but < \$4.4M	200,000							
Gross receipts tax ≥ \$4.4M	300,000							

Appendix C

New York State RCRA-C

Permit Process Flowchart

New York State RCRA-C Permit Process

Applicant holds informal preapplication meeting with the public before applicant submits permit application for a new hazardous waste facility or for a permit renewal to DEC.

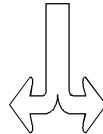


Applicant submits permit application to DEC which includes a description of the facility; how the facility will be designed, constructed, maintained and operated to be protective of human health and the environment; how emergencies and spills will be handled; how the facility will clean up and finance any environmental contamination; and how the facility will close and clean up once it is no longer operational.



The DEC announces the receipt of the application, makes it available for public review and comment, and reviews the application to verify completeness.

If the application is incomplete, DEC issues a notice(s) of incomplete application (NIA) until the application is complete.



When the application is complete, DEC makes a preliminary decision to issue or deny the permit.

If decision is to deny permit, DEC prepares a draft permit denial.



If decision is to issue permit, DEC issues a draft permit containing design and operating conditions.



DEC announces decision and issues a fact sheet explaining decision. Once notice is issued, the public has 45 days to comment on the draft permit.



Citizens or applicant may request a public hearing or DEC may hold a hearing subsequent to a 30-day public notice. Citizens or applicant also have the right to contest the tentative decision or specific permit conditions in an adjudicatory hearing.



After reviewing public comments, DEC reconsiders draft permit or draft permit denial and issues a response to public comments. DEC then issues the final permit or final denial. If an adjudicatory hearing is required, it is held and the commissioner makes a final determination based on the hearing record and the hearing officer's report.

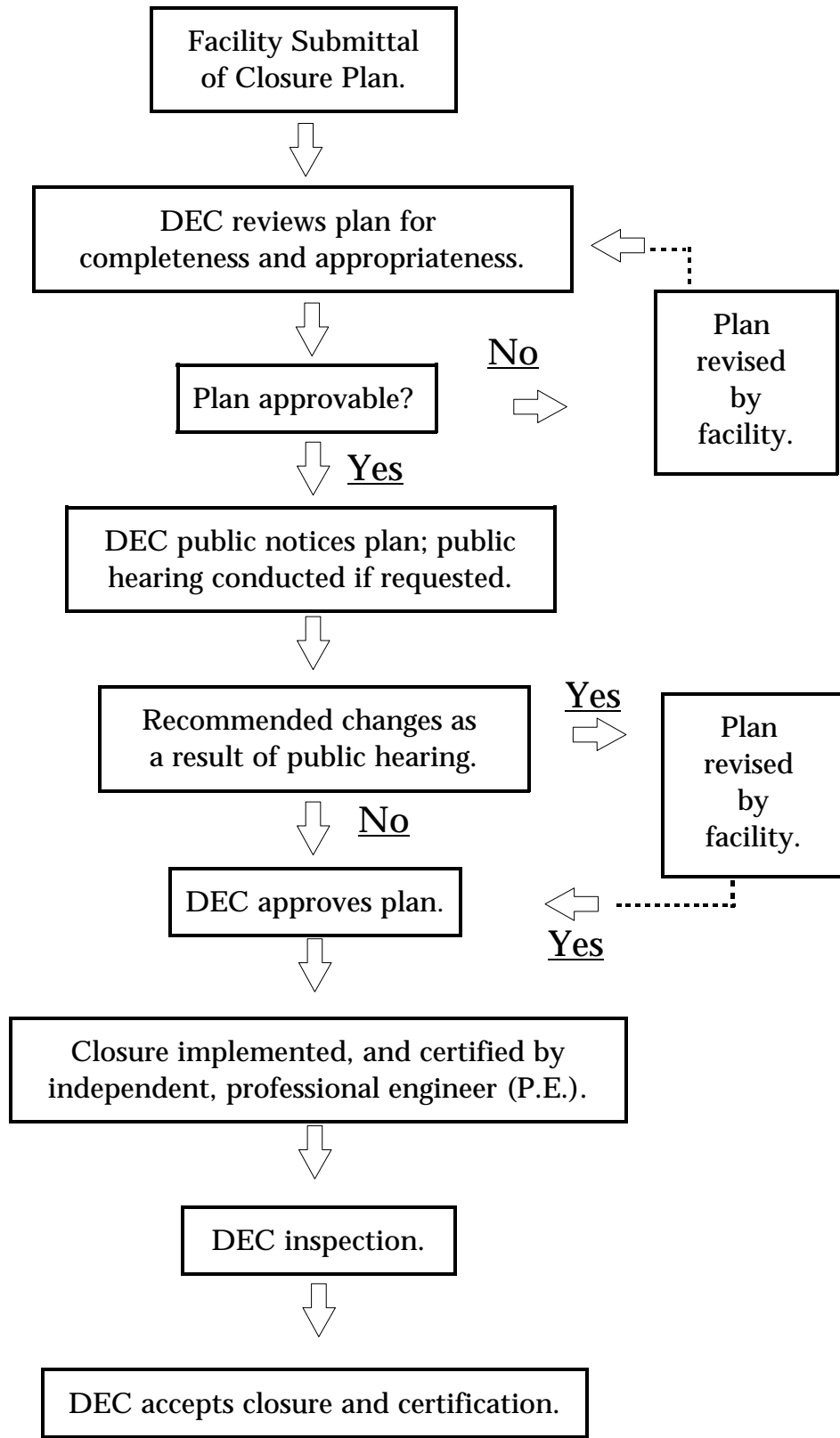
Note: This process is consistent with and supplements the State Environmental Quality Review Act.

Appendix D

New York State RCRA-C

Closure Process Flowchart

RCRA-C Closure Process



Note: The above is the process for facilities that do not have a Part 373 permit. Permitted facilities must close in accordance with the closure plan included in their Part 373 permit.

Appendix E

New York State RCRA-C

Corrective Action Process Flowchart

New York State RCRA-C Corrective Action Process

