A CERTIFICATION PROGRAM FOR OPERATORS OF SOLID WASTE MANAGEMENT FACILITIES FOR THE STATE OF CONNECTICUT

Prepared for:

SOLID WASTE PROGRAM
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RESOURCE RECOVERY AND CONSERVATION PANELS

SEC. 2003. The Administrator shall provide teams of personnel, including Federal, State, and local employees or contractors (hereinafter referred to as "Resource Conservation and Recovery Panels") to provide Federal, State and local governments upon request with technical assistance on solid waste management, resource recovery, and resource conservation. Such teams shall include technical, marketing, financial, and institutional specialists, and the services of such teams shall be provided without charge to States or local governments.

EPA Region I Project Manager: Conrad O. Desrosiers

ACKNOWLEDGEMENTS

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I. Introduction

With the relatively recent spread of resource recovery/solid waste management facilities has come the need for a skilled labor force capable of properly operating and maintaining the new technologies. Recognizing that there may be a shortage of qualified workers, and that consequently the opportunity for inefficient and even unsafe system operations may be great, the Connecticut Department of Environmental Protection (D.E.P.) has sought to develop a program for certifying that solid waste facility operators in key positions are competent. The legislative support for such a program is provided by Section 19-524b of the Connecticut General Statutes. The statute requires that operators of solid waste management facilities receive certification from the D.E.P. To exercise the certification authority, regulations were developed by the DEP; however, a formal certification program now exists only for sanitary landfill facilities. In order to develop a more comprehensive program, the DEP requested assistance from the U.S. EPA (Region I) and its Technical Assistance Panels contractor, Gordian Associates.

Gordian worked closely with EPA and the DEP to develop a scope of work which would address the complex issues involved. The resulting scope included the following five tasks:

1. Brief review of existing statutes to determine if the language is adequate to support a comprehensive certification program.

2. Determine the types and sizes of facilities to be addressed by the program as well as their staffing needs. The general facility categories to be considered were: Processing facilities (i.e., RDF); Mass Burning (i.e., waterwalls); Modular incinerators; and transfer stations. Each category would be analyzed at three different capacities.

3. Once the systems and their labor requirements were determined Gordian was to develop appropriate qualifications for the key staff needs for each facility.

4. A preliminary certification program was then to be developed on the basis of the previously determined staffing needs and comments from the DEP and EPA as to which approach(es) would be appropriate.

5. If deemed appropriate by the DEP, a formal certification program would be developed.

In the course of conducting this study, Gordian found it necessary to modify the original scope of work somewhat in order to more accurately reflect the changing attitudes towards implementing a program. Because of the diversity of viewpoints expressed by the DEP staff, EPA, and Gordian, and the absence of a consensus approach, this report does not include the details of implementing a program. It was decided that Gordian would present an outline of its recommended approach with justifications for its selection so that the other participants could evaluate it for further action. This modified workscope is reflected in the current report's organization as explained below:

- Personnel Requirements and General Qualifications. This section presents the generalized staffing needs, job descriptions and qualifications for 3 sizes of each type of solid waste management facility. This information provides the background for determining what positions should be considered key and what level of qualifications are involved.

- Review of Enabling Legislation and Similar Certification Programs - the first part of this section remains as described in Task 1 of the original scope, but the reviews of similar programs have been added as examples for comparison with the program Gordian recommends in the next section.

- Proposed Certification Program - this section provides a brief discussion of why Gordian selected a relatively low key certification program, followed by an outline of the program itself.

The report concludes with a summary of recommendations, and appendices which present supporting documentation for some of the sections in the text.

II. Personnel Requirements and General Qualifications

Staffing needs for solid waste management operations vary significantly from facility to facility. The number of people necessary to run a solid waste plant differ not only with the plant size, number of process lines and number of shifts, but also with the particular technology which is implemented. For example the South West Chicago RDF plant, processing roughly 1000 TPD, employs 25 people, while the Milwaukee RDF facility at 900 TPD has 42 people on the payroll. As a result the labor needs at any specific site cannot necessarily be determined accurately from looking at comparably sized plants elsewhere.

The numbers presented in this report represent the averages from a variety of different sources. Tables summarizing these sources for each technology are presented in Appendix A. Data from presently operating plants is supplied where available. Proposals and feasibility studies fill in the gaps. Decisions on the workers needed for each position are guided by this data base, but modifications have been made in some cases where experience or operating feasibility dictates them; for instance, in waterwall incinerators operating four shifts a day, shift workers are needed in multiples of four (with the possible addition of a relief worker or assistant at larger sizes).

Job titles present another complication. People in different locations often have different names for the same job. Conversely, jobs with the same heading sometimes bear little resemblance to each other, or their responsibilities overlap with other jobs. These problems can often be resolved by carefully examining the job descriptions and qualifications for each position. However, in some cases where jobs at a particular plant do not fit neatly into the generalized categories, they have been modified somewhat to conform. This prevents the list of different job titles from growing endlessly with each slightly different position name or list of duties. Note that the job descriptions presented here do not include personnel required for transporting solid waste to or from the facility (even in

the transfer station case). It is assumed that this service would be provided independently.

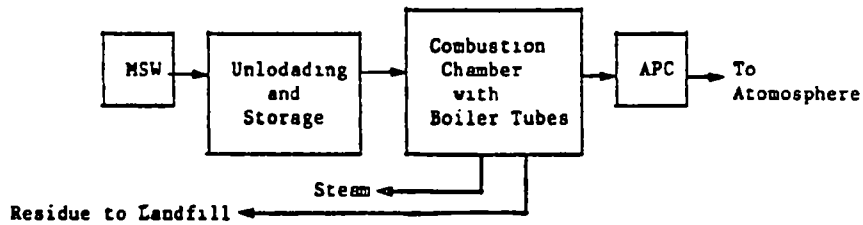
Job characteristics also tend to vary with the facility size. For example, at smaller sites people often do more than the one task, such as the plant manager doubling as a shift foreman or plant engineer. In the larger plants more job specialization occurs and the duties associated with a particular job become more routinized and specific. As a result the responsibilities for a job category can shift somewhat as the plant size changes. This tendency is incorporated in these job descriptions. They are intentionally broad and general to encompass the minor deviations caused by different technologies and different plant sizes.

This latitude is essential to any potential certification program. It provides flexibility for coping with the manpower structures of different solid waste processing facilities. By keeping the job descriptions broad and limiting the number of job categories, the process of job classification is simplified and the whole certification process can be made more efficient.

In the following section, a Table summarizing the job titles and numbers of workers is presented for each technology. Each Table is accompanied by job descriptions and suggested minimum qualifications for the key personnel associated with that approach.

MASS BURNING SYSTEMS

WATERWALL INCINERATOR FLOW DIAGRAM AND LABOR REQUIREMENTS



JOB TITLE	NUMBER OF WORKERS REQUIRED 600 TPD	1200 TPD	1800 TPD
Administrative			
Plant Manager	1	1	1
Administrative (Accountant, payroll, etc.)	1	1	1
Weigh Clerk/Clerical	1	1	2
Stock Clerk	0	1	1
Secretary/Clerical	1	2	2
	4	6	7
Receiving and Processing			
Plant Engineer/Operations Supervisor	1	1	1
Shift Foreman*	4	4	4
Control Room Operator*	4	4	4
Crane Operator*	4	8	8
Boiler Operator*	4	4	4
Instrument Technician	1	1	1
Chemist	1	1	1
Tipping Floor Spotter	1	2	2
Driver/Residue Handler	3	3	4
Laborer*	4	8	8
Residue Processing Operator	4	4	4
	31	40	41
Maintenance			
Maintenance Foreman	1	1	1
Electrician	1	2	3
Welder/Pipefitter	1	3	4
Machinist	1	1	1
Mechanic, Maintenance	3	4	4
Guard	1	1	1
Helper	2	4	4
	10	16	18
TOTAL	45	62	66

* Labor needs for these job categories are based on four shifts per day operation, with extra workers or assistants available for some job categories.

WATERWALL INCINERATOR
LABOR REQUIREMENTS

KEY STAFF POSITIONS

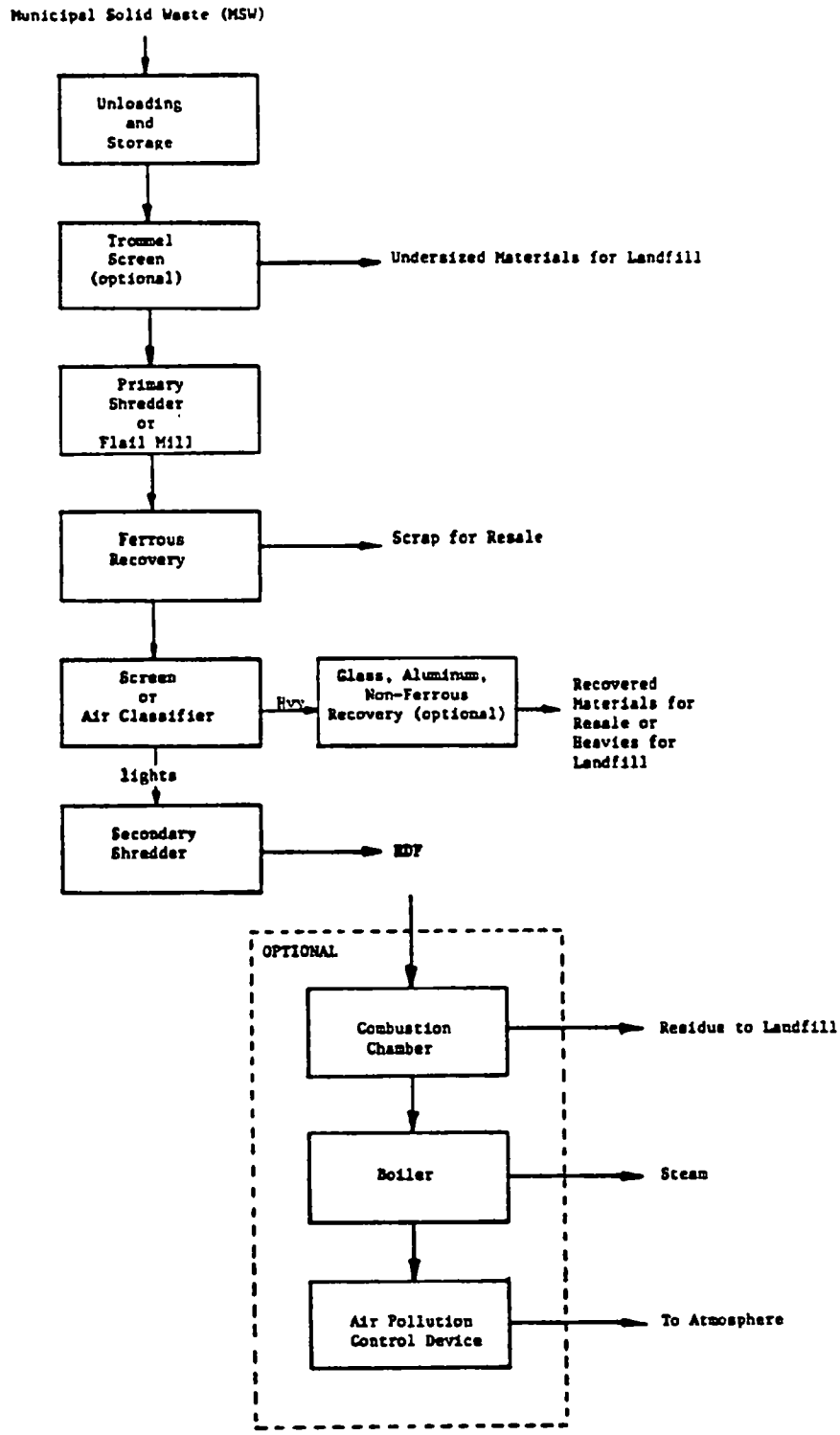
JOB TITLE	DUTIES	QUALIFICATIONS
Plant Manager	o Responsibility for overall plant operation, maintenance and administration. o Specific duties may include: - Work scheduling - Plant inspections - Supervision and training - Public relations - Hiring - Design changes in facility operations to improve efficiency and plant versatility - Record keeping - Budgeting and overall cost accounting	o College degree in mechanical or electrical engineering or equivalent. o Experience in administrative/ supervisory capacity at large thermal power plants or demonstrated experience. Minimum 5 years experience. o Organizational skill and experience in supervision of personnel and administration. o Working knowledge of local, state, and Federal regulations.
Plant Engineer/ Operations Supervisor	o Replacement of plant manager in his absence. o Responsibility for day to day operation, maintenance and repair of facility. o Responsibility for operational training program. o Responsibility for environmental compliance and plant safety standards. o Development of changes in plant operation to improve efficiency and plant versatility. o Organizational ability and experience in personnel supervision.	o Organizational ability and experience in personnel supervision. o Familiarity with maintenance and repair of electromechanical plant installations. o Experience in engineering capacity at large thermal power plants or similiar incineration facilities. o Working knowledge of: - Methods and controls - Local, State and Federal regulations - High and low voltage electric equipment - Regulating solid waste handling
Shift Foreman	o Supervision of shift; responsibility for all work necessary to ensure smooth operation. o Specific duties may include: - Supervision of shift crew - Recordkeeping for overall systems operations - Responsibility for alarms, regulators, and instruments - Inspection of plant - Relief of boiler operator/control room operator if necessary - Assistance during maintenance, repairs, and cleaning - Setting up and implementating work schedules	o Trained mechanic and fitter with qualifying reference. o Experience in operation and maintenance of boiler installations. o Ability to read and interpret engineering plans and specifications. o Course work in power plant operations and maintenance, or equivalent. o Basic knowledge of high and low voltage electric equipment.

JOB TITLE	DUTIES	QUALIFICATIONS
Control Room Operator	o Control of automated process using control room display panel. o Responsibilities may include: - Initiation of corrective action for abnormal conditions - Responsibility for furnace, boiler, and pollution equipment operation - Regular communication with crane operator on refuse quality - Assistance with repairs and maintenance.	o Trained mechanic or fitter with qualifying reference. o Experience in the operation and maintenance of boiler installations.
Boiler Operator	o Responsibility for operation of furnace-boiler unit through monitoring and control of firing rates and conditions. o Responsiblities may include: - Adjustment of feed rates, pollution control equipment, steam delivery, and condensate return - Monitoring of refuse quality. - Control of grate function and clinker chute - Assistance with repairs and maintenance - Regular communication with crane operator on refuse quality - Taking of readings and record keeping of temperature, pressure, and water readings - Assure boiler operation is in accordance with appropriate statutes.	o High school education or equivalent. o Trained mechanic or fitter with qualifying reference. o Experience in operation and maintenance of boiler installations. o Familiarily with Connecticut State Boiler Code.
Crane Operator	o Operation of overhead crane and charging of furnace. o Responsibilities may include: - Regular contact with shift foreman, floorman, and boiler operator - Mixing of refuse in the bunker - Control and maintenance of crane installation according to instructions - Cleaning of cranes and area - Assistance with repairs and maintenance	o Knowledge and understanding of industrial plant safety and operating procedures. o Experience in operating overhead bridge crane. o Understanding of refuse composition and its effect on boiler operating conditions. o Ability to recognize wastes which could cause damage to incinerator or boiler.

JOB TITLE	DUTIES	QUALIFICATIONS
Chemist	o Analysis of all plant influent and effluent water streams. o Analysis of boiler feedwater. o Reporting of marginal or off-limit conditions. o Other laboratory work as required.	o Bachelor's degree in chemistry or equivalent experience in chemical analysis. o Knowledge of chemical analysis techniques and requirements for analyzing plant's water supply, water treatment system, etc.
Maintenance Foreman	o Supervision and assignment of work to maintenance crew. o Regular preventative and corrective maintenance as required for continuous plant operation.	o Trained mechanic, fitter, or electrician with qualifying reference. o Familiarity with maintenance and repair of electro-mechanical plant installations. o High school education or equivalent.
Instrument Technician	o Maintenance and repair of plant instrumentation and control systems. o Troubleshooting in the instrumentation system. o Maintenance of instrument supplies, spares, and workshop in proper condition. o Assistance with other maintenance personnel as required.	o Ten years of experience preferable or demonstrated experience. o Knowledge and ability to repair pneumatic and electric instrument systems. o Special experience with steam power plant instrumentation. o Coursework or experience in electronics, electrical engineering or related area is preferable. o Experience at troubleshooting in instrumentation systems or demonstrated experience.
Weigh Clerk/ Clerical	o Monitoring and recording of all truck-loaded waste entering and leaving plant. o Maintenance of recording of all truck-loaded waste entering and leaving plant. o Maintenance of records for steam production and clerical tasks as required. o Duties may also include: - handling large amounts of money - receptionist	o License from State of Connecticut to operate a platform type scale. o High School education or equivalent. o Ability to operate adding machines and other printing equipment connected with scale operation. o Ability to be bonded.

RDF SYSTEMS

RDF FACILITY FLOW DIAGRAM



JOB TITLE	NUMBER OF WORKERS REQUIRED 600 TPD	1200 TPD	1800 TPD
Administrative			
Plant Manager	1	1	1
Weigh Clerk/Clerical	1	1	2
Bookkeeper/Accountant	1	1	1
Secretary/Receptionist	1	2	2
Stock Clerk	1	2	2
	5	7	8
Receiving and Processing			
Plant Engineer/Operations Supervisor	1	1	1
Shift Foreman*	2	2	2
Process Operator*	4	5	6
Front Loader Operator*	4	6	7
Traffic Director	1	1	1
Quality Control Technician	1	2	2
Control Room Operator*	2	2	2
Recovery Area Operator*	4	4	4
Refuse Picker	2	4	4
Driver/Residue Handler	4	6	8
Laborer*	4	6	7
Instrument Technician	1	1	1
	30	40	45
Maintenance			
Maintenance Foreman	2	3	3
Electrician	1	2	2
Mechanic, Welder	1	2	3
Mechanic, Maintenance	2	3	4
Guard	1	1	1
Helper	2	3	5
Machinist	1	2	3
	10	16	21
Subtotal	40	63	74
Steam Production Optional			
RDF Feed Operator**	4	8	8
Boiler Operator**	8	4	4
Electrician/Instrumentation	1	3	3
Chemist	1	1	1
Driver/Ash residue Handler	3	4	5
Plant Engineer	1	1	1
TOTAL	58	84	96

* Labor needs for these categories are based on two shifts per day operation with an assistant or relief worker available in the larger facilities.

** Boiler operation is assumed to be continuous, requiring four shifts per day for these labor categories. An assistant or relief worker may be necessary in the larger plants.

RDF FACILITY LABOR REQUIREMENTS

KEY STAFF POSITIONS

JOB TITLE	DUTIES	QUALIFICATIONS
Plant Manager	o Responsibility for overall plant operation, maintenance and administration. o Specific duties may include: - Work scheduling - Plant inspections - Supervision and training - Public relations - Hiring - Design changes in facility operations to improve efficiency and plant versatility - Record keeping - Budgeting and overall cost accounting	o College Degree in mechanical or electrical engineering or equivalent. o Experience in administrative/ supervisory capacity at large processing facilities or demonstrated experience. Minimum five years experience. o Organizational skill and experience in supervision of personnel and administration. o Working knowledge of local, state, and Federal regulations.
Plant Engineer/ Operations Supervisor	o Replacement of plant manager in his absence. o Responsibility for day to day operation, maintenance and repair of facility. o Responsibility for operational training program. o Responsibility for environmental compliance and plant safety standards. o Design of changes in plant operation to improve efficiency and plant versatility.	o Organizational ability and experience in personnel supervision. o Familiarity with maintenance and repair of electro-mechanical plant installations. o Working knowledge of: - Methods and controls - Regulating solid waste handling - Local, State, and Federal regulations - High and low voltage electric equipment o (Steam Production Option Only): Experience in supervisory capacity at large thermal power plants or equivalent. o (Steam Production Option Only): Experience in engineering capacity at large thermal power plants or demonstrated experience.

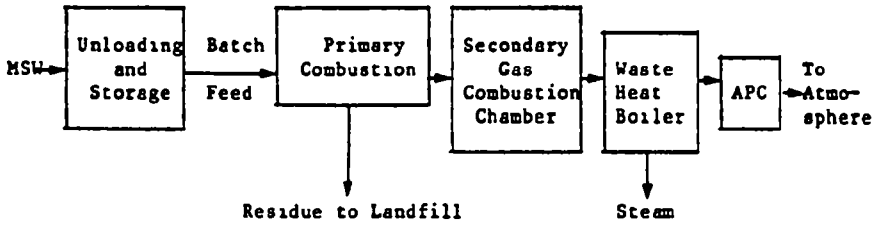
JOB TITLE	DUTIES	QUALIFICATIONS
Shift Foreman	o Supervision of shift; responsibility for all work necessary to ensure smooth operation. o Specific duties may include: - Supervision of shift crew - Recordkeeping for overall systems operations - Responsibility for alarms, regulators, and instruments - Inspection of plant - Relief of process operator/control room operator if necessary - Assistance during maintenance, repairs, and cleaning - Setting up and implementing work schedules	o Trained mechanic with qualifying reference. o Ability to read and interpret engineering plans and specifications. o Basic knowledge of high and low voltage electric equipment. o Experience in the operation of heavy equipment machinery, conveyors, and related functions. o (Steam production option only): Coursework in power plant operations and maintenance or equivalent.
Weigh Clerk/ Clerical	o Monitoring and recording of all truck-loaded waste entering and leaving plant. o Keeping records and performance of clerical tasks as required. o Monitor fuel/materials to market. o Duties may also include: - Receptionist o (Steam production option only): Maintenance of records for steam production.	o License from the State of Connecticut to operate platform type scale. o High school education or equivalent. o Ability to operate adding machines and other printing equipment connected with scale operation. o Ability to be bonded.
Process Operator	o Monitoring, operation, and maintenance of processing equipment. o Duties may include: - Operation of front end loader - Preventive maintenance on equipment - Relief of other operators - Assistance with maintenance and repairs as necessary - Monitoring equipment to assure proper operation	o Trained mechanic with qualifying reference. o Knowledge and experience in the operation and maintenance of heavy equipment machinery.
Control Room Operator	o Control of automated process using control room display panel. o Responsibilities may include: - Initiation of corrective action for abnormal conditions - Assistance with repairs and maintenance - (Steam production option only): Responsibility for furnace, boiler, and pollution control equipment	o Trained mechanic or fitter with qualifying reference. o Experience in the operation and maintenance of heavy equipment machinery.

JOB TITLE	DUTIES	QUALIFICATIONS
Recovery Area Operator	o Supervision and assistance in the loading of materials into railcars, trucks, or containers o Responsibilities may include: - Operation of fork lift - Changing jobs with other operators on days off - Performance of maintenance and repairs as necessary - Product stream sampling	o Knowledge and experience in the operation and maintenance of heavy equipment machinery o Trained mechanic with qualifying reference.
Quality Control Technician	o Sampling and analysis of product material to determine quality o Duties may include: - Reporting analysis results to plant manager - Recommending of process changes to improve quality or quantity of product - Analysis of water effluent - Analysis of other process control points - First aid specialist - Record keeping on health matters as required by OSHA - Performance of laboratory work as required	o Bachelor's degree in chemistry or equivalent experience in chemical analysis o Knowledge of chemical analysis techniques and requirements for analyzing RDF quality, water quality, etc. o Knowledge of combustion chemistry and thermodynamics.
Maintenance Foreman	o Supervision and assignment of work to maintenance crew o Regular preventative and corrective maintenance as required for continuous plant operation	o Trained mechanic, fitter, or electrician with qualifying reference o Familiarity with maintenance and repair of electro-mechanical plant installations and heavy equipment machinery o Ten years of experience preferable or demonstrated experience. o High school education or equivalent.
Instrument Technician	o Maintenance and repair of plant instrumentation and control systems. o Troubleshooting in the instrumentation system. o Maintenance of instrument supplies, spares, and workshop in proper condition. o Assistance with other maintenance personnel as required.	o Knowledge and ability to repair pneumatic and electric instrument systems. o Special experience with steam power plant instrumentation. o Coursework or experience in electronics, electrical engineering or related area is preferable. o Experience at troubleshooting in instrumentation systems or demonstrated experience.

JOB TITLE	DUTIES	QUALIFICATIONS
Boiler Operator (Steam Production Option Only)	o Responsibility for operation of furnace-boiler unit through monitoring and control of firing rates and conditions. o Responsibilities may include: - Adjustment of feed rates, pollution control equipment steam delivery, and condensate return - Monitoring of refuse quality - Control of grate function and clinker chute - Assistance with repairs and maintenance - Regular communication with crane operator on refuse quality - Taking of readings and record keeping of temperature, pressure, and water readings - Assure boiler operation is in accordance with appropriate statutes.	o Trained mechanic or fitter with qualifying reference. o Experience in operation and maintenance of boiler installations. o Working knowledge of Connecticut State Boiler Code. o High school education or equivalent.
Chemist (Steam Production Option Only)	o Analysis of all plant influent and effluent water streams. o Analysis of boiler feedwater. o Reporting of marginal or off-limit conditions. o Other laboratory work as required.	o Bachelor's degree in chemistry or equivalent experience in chemical analysis. o Knowledge of chemical analysis techniques and requirements for analyzing plant's water supply, water treatment system, etc.

MODULAR COMBUSTION UNITS

MODULAR INCINERATOR FLOW DIAGRAM AND LABOR REQUIREMENTS



JOB TITLE	NUMBER OF WORKERS REQUIRED		
	50 TPD**	100 TPD	200 TPD
Plant Manager	0.5	1	1
Weigh Clerk/Clerical	1	1	1
Shift Foreman*	0.5	3	3
Process Operator*	3	3	3
Relief Loader/Maintenance*	1	1	3
Mechanic, Maintenance	1	1	1
Driver/Ash Handler	1	1	1
Laborer	0	1	1
TOTAL	8	12	14

* Labor needs for these job categories are based on three shift per day operation with extra operators/loaders for large facilities.

** At 50 TPD the plant manager doubles as the day shift foreman. For the other two shifts the process operator acts as foreman. Because of the small facility size the third shift would not require a relief loader.

MODULAR INCINERATOR LABOR REQUIREMENTS

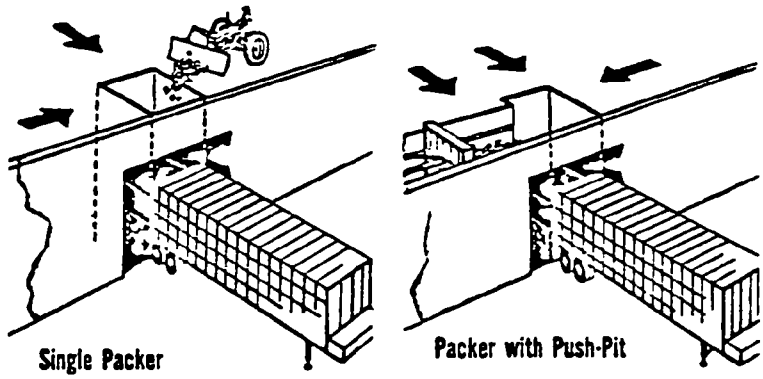
KEY STAFF POSITIONS

JOB TITLE	DUTIES	QUALIFICATIONS
Plant Manager	o Responsibility for overall plant operation, maintenance and administration. o Specific duties may include: - Supervision of shift crew - Hiring - Implementation and enforcement of record keeping work schedules, safety, and maintenance procedures - Public relations - Inspection of plant - Relief of process operator - Monitoring incinerator equipment to assure maximum efficiency - Assistance with maintenance and repairs as necessary - Budgeting and overall cost accounting	o Substantial management and supervision experience (five years or more preferable) or demonstrated experience. o Technical experience with mechanical equipment or demonstrated experience. o Ability to operate and maintain incinerators. o Working knowledge of Connecticut State Boiler Code.
Weigh Clerk/ Clerical	o Monitoring and recording of truck-loaded waste entering and leaving plant. o Maintenance of records for steam production and clerical tasks as required. o Duties may also include: - handling large amounts of money - receptionist	o License from State of Connecticut to operate a platform type scale. o High School education or equivalent. o Ability to operate adding machines and other equipment connected with scale. o Ability to be bonded.
Process Operator	o Operation of equipment to load incinerator. o Maintenance of equipment in proper operating condition. o Assistance with maintenance and repairs as necessary.	o Experience in operation and maintenance of mechanical equipment such as front loaders, fork lifts, incinerator feed equipment, etc. o Working knowledge of Connecticut State Boiler Code.

JOB TITLE	DUTIES	QUALIFICATIONS
Shift Foreman	o Supervision of shift crew including maintenance operations. o Monitoring of incinerator equipment to assure maximum efficiency. o Supervision of handling, storage, and loading of waste. o Starting up or shutting down of incinerators as required to maximize efficiency or in the event of a malfunction. o Assurance of proper operation of all equipment. o Assistance with maintenance and repairs as necessary.	o Experience in supervison of personnel. o Knowledge and experience with heavy equipment machinery such as front loaders, backhoes, fork lifts, etc. o Knowledge of boiler operations and maintenance requirements. o Ability to operate and maintain incinerators. o Working knowledge of Connecticut State Boiler Code.

TRANSFER STATIONS

TRANSFER STATION DIAGRAMS AND LABOR REQUIREMENTS*



JOB TITLE	NUMBER OF WORKERS REQUIRED		
	100 TPD	200 TPD	600 TPD
Manager/Supervisor	1	1	1
Front Loader Operator	0.5	0.5	1
Operator		1	3
Maintenance	0.5	1	1
TOTAL	3	4	6

* Labor needs are based on one shift per day operation.

TRANSFER STATION LABOR REQUIREMENTS

KEY STAFF POSITIONS

JOB TITLE	DUTIES	QUALIFICATIONS
Manager/ Supervisor	o Responsibility for overall facility operation, maintenance, and administration o Specific duties may include: - Supervision of shift crew - Maintain records of system operations - Operation of front end loader, backhoe, transfer tractor - Operation of scale to eright trucks - Responsibility for and assistance in maintenance and repair - Setting up and implementation of work schedule	o Basic knowledge of hydraulic machinery o Ability to operate front loaders and other yard equipment o Experience in the operation and maintenance of hydraulic and electrical machinery o Experience in supervision of personnel and administration
Operator	o Supervision of refuse dumping operations and maintenance of compactor equipment o Specific duties may include: - Operation of front loader backhoe, transfer tractor - Operation of scale to weigh incoming trucks - Maintenance of work area in proper condition - Preventive maintenance on compactor equipment - Manual labor and assistance with maintenance and repairs as necessary	o Basic knowledge of hydraulic machinery o Ability to operate front loaders, backhoes, transfer tractors o Experience in the operation and maintenance of hydraulic and electrical machinery

III. Review of Enabling Legislation and Similar Certification Programs

This section presents a critique of the Connecticut Statutes and Regulations which authorize a certification program, as well as a brief summary of three in-state programs which are aimed at insuring that personnel in industries similar to solid waste management are qualified. The Connecticut Solid Waste Statutes and Regulations have been reviewed with the Gordian proposed certification program in mind (see Section IV). Even if that particular program is not implemented it is evident that these laws would benefit from some of the modifications outlined here.

Connecticut Solid Waste Statutes and Regulations

With regard to establishing an operator certification program, the following sections of the Connecticut General Statutes were reviewed for appropriateness and content:

- o Sections 19-524a and 524b

Also, the following sections of the Connecticut Solid Waste Regulations were similarly reviewed:

- o Sections 19-524-1 through 19-524-14

In general, the statutes do provide the legal framework necessasry to establish a certification program. Section 524b authorizes the Commissioner of Environmental Protection (or his authorized agent) to prohibit the building, establishment or alteration of any solid waste facility* without his express approval, which is to be conveyed by the issuance of a permit. Further, the qualifications of any operator(s) of such a facility are subject to the approval of the Commissioner.

However, with regard to the January 1978 Regulations promulgated by the DEP, there are some refinements which would eliminate potential discrepancies. In specific, the following should be considered:

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* Section 19-524a(d) - The five tons per year capacity set forth in the definition of "Solid waste facility" is much too low to be practical - small apartment buildings could easily fit this definition. A minimum throughout of five tons per day would be more practical.

Section 524-2(8) - The definition of "Operator" should be expanded to include more than just the "individual who is responsible." As it reads now, this definition could be interpreted to mean only the plant manager or even just the facility's owner. Obviously, this definition is integral to any subsequent sections of the statute that deal with operator certification, and therefore, it should be clearly and thoroughly identified. The definition should include individuals who are responsible for operating or maintaining equipment or machinery. Alternatively, a catch-all phrase could be employed, such as "any individuals holding key positions within the facility's operation." The important idea here is to word the definition so that at least one "operator" can always be present at the facility when it is in operation. To that end, Plant Manager, Plant Engineer, and Shift Foremen, should be specified as a minimum.

Section 19-524-5 - This section is the essence of the legislative authorization for a certification program. Since "operator" and "solid waste facility" have already been defined, this section should properly concentrate on defining the certification process. In Subsection (a), the allowance for a designee of the certified operator to be present is an unnecessary loophole which should be eliminated.

Under the program which Gordian proposes in Section IV of this report, Subsection 19-524-5(b)(2) may be omitted entirely or at most, modified to indicate that the DEP will require only that the applicant submit his qualifications for review as part of the certification process..

To conform with the program which Gordian recommends, Subsection 19-524-5(b)(3), should be changed to read "The DEP shall require applicants for certification to attend a class designed to ensure that the knowledge of the applicant regarding Federal and State laws and regulations relative to public health, safety, and environmental matters is adequate."

In general, Subsection 19-524-5(b)(4) is adequate as it stands, except that the wording could be changed to place the emphasis on knowledge of Federal and State regulations rather than "Solid waste facilities and their operation".

Gordian recommends that subsection 19-524-5(b)(5) be changed to require that operators merely submit a fee to achieve certification renewal unless there are substantive changes in Federal and State laws, in which case all certified operators could be required to attend supplementary courses.

Section 19-524-6(e)(1) - This subsection is unnecessary and redundant since the requirement has already been established in Section 19-524-5.(a). Similarly, Section 19-524-7(c)(4) is unnecessary.

In summary, there is clearly a need for more specifics in Section 19-524-5, especially with regard to who is required to be certified. It may be appropriate to include a listing of positions (with job descriptions) requiring certification.

If the certification program recommended by Gordian is implemented, the additional changes noted above will be necessary in order to scale down the DEP's requirements as stated in the existing regulations.

Connecticut Waste Water Treatment Plant Operators Certification Program

Under this mandatory program only the operators of waste water treatment plants are certified by the State. The requirements for certification vary with the size of the facility. Seven grades or sizes are distinguished ranging from non-mechanical plants serving 5000 people (Grade I) to plants serving more than 200,000 people (Grade VII). The facility operator is defined as the person in "responsible charge", generally referring to the highest ranking person who spends the majority of his time at the plant.

Certification examinations are given twice a year. Applicants must submit their qualifications and indicate which grade they are applying for. To be eligible they must presently be working in a Connecticut waste water treatment plant. The minimum requirements for each grade are detailed in the regulations; a flexible combination of education and experience is needed to qualify for the exam. The exams are given free of charge and test the applicants' knowledge of all aspects of waste water treatment for each grade, stressing knowledge of facility operations, and include multiple choice, essay, and mathmatical problems.

Upon passing the exam, applicants are certified for an indefinite period of time, provided they continue to work in Connecticut waste water treatment facilities. A certificate is valid for 2 years after the operator stops working at a treatment plant. Certificate's may be issued to operators who have been certified in other states. Presently over 800 people are certified operators at one grade or another in Connecticut.

A six member advisory committee, consisting of educators, representatives from the Department of Environmental Protection, and operators, meets 5-6 times a year to review applicant qualifications, adjudicate certification disputes, and grapple with problems as they arise.

The program has run across several problems which might pertain to solid waste facilities. It should be clearly defined who must be certified: whether just the person in charge is enough or whether secondary positions should also come under the process to ensure that a

certified operator is on site at all times. An application fee may be appropriate not only to generate revenues but also to keep people from applying who are not seriously interested in the process. There is also a problem of determining what sort of experience is relevant to the operation of a facility (the advisory committee plays an important role in this area). Certificate revocation procedures should be clearly laid out to prevent confusion. Finally, whatever certification process is chosen, it should mesh with programs in other states to facilitate the transfer of certificates from one jurisdiction to another.

Bridgeport Power Engineer, Boiler Tender, and Water Tender Licensing Ordinance

This licensing program was established in 1952 to provide some quality control on the boiler operators in the City of Bridgeport. All boiler tenders and power engineers operating boilers and related equipment with more than 15 lbs. gauge pressure or more than 25 horsepower are required to apply for a license and pass a written test. Different tests are given to the boiler operators than to the power engineers. Both exams stress safety procedures and practices although the power engineer's test also involves some theoretical questions. Neither test contains questions about the actual operation of different types of equipment.

The tests are designed, administered, and graded by the Board of Examiners of Power Engineers, a three member panel appointed by the Mayor. Tests are given whenever 12 or more applications are received.

For power engineers three classifications are available affecting the size of the boiler equipment which may be operated. The classification awarded to an engineer depends upon his score on the test and/or an oral test given by the Board of Examiners. An engineer's classification may be upgraded by retaking the test or by otherwise demonstrating his qualifications. Only one classification exists for boiler tenders.

Licenses are valid for two years and may be renewed without retaking the test. The licenses are only valid for the particular plant or location where the boiler tender or power engineer works. However, licenses may be transferred if the individual changes jobs or locations.

Enforcement of the licensing ordinance rests with the Fire Department and the penalties for non-compliance include fines up to $100 and/or imprisonment up to thirty days.

Hartford Steam Boiler Insurance Co. Boiler Operator Testing

In a telephone conversation a spokesman for the Hartford Steam Boiler Insurance Co. described the extent to which the insurance company's inspectors test the abilities and knowledge of boiler operators. Although not a regimented program the insurance company tries to informally gauge the quality of the boiler operators to assure that the equipment is well maintained. When an inspector tours a facility prior to the issuance of a policy, he interviews the boiler operators, having them run through the operating procedures. The inspector presents his opinions in a report filed with the insurance company. If the boiler operators seem unqualified, the company can recommend that better trained people be employed. This sort of recommendation is generally not a requirement for the issuance of an insurance policy and seems to carry little weight.

As a means of guaranteeing the quality of boiler operators this program is incomplete in its coverage since not all insurance companies follow the same practice; it is also informal and inconsistent since the determination of competency rests solely on the insurance inspectors.

IV. Proposed Certification Program

General Approach

The goals of a state controlled certification program must be decided upon before an effective program can be developed and implemented. In the case of a solid waste operators program, there are a number of possible goals and a corresponding range of appropriate approaches. The state's level of involvement can vary from non-intervention in the workings of the private sector to total regulation of the resource recovery industry. To realize these various intentions the state can establish programs ranging from doing nothing to requiring that all solid waste facility employees be employed by the state. The appropriate role for the state lies within this range. Because the state is not directly involved in the operation of solid waste facilities it should not force its way into the operational aspects of the industry but rather its role should be to act as the protector of public safety and health. In this way the state will satisfy its need to watch out for potentially hazardous situations without trying to involve itself in an area where it has no experience.

One approach to protecting the public from health and safety hazards would be to require that all solid waste operators attend a state sponsored class on regulations affecting solid waste facilities. The class can be given periodically around the state. It can include not only discussions of the applicable regulations, but also their potential impacts on the operation of solid waste facilities. This approach would guarantee that solid waste facility operators know the regulations and how to comply with them.

This program could be supplemented by having the state publish the qualifications for key staff positions set forth in Section II to serve as guidelines for local officials faced with hiring solid waste facility staff but who are unfamiliar with solid waste operations.

As part of this study a more comprehensive certification program has also been considered, similar to the waste water treatment plant operators certification program described in Section III. This would

involve testing the operators on their knowledge of the different operations and equipment used in solid waste processing and disposal. Qualifications would be scrutinized by a central committee and minimum experience and educational levels could be set. The goal of this type of program is to control the quality of the operators to ensure efficient plant operation as well as assuring the protection of the public from health and safety hazards.

Gordian feels the job of staff quality control monitoring is more appropriate for the local governments or the owner/operators of the individual facilities. The state should not involve itself in this area for a variety of reasons. Traditionally, system vendors have supplied the training for people operating and working in solid waste facilities. This is appropriate because the vendors are more familiar with the systems than anyone else. The training they provide is generally of high quality, especially in the case of full service systems. But even when other people plan to run a facility, the vendors train the operators well to insure that the equipment will be well treated and maintained. The reputation of system vendors rests on the performance of their equipment, so they have a vital interest in the quality of the facility personnel.

The state would also have difficulties in adequately testing the technical abilities and knowledge of solid waste facility operators. Because of the relatively recent development of resource recovery systems no well established technologies have gained acceptance. Thus there are a variety of different technologies each requiring different operational qualifications or experience. It would be difficult for the state to amass enough expertise about all these technologies to reliably determine the qualifications needed to operate them. This would be a particularly difficult problem in the case of full service systems where the operators have been trained by and work for the system vendors.

Legal problems might also be encountered if an individual is denied certification based on the state's judgment that he is unqualified, and he challenges that judgment. System vendors might justifiably question the state's ability to determine the qualifications needed to operate the vendor's own systems.

Finally, there is the matter of the time and money required to implement the two approaches and the benefits derived from them. The presentation of a class on an annual or semi-annual basis is clearly less costly than the establishment of a panel or commission to review operator qualifications and administer tests.

Program Description

A description follows of how the certification program might be structured. The definitions of key words and phrases are important to include as they prevent misunderstandings. The definitions included here are based on the Connecticut General Statutes and regulations as revised in Section III. A discussion of the certification procedures provides a feeling for how the program might be implemented and updated. Who must be certified, how it would happen, and the renewal and revocation procedures are important factors which have to be spelled out to prevent confusion. The central ingredient in the program, the class, is also described along with the laws and regulations which should be covered in it.

For the purposes of this study "operator" means the persons who have responsibility for the operation and maintenance of a solid waste facility at any time. Using the job categories described in Section II, the plant manager and plant engineer should be specified as operators along with the shift foremen, who serve as operators during the shifts when neither the manager nor engineer were on site. A solid waste facility always has an operator at the plant while it is processing waste.

"Solid Waste Facility" is defined as any volume reduction plant or resource recovery facility in the state of Connecticut which handles more than 5 tons per day of solid waste.

The certification program will require that a solid waste facility have at least one certified operator on site during all working hours. The certification procedure will consist of a class to be attended by anyone seeking certification. The class will cover the laws and regulations pertinent to solid waste facility operation and maintenance. It will be offered annually. The commissioner will post notification of who must be certified, where and when the class is to be held, and the costs involved. Applicants will have to file an application with the commissioner not less than one month before the scheduled class and pay the application fee at that time. A fee of $(to be determined) will be charged for each application. This fee will help pay the costs of the teachers, booklets, stafftime, etc.

Attendance at the one-day class will satisfy all the requirements for certification. A booklet containing the laws and their major impacts will be given to each applicant at the class.

Upon completion of the class all attendees will receive a certificate stating that they are qualified to operate solid waste facilities. The certificates will be valid for two years. They may be renewed by sending a $(to be determined) renewal fee to the commissioner's office. As noted earlier, class attendance will not be required for renewals unless there are substantive changes in the laws.

The class will address the laws and regulations affecting the operation of solid waste facilities. For this purpose the D.E.P. will have to enlist the cooperation of appropriate state and Federal agencies so that their representatives will be able to come and discuss the various regulations. Laws and regulations which should be covered include:

- Resource Conservation and Recovery Act (RCRA), a Federal statute detailing the permissible disposal and handling practices for solid and hazardous wastes;
- Occupational Health and Safety Act (OSHA), a Federal law concerning safety and health practices in industry;
- Connecticut General Statutes Section 19-524a-o and Department of Environmental Protection regulations Section 19-524-1 through 19-524-14, pertaining to solid waste management;
- Connecticut and/or Federal air pollution laws and regulations; and
- Any other relevant legislation.

Local ordinances will not be covered as they are too site specific to be taught on a statewide basis. Local officials will maintain responsibility for disseminating information about their particular laws.

The emphasis of the class will be on the practical application of the various laws and regulations, i.e., how the laws affect the actual operation of the facilities.

The D.E.P. will have the right to change or add to the contents of the class as new laws and regulations are promulgated. The new laws would be incorporated into the class following their implementation and copies of the laws and their impacts on solid waste facility operations would be sent to all current certified operators.

The commissioner will be able to revoke the certificate of an operator, following a hearing before the commissioner or his designated representative, when it is found that the operator has practiced fraud or deception; that reasonable care, judgment or the application of his knowledge or ability was not used in the performance of his duties; or that the operator is incompetent or unable to properly perform his duties. Any appeals from the decision of the commissioner will be made to the court of competent jurisdiction.

In the event that an operator's job is vacated, and no certified operators are available to fill it, a non certified operator may take the position. He will be required to attend the next scheduled certification class.

The penalty for non-compliance with the provisions of this certification program will be a fine of not more than $(to be determined).

V. Conclusions and Recommendations

This report has addressed a broad range of issues relating to the establishment of a state-wide solid waste facility operator certification program in Connecticut. The major conclusions from the discussion of these issues are summarized below:

- There is a wide variety of solid waste management technologies available, each of which has substantial labor requirements, ranging from 15 to 96 personnel, depending on the tonnage handled. However, most of these personnel are not in positions that would require certification. Only the plant manager, plant engineer, shift foremen, and possibly the boiler operators should be considered candidates for a certification program.

- In view of the minimal potential for impact on equipment or public welfare, Gordian does not feel that it is appropriate to include transfer station personnel in a certification program.

- The qualifications for key personnel are difficult to explicitly define due to the wide range of technical approaches associated with different vendors. Generalized operator qualifications for key positions need to incorporate flexibility and are most appropriate as guidelines.

- The existing Connecticut statutes/regulations provide legislative backing for a certification program; however modifications should be made (as noted in text) in order to better define the specifics of the program.

- The Wastewater Treatment Plant program provides precedent for a comprehensive state managed operator certification program. Although that program appears to be working well, Gordian feels that it would not be appropriate for solid waste management; wastewater treatment plants are exclusively publicly-owned and operated while solid waste facilities are not; consequently, Gordian feels that some of the problems currently associated with that approach would be exacerbated if applied to solid waste management.

In summary, Gordian recommends that the most appropriate program for the State of Connecticut to implement would be one that is based on the following points:

- Published sets of qualifications for key positions in solid waste facilities to serve as guidelines for local administrators

- Annual (or semi-annual depending on demand) classes designed to ensure that operators in key positions are familiar with all relevant Federal and State laws and regulations governing solid waste management. A test would not be necessasry, but a certificate would be issued upon completion of the class. The certificate would be required in order to hold one of the designated key positions in solid waste management facilities within the state.

- The certificate would be renewable by sending in a fee unless significant changes in the laws indicated the need for current certificate holders to return for a supplementary class.

- Formal state review of qualifications along with technical competency testing was deemed inappropriate. Gordian feels that the individual system vendors are best equipped to evaluate operator's qualifications. Equipment vendors are already engaged in screening, hiring, and training operators for their systems, regardless of whether they themselves will own/and or operate the facility.

The program as outlined above may require some refinement before actually being implemented. However, Gordian feels that this general approach is preferred and we hope that the DEP will consider it carefully before proceeding.

APPENDIX A

Background Data for Labor Requirements

RDF LABOR REQUIREMENTS

Size (TPD)	200	500	500	650	650	900	1000	1000	1000	1200	1800	2000	2000
Source	Ames	Raytheon Study	Raytheon Study		New Orleans	Milwaukee Wisconsin	Raytheon Study	Raytheon Study	Chicago SW	E. Bridgewater	Bridgeport	Raytheon Study	Oyster Bay(CEA)
# of Operating Shifts	1	1	2	2	2	1	1	2	1			2	
Plant Manager	1	1	1	1	1	1	1	1	1	1	1	1	2
Plant Engineer		1	1				1	1	1			1	1
Shift Foreman	1	1	2	2	2	2	1	2	1	4	7	2	5
Process Operator	3	4	6		6		6	8	2	4	6	12	11
Front End Loader Operator	1	2	4	2	9	2	4	4	3	4	6	8	
Traffic Director	1	1		2			1	1	1	4	6	1	
Weight Clerk/Typist	1	1	1	1	2	5	2	1	1			2	
Quality Control Tech.		1	2	1	1	1	1	2		1	3	2	2
Control Room Operator	1	1	2			1	1	2	2	4	6	2	4
Recovery Area Operator	1	3	3	4	7	4	5	5		2	12	8	1
Boiler Operator										4	5		
Refuse Picker	1			4		4				4	7		
Mechanic, Electrical		1		1	2	2	2	2	2			3	
Mechanic, Maintenance	2	1	2	1	3	8	3	2	3			4	15
Mechanic, Welder		1	2		3		2	2		7		3	
Maintenance Foreman	1	1	2			2	2	2	1		15	3	4
Stock Clerk		1	2			2	2	2	6	12	21	3	1
Laborer					4								
Trades Helper		2	2				3	4				5	
Secretary	0.5	1	1		1	3	2	2				2	4
Janitor	4					4	1	1	1			1	
Bookkeeper	0.5				1	1	1	1				1	1
Service Attendant				1									
TOTAL	19	24	33	20	42	42	41	45	25	51	95	64	51

WATERWALL LABOR REQUIREMENTS

Size (TPD)	220	350	600	700	900	1000	1000	1000	1200	1200	1800
Source	Uppsala, Sweden	Harrisburg, PA	Quebec	Hamburg/ Stellingermoor	Onondaga County	Stadtwerke Dusseldorf	Oyster Bay Proposal	Saugus	St. Paul Proposal	Rhode Island Proposal	Proposal
# of Operating Shifts	3	4	4		4	4			4	4	
# of Boilers		2	4		3						4
Plant Manager	1	2	2	1	1	1	1	1	1	1	1
Admin/Accountant				1	1	1	1	1	2	1	1
Operations Supervisor/ Plant Engineer	2	1	5 [a]	1	1	7	0.5	2	1	1	1
Clerk/Secretary				6	1	1	2	3	1	2	1
Stock Clerk			2			1			1	1	1
Water Technician					1			1	1		
Shift Foreman		4		5	4	4	5	4	4	4	4
Control Room Operator		5			4					4	
Crane Operator	3	5		5	4	5	6	5	8	8	6
Boiler Operator	3	5		10	8	16	5	14	12	4	8
Lab/instrument Tech.		1	35	5	1	1	1		0.5	1	1
Tipping Floor Spotter		2				5	3	5	1	2	1
Yard/Residue Operator/ Driver	3	4			6	19	4	5	5	5	7
Guard						2	4				
Weigh Clerk/Clerical	3	3	4				1	1	1	1	5
Laborer		25		10	6		9	6	6	2	
Maintenance Foreman		2		1		3	0.5	1	1	1	1
Electrician		2	8	4	3	2	1		0.5	2	2
Mechanic, welder	3	3		7	5		2	9	2	1	2
Mechanic, maintenance		8		8		6	4		1	4	3
Helper		4			7					2	3
Machinist					3	9			2		
Janitor		2									1
TOTAL	18	78	56	64	56	83	50	58	51	47	49

[a] Plant engineers also serve as shift foremen.

MODULAR INCINERATOR LABOR REQUIREMENTS

Size (TPD)	17	21	50	100	100	125	150	300
Source	Pahokee, Florida	Siloam Springs, AR	N. Little Rock, AR	Orlando, Florida	Salem, Virginia	Auburn Model	Auburn Model	Auburn Model
# of Shifts	1	1	3		3	3	3	3
# of Incinerators	2	2		8		5	3	6
Plant Manager	1	1	1	1	1	1	1	1
Shift Foreman				1		3	3	3
Weigh Clerk/Typist/ Office Manager	1		1	1	1	1	1	1
Process Operator					6	4	4	4
Relief loader/ Maintenance	1	2	6	6		4	4	4
Mechanic					2	1	1	2
Truck Driver			1			1	1	1
TOTAL	3	3	9	9	10	15	15	16

TRANSFER STATION LABOR REQUIREMENTS

Size	30	100	110	120	150	200	220	290	300	390	450	600	650	670
Source	Hanover Mass.	Brookline Mass.							Baltimore County		Detroit		Lane County	
# of Shifts	1	1	1	1	1	1	1	1	1	2	1	1	1	1
Manager/Supervisor	1	1	0.5	1	0.5	4	1	1	1	1	1	1	1	1
Front End Loader Operator													1	
Spotter/Compactor Operator	2.5	3	1	3	3	10	4	4	4	11	6	5	1	7
Maintenance		1											1	
TOTAL	3.5	5	1.5	4	3.5	14	5	5	5	12	7	6	4	8

APPENDIX B

Relevant Connecticut Solid Waste
Statutes/Regulations

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING HARTFORD, CONNECTICUT 06115

SOLID WASTE MANAGEMENT
Connecticut General Statutes
Section 19-524a-o

Sec. 19-524a. Definitions. For the purposes of this chapter:

(a) "Commissioner" means the commissioner of environmental protection or his authorized agent;

(b) "Department" means the department of environmental protection;

(c) "Solid waste" means useless, unwanted or discarded solid materials, not excluding semisolid and liquid materials other than sewage collected and treated in a municipal sewerage system, but shall not include scrap materials held for reuse or resale by a scrap meterials dealer;

(d) "Solid waste facility" means any solid waste disposal area, volume reduction plant or resource recovery facility operated by any municipal or regional authority or any person if such area, plant or facility handles more than five tons a year of solid waste;

(e) "Volume reduction plant" means a plant, having the capacity to process in excess of two thousand pounds per hour of waste material input, which plant is designed primarily for the purpose of reducing the volume of solid waste which must finally be disposed of, including but not limited to incinerators, pulverizers, compactors, shredding and baling plants, transfer stations, and compost plants or other plants which accept and process refuse for recycling, reuse and resource recovery;

(f) "Solid waste disposal area" means the location utilized for ultimate disposal of wastes as approved by the department;

(g) "Recycling" means a method of reducing the volume of wastes which results in the separation, extraction, refinement or utilization of wastes to produce energy or material which may then be reused in manufacture, agriculture or in other processes

(h) "Resource recovery system" means a solid waste management system which provides for collection, separation, recycling and recovery of solid wastes, including disposal of nonrecoverable waste residues;

(i) "Municipality" means any town, city or borough within the state;

(j) "Municipal authority" means the local governing body having legal jurisdiction over solid waste management within its corporate limits;

(k) "Regional authority" means the administrative body delegated the responsibility of solid waste management for two or more municipalities which have joined together by creating a district or signing an interlocal agreement or signing a mutual contract for a definitive period of time;

(l) "Region" means two or more municipalities which have joined together by creating a district or signing an interlocal agreement or signing a mutual contract for a definite period of time concerning solid waste management within such municipalities;

(m) "Solid waste management plan" means an administrative and financial plan for an area which considers solid waste storage, collection, transportation, volume reduction, recycling, reclamation and disposal practices for a twenty-year period, or extensions thereof;

(n) "Municipal collection" means solid waste collection from all residents thereof by a municipal authority;

(o) "Contract collection" means collection by a private collector under a formal agreement with a municipal authority in which the rights and duties of the respective parties are set forth;

(p) "Solid waste planning region" means those municipalities within the defined boundaries of regional planning agencies or as prescribed in the state solid waste management plan.

(1971, P.A. 845, S. 1; June, 1971, P.A. 1, S. 5; P.A. 73-646, S. 1.)

Sec. 19-524b. Powers and duties of commissioner re solid waste management. Qualifications of facility operators. Facility permits and plans. (a) The commissioner shall administer and enforce the planning and implementation requirements of this chapter. He shall examine all existing or proposed solid waste facilities and provide for their planning, design, construction and operation in a manner which ensures against pollution of the waters of the state, prevents the harboring of vectors, prevents fire and explosion and minimizes the emission of objectionable odors, dust or other air pollutants so that the health, safety, and welfare of the people of the state shall be safeguarded and enhanced and the natural resources and environment of the state may be conserved, improved and protected. The commissioner shall order the alteration, extension, limitation, closure or replacement of such facilities whenever necessary to ensure against pollution of the waters of the state, prevent the harboring of vectors, prevent fire and explosion hazards and minimize the creation of objectionable odors, dust or other air pollutants so that the health, safety and welfare of the people of the state shall be safeguarded enhanced and the natural resources and environment of the state may be conserved, improved and protected provided, before ordering the closure of any solid waste facility, said commissioner shall provide reasonable alternative facilities for the users of such facility. In any such order, the commissioner may require the submission of and compliance with a plan for the design, construction and operation of such facility in accordance with the provisions of this section.

(b) The qualifications of the operator or operators of any solid waste facility operated by any municipal or regional authority or any person engaged in owning or operating such a facility for business shall be subject to the approval of the commissioner.

(c) No solid waste facility shall be built, established or altered after July 1, 1971, until the plan and design and method of operation of the same have been filed with the department and approved by the commissioner by the issuance of a permit, provided, nothing in this chapter or in chapter 361b shall be construed to limit the right of any local governing body to regulate, through zoning, land usage for solid waste disposal.

(d) Whenever the commissioner issues a permit for a solid waste disposal area under this chapter to any person, he shall cause a certified copy thereof to be filed on the land records in the town wherein the land is located.

(e) All plans for new solid waste facilities submitted to the commissioner shall conform with an approved regional plan as soon as such plan is approved by the commissioner.

(1971, P.A. 845, S.2; P.A. 73-646, S.2; P.A. 76-25; P.A. 77-221; P.A. 78-67, S.1,2.)
See Sec. 22a-6c.

Sec. 19-524c. Regulations. The commissioner shall promulgate regulations governing solid waste management, and permits, as provided for in subsection (c) of section 19-524b, shall be conditioned upon conformance with such regulations as well as applicable laws.

(1971, P.A. 845, S.3.)
Cited. 168 C. 278.

Sec. 19-524d. Demonstration resource recovery systems or improved solid waste facilities. The commissioner may acquire necessary property and equipment, or interests therein, and contract for the construction, including planning and design, and leasing, operation and maintenance of demonstration resource recovery systems or improved solid waste facilities, or both, on a local, regional or statewide basis by private enterprise, a municipality or regional authority.

(1971, P.A. 845, S.5; P.A. 75-303; S.1,2)

Sec. 19-524e. Solid waste management plans. (a) The commissioner shall be responsible for the preparation of a solid waste management plan for each solid waste planning region of the state not later than July 1, 1973. In carrying out the preparation of said plans, the commissioner shall, to the maximum extent feasible, allow the state's regional planning agencies to prepare such solid waste management plans. All such plans shall be approved by the department. Not later than July 1, 1975, each municipality shall adopt a regional or a local solid waste management plan prepared, reviewed and approved in accordance with subsection (b) of this section.

(b) Not later than January 1, 1975, each municipality, through a municipal or regional authority, shall submit (1) a proposed local solid waste management plan; or (2) a proposed regional solid waste management plan, to the commissioner and the regional planning agency to whose jurisdiction such municipality is designated in the state's solid waste management plan for their review. Such proposed plan shall be consistent with the provisions of this chapter. If the commissioner finds, after consultation with the appropriate regional planning agency, that such proposed plan is consistent with the provisions of this chapter, the commissioner shall notify the municipality or regional authority having submitted the plan for review that such proposed plan is approved. If the commissioner finds after consultation with the appropriate planning agency that such proposed plan is not in compliance with the provisions of this chapter, the commissioner shall communicate the existence and extent of the deficiencies to the municipal or regional authority which submitted the plan for review. The municipality, through its municipal or regional authority, and after consultation with the commissioner and the appropriate planning agency, shall thereafter make such revisions in its proposed plan as may be necessary to correct the deficiencies enumerated by the commissioner. If the municipality, through its municipal or regional authority, makes the revisions required by the commissioner to correct such deficiencies, the commissioner shall thereafter approve the plan.

(c) The commissioner may from time to time issue guidelines for the purpose of assisting municipalities in developing solid waste management plans in conformity with the provisions of this chapter.

(1971, P.A. 845, S.6; P.A. 74-276.)

Sec. 19-524f. Grants to municipal and regional authorities for plan preparation. The commissioner shall make grants for providing financial assistance to municipal and regional authorities for the preparation of solid waste management plan. The grant to each municipal authority shall equal ten per cent of the nonfederal portion of the cost of preparing the plans. An additional ten per cent shall be paid for each additional municipality included in the plan but not more than seventy per cent of the total cost of the nonfederal portion being granted by the commissioner to a regional authority.

(1971, P.A. 845, S.10.)

Sec. 19-524g. (Formerly Sec. 19-84a). Approval of solid waste disposal contracts. (a) All contracts made after July 1, 1971, by any city, town, borough or regional authority with any person, another municipality or regional authority to provide for collection, transportation, processing, storage and disposal outside of its boundaries of solid wastes generated within its boundaries, or any of such services, shall be reviewed and have the approval of the commissioner as conforming to recognized standards of public health and safety before they can be implemented.

(b) The commissioner shall not approve any such contract unless he finds that the facility to which the waste is to be transported for processing, storage and disposal has been issued a permit pursuant to subsection (c) of section 19-524b and has the necessary capacity to accommodate the terms of the contract.

(1969, P.A. 367; 1971, P.A. 845, S.4; P.A. 77-37.)

Sec. 19-524h. (Formerly Sec. 19-507d). Commissioner to administer and control funds. The commissioner of environmental protection is designated as the officer of the state to manage, administer and control funds appropriated by the general assembly or authorized by the state bond commission, and any and all other state and federal funds made available for carrying out the provisions of this chapter. No grant shall be made under this chapter if such grant, together with all grants awarded prior thereto, exceeds the amount of funds available therefor.

(1969, P.A. 758, S.24; 1971, P.A. 845, S.7; 872, S.16.)

Sec. 19-524i. Review of applications for federal funds. The commissioner shall review all applications for federal funds related to solid waste management prepared by any municipal or regional authority within the state.

(1971, P.A. 845, S.8.)

Sec. 19-524j. Department to apply for and receive funds. Cooperation and agreements with federal government. The department is designated as the administrative agency of the state to apply for and accept any funds or other aid and to cooperate and enter into contracts and agreements with the federal government relating to the planning, developing, maintaining and enforcing of the solid waste program.

(1971, P.A. 845, S.9.)

Sec. 19-524k. Grants to reduce solid waste volume reduction and disposal operation costs. The commissioner shall make grants for providing financial aid to municipal and regional authorities to reduce their solid waste volume reduction and disposal costs of operation. An annual amount equal to twenty-five cents per capita shall be paid to a single municipal authority which carries on operations that comply with the public health code of the state. An additional annual five cents per capita shall be granted for each municipality in the region up to a maximum of fifty cents per capita. These funds may be used to hire needed personnel, purchase equipment and replacement parts, and make any necessary modifications or repairs to facilities or sites and equipment used in processing and disposal of solid wastes.

(1971, P.A. 845, S.13)

Sec. 19-524l. (Formerly Sec. 19-507b). State aid to municipal and regional authorities for volume reduction plants and landfill operations. (a) The commissioner shall make a grant to any municipal or regional authority composed of two or more municipalities which, after July 1, 1969, constructs a volume reduction plant. He shall also make grants to any municipal or regional authority which, after July 1, 1969, rebuilds, reconstructs, redesigns or acquires new machinery, equipment and or buildings for the primary purpose of reducing, controlling or eliminating air pollution in connection with waste disposal, including planning and design. In the case of a municipal or regional authority which, on said date, is in the process of constructing, rebuilding, reconstructing, redesigning or acquiring new machinery, equipment or buildings, such grant shall apply only to that part of

the facility constructed, rebuilt, reconstructed or redesigned, or machinery, equipment or buildings acquired after said date. If the commissioner has approved a solid waste management plan for the municipal or regional authority, the project shall conform with such plan. The grant under this section shall be subject to the following conditions: (1) No grant shall be made for any such facility or equipment unless such facility or equipment, and the plans and specifications therefore are approved by the commissioner and such facility is constructed or such equipment is installed in accordance with a time schedule of the commissioner and subject to such requirements as the commissioner shall impose. If the commissioner requires that the facility or equipment be approved by a federal agency, such grant shall be conditional upon the municipal or regional authority complying with all of the requirements of such agency; (2) no grant shall be made until the municipal or regional authority has agreed to pay that part of the total cost of the facility or equipment in excess of the applicable state and federal grants; (3) as used in this subdivision, "cost" means the nonfederal portion of the cost of the facility or equipment or, if there is no grant available under a federal act, the actual cost jof the facility or equipment as approved by the commissioner. The grant to a single municipality shall equal twenty-five per cent of the cost of such facility or equipment; an additional ten per cent shall be granted for each additional municipality in the region but not more than sixty-five per cent of the cost of such facility or equipment; an additional grant of five per cent of the cost of such facility shall be paid if the municipal or regional authority shall provide for the disposal of bulky wastes in a manner approved by the commissioner; (4) the grant under this section shall be paid in partial payments as the commissioner shall provide; (5) nc grant shall be made unless the municipal or regional authority assures the commissioner of the proper and efficient operation and maintenance of the facility after construction; (6) no grant shall be made unless the municipal or regional authority has filed properly executed forms prescribed by the commissioner and (7) any municipal or regional authority receiving state or federal grants under this section shall keep separate accounts by project for the receipt and disposal of such eligible project funds.

(b) Subject to the provisions of subsection (a) of this section, the commissioner shall make a grant to any municipal or regional authority which, after July 1, 1969, purchases equipment or constructs buildings in conjunction with a sanitary landfill operation approved by the commissioner. Purchase of equipment or construction of buildings shall not be undertaken without the prior approval of the commissioner.

(1969, P.A. 758, S.22, 23; 1971, P.A. 483, S.1; 845,S.11; 872, S.13, 14.)
See Sec. 19-524m.

Sec. 19-524m. (Formerly Sec. 19-508a). Grants to municipal or regional authorities for improvements of waste disposal facilities. The commissioner shall make a grant to any municipal or regional authority which, prior to July 1, 1969, constructed a volume reduction plant or rebuilt, reconstructed, redesigned or acquired new machinery, equipment or buildings in connection with waste disposal, which grant shall be twenty-five percent of the principal amount of bond or note obligations of such municipal or regional authority, issued to finance such construction rebuilding, reconstruction, redesign or acquisition and outstanding on said date, exclusive of all interest costs and for which grant application is made on an application prescribed

by the commissioner. Such grant shall be paid in equal annual instalments at least thirty days prior to the date the municipal or regional authority is obligated to make payment on such bonds or notes, provided any grant under this section shall be reduced by any amount payable to such municipality or region under the provisions of section 19-524l for the same construction, rebuilding, reconstruction, redesign or acquisition project, such reduction to be prorated over the period remaining for the payment of such bonds or notes.

(1969, P.A. 751, S.9; 1971, P.A. 483, S.2; 845,S. 12; 872,S.18.)

Sec. 19-524n. Municipal provisions for disposal of solid waste. (a) Each municipal authority shall make provisions for the safe and sanitary disposal of all solid wastes which are generated within its boundaries, including septic tank pumpings and solid wastes from commercial and industrial sources but excluding industrial wastes which are toxic, hazardous to handle or may cause contamination of ground and surface waters. Such disposal may be in areas within its own boundaries or arrangements may be made for disposing of these wastes in any other municipality. The method of disposal of toxic or hazardous wastes shall be approved by the commissioner. If arrangements are made for transportation of solid wastes to another municipality or out of the state, the provisions of section 7-161 and section 7-162 shall be complied with. In complying with this section, a municipal authority may, by action of its legislative body, provide for the levying of a charge for the disposal of solid wastes brought to the disposal area or areas provided by said municipal authority, by persons other than those in the employ of the municipality while in the course of such employment.

(b) Nothing in this section shall be construed to abrogate or in any way interfere with any agreement entered into by any municipal authority with another municipality prior to April 9, 1976.

(1971, P.A. 845, S.14; P.A. 76-34, S. 1-3.)
Cited 168 C. 278. Cited 174 C. 146, 151.

Sec. 19-524o. Contracts with regard to solid waste management. The state, any municipal or a regional authority may make contracts for the exercise of its corporate powers with respect to the collection, transportation, volume reduction and disposal of its solid wastes for a period not exceeding twenty years.

(1971, P.A. 845, S.15.)

Department of Environmental Protection

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Solid Waste Management

The following regulations are effective January 4, 1978

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Solid Waste Management

Sec. 19-524-1. Title

This section shall be known and may be cited as "Solid Waste Management Regulations."

Sec. 19-524-2. Definitions

(a) The definitions of terms used in these regulations shall be consistent with the definitions in Section 19-524a of the General Statutes.

(b) The following terms not defined in Section 19-524a are defined as follows:

(1) Natural Resource Systems means the total system produced by the interaction or interdependence of the earth materials, the atmospheric system and the biologic system for any designated geographic area. These systems include but are not limited to the characteristics and behavior of soil, unconsolidated geologic material, bedrock, surface water, subsurface water, air, climate, and the biota.

(2) Ground water means water present in the zone of saturation of an aquifer.

(3) Water table means that surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere.

(4) Maximum high water table means the highest elevation reached by the upper level of the ground water as determined by prudent engineering evaluation and in accordance with test methods acceptable to the Commissioner.

(5) Cover material means soil or other suitable material used to cover compacted solid waste in a solid waste disposal area. This material shall be classified as GM, silty gravels, poorly graded gravel-sand-silt mixtures; GC, clayey gravels, poorly graded gravel-sand-clay mixtures; SM, silty sands, poorly graded sand-silt mixtures; SC, clayey sands, poorly graded sand-clay mixtures, ML, inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity in accordance with the unified soil classification system

(6) Working face means that portion of the disposal area where the waste is deposited, spread and compacted prior to the placement of cover material.

(7) Vector means an insect or rodent or other animal (not human) which can transmit infectious diseases from one person or animal to another person or animal.

(8) Operator means an individual who is responsible for maintaining the solid waste disposal area in conformance with regulations and permit.

(9) Surface water means the tidal waters, harbors, estuaries, rivers, brooks, watercourses, waterways, lakes, ponds, springs, marshes, drainage systems and all other surfaces, bodies or accumulations of water, natural or artificial, public, or private which are contained within, flow through or border upon this State or any portion thereof.

(10) Transfer station means a solid waste facility that is a central collection point for the solid waste generated within a municipality or group of municipalities where solid wastes received are transferred to a vehicle for removal to another solid waste facility.

(11) Leachate means that liquid which results from ground or surface water which has been in contact with solid waste and has extracted material, either dissolved or suspended, from the solid waste

(12) Hazardous wastes mean solid and liquid wastes in the following classifications:

(a) explosives

(b) pathogenic wastes

(c) radioactive wastes

(d) chemical wastes which either create an immediate safety hazard to persons disposing of the waste or which by virtue of their chemistry and/or the method of disposal present a threat, as determined by the Commissioner, to the quality of ground or surface waters.

(e) hospital operating room wastes.

(13) Bulky waste means landclearing, demolition or other non-putrescible wastes. The term bulky waste includes, but is not necessarily limited to, the following: tires, rubble and stumps, and white goods.

(14) Person means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other state, the United States, or political subdivision or agency thereof or any legal successor, representative, agency or any agency of the foregoing.

(15) Clean fill means natural soil which is inert in terms of leaching and does not pose a pollution threat to ground or surface waters.

(16) Cell construction method means the spreading, compacting and covering daily of solid wastes in areas which are enclosed by at least three (3) walls or berms of soil.

Sec. 19-524-3. Public availability of information

(a) Any records, reports or other information obtained by the Commissioner or any file with the Department shall, pursuant to the provisions of Section 1-7 through 1-20 of the Connecticut General Statutes, as amended, be made available to the public. Upon a showing, satisfactory to the Commissioner, by any person that such records, reports or other information, or particular parts thereof, if made public, would divulge methods or processes entitled to protection as trade secrets of such person, the Commissioner shall consider such record, report or information, or particular part thereof, confidential, except that such record, report or information may be disclosed to other officers, employees, or authorized representatives of the State concerned with carrying out these regulations or when relevant in any hearing conducted by the Department of Environmental Protection or in any judicial proceeding, subject to such safeguards as the hearing officer or presiding judge may impose.

(b) The Commissioner, when he deems it appropriate, may require any person requesting information under this section to pay the cost of reproducing such information.

Sec. 19-524-4. Permits for solid waste facilities

(a) Permits under this regulation shall not be required for the following facilities:

(1) Solid waste facilities at which less than five (5) tons per year of solid waste are processed or disposed of, provided that hazardous or toxic wastes are not disposed of at the area.

(2) Areas for the disposal of clean fill which do not pollute ground and surface waters of the State of Connecticut.

(b) Application for permits. (1) Any person, municipal authority or regional authority that builds, establishes or alters a solid waste facility after July 1, 1971, must obtain a permit pursuant to Sections 19-524(b) and 25-54(i), Connecticut General Statutes unless excluded by Section 19-524-4(a) of these regulations.

(2) Application for each solid waste facility permit shall be made by the owner or operator of the facility on forms furnished by the Commissioner. Each application shall include all information required by the most current regulations or guidelines published by the Department

regarding such facility; however, nothing in these regulations shall prevent the Commissioner from requesting additional information concerning an application if he determines that such additional information is necessary.

(3) For purposes of permit application, the Commissioner shall classify solid waste disposal areas. Such classification may include, but need not be limited to the following scheme:

(a) Existing solid waste disposal areas where future disposal will take place only in areas where solid waste had previously been disposed of.

(b) Existing solid waste disposal areas where future disposal will take place in areas where no solid waste had previously been disposed of.

(c) New solid waste disposal areas to be permitted after satisfactory review and approval of an application.

Information required by the Commissioner shall depend upon the class of the solid waste disposal areas. Such information shall be outlined in Guidelines prepared by the Department.

(4) An application will not be deemed to have been received by the Department until all papers and documents required in support of the application have been submitted in proper form. The Department shall determine within ten (10) working days of receipt of a prepared application whether it is complete and shall so notify the applicant.

(5) The Commissioner shall inform an applicant of the decision on the application within sixty (60) days of the receipt of the application. The Commissioner may, on notice to the applicant, extend the time for acting on the application an additional sixty (60) days.

(6) The Commissioner may impose any reasonable conditions upon an approval of a solid waste facility.

(c) **Transferability.** The holder of a permit may not transfer it without prior written permission of the Commissioner.

(d) **Denial or revocation of a permit.** (1) A permit may be denied if the Commissioner determines that:

(a) the engineering information and operation and management plan submitted by the applicant indicates that the solid waste facility will not be operated in compliance with applicable statutes or regulations; or

(b) the facility is not consistent with the municipal or regional authority's 20 year solid waste management plan adopted pursuant to Section 19-524e, Connecticut General Statutes.

(2) Revocation of a permit. A permit may be revoked or modified for failure to comply with the terms of the permit or violation of any applicable regulation or statute.

(3) If additional data becomes available which indicates that the operation and management, and engineering of the facility as outlined in the original permit and application is insufficient to maintain the facility in compliance with applicable regulations or statutes, the Commissioner may modify the permit of such facility to assure compliance with regulations and statutes. Any permittee who had knowledge of such data or information must inform the Commissioner in writing of such data or information within thirty (30) days.

(4) Notice of denial, revocation or modification of a permit shall set forth the reasons for the action taken and shall be effective as stated therein and shall be considered an order of the Commissioner for purposes of administrative appeal under Section 19-524-11 of these regulations.

(5) Public information and hearing procedures. (a) In all cases where there is a requirement of legal notice, the Commissioner shall cause the applicant to publish at his own expense all notices of hearings and notices required by law.

(b) The Commissioner shall inform the public of decisions approving, denying, or conditionally approving any permit.

(6) Signature. No permit issued under this section shall be effective until both the applicant or his duly authorized representative and the Commissioner shall have signed the permit which signatures shall constitute an agreement to abide by the terms and conditions therein.

Sec. 19-524-5. Certification

(a) **Certified operator present.** An operator certified by the Commissioner or a designee of the certified operator must be present at the solid waste facility at all times during operating hours, except as provided by Section 19-524-5 (c) of these regulations.

(b) **Certification procedure:** (1) Persons desiring to be certified shall make application with the Commissioner on forms provided by the Commissioner.

(2) Before an applicant is certified, he shall demonstrate to the Commissioner that he has had sufficient training in solid waste facility operational procedures so that he will be able to oversee the operation of the solid waste facility in accordance with applicable State and Federal laws and regulations. Such training may consist of on-the-job or classroom instruction or a combination of both in solid waste management procedures and public health and safety.

(3) The Department of Environmental Protection shall administer to applicants for certification an examination designed to test the knowledge of the applicant regarding operational procedures of a solid waste facility relative to public health, safety and environmental matters. Such examination may be written, oral or performance oriented.

(4) Upon satisfactory fulfillment of the requirements of these regulations by an applicant, the Commissioner shall issue a certificate designating his competency and knowledge of solid waste facilities and their operation. Certificates shall be valid for a period of two (2) years from date of issuance. Certificates are revocable, following opportunity for hearing, for non-compliance with State laws and regulations when such non-compliance is the result of the operator's action or inaction. Revocation of an operator's certification shall be considered an order of the Commissioner for purposes of administrative appeal under Section 19-524-11 of these regulations.

(5) To renew an operator certificate that has expired, the operator must have completed an on-going training course that is offered by the Department of Environmental Protection for maintenance of proficiency and renewal of certificate.

(c) **Loss of certified operator.** In the event a solid waste facility's operator has his certification revoked, it lapses or the operator leaves for any reason, the facility shall be considered in compliance with State law and regulations regarding solid waste facility operator certification provided that the Department has in writing an agreement with the owner of operator or permittee of the facility to send its current operator to the next State-run course and to have the operator take the next State Certification examination when it is administered.

Sec. 19-524-6. Management of solid waste disposal areas

The following standards shall apply to all solid waste disposal areas.

(a) **Protection of ground and surface waters.** (1) Minimum separation from ground waters. A minimum of sixty (60) inches shall be maintained between the base of deposited solid wastes and the maximum high water table or bedrock unless the permittee can establish to the satisfaction of the Commissioner that some lesser separation will be adequate to insure against contact of solid wastes with ground water. This provision shall not apply to solid

aste disposal areas subject to existing State solid waste permits which expressly authorize a minimum separation from ground waters or bedrock of less than sixty (60) inches, provided that the permittee establishes to the satisfaction of the Commissioner that the continuation of solid waste disposal in accordance with such existing permit will not result in contact of solid waste with ground water.

(2) The solid waste disposal area shall be graded and/or provided with drainage facilities to minimize infiltration or rainfall or surface runoff onto the area, to prevent erosion or washing of the area, and to prevent the collection of standing water on the area. The final surface of the area shall be graded to a slope of at least four (4) per cent unless otherwise authorized by the commissioner, and the side slopes shall not exceed a grade of one (1) on three (3), one vertical on three horizontal, unless otherwise authorized by the commissioner.

(3) Flood plains. The deposited solid waste shall be adequately protected from washout and displacement by 50-year flood waters.

(4) Surface water. Solid waste shall not be deposited so as to come in contact with surface watercourses. Disposal operations shall be conducted so as to minimize impact on watercourses. The commissioner shall determine as required by site conditions if a minimum separation distance should be maintained.

(5) Erosion control. Siltation or retention basins or other approved methods of retarding runoff should be used where necessary to avoid stream siltation or flooding problems due to excess runoff.

(6) Wells. A minimum of one thousand (1000) feet shall be maintained between deposited solid wastes and wells used for water supply purposes unless the owner or operator can establish to the satisfaction of the commissioner that some lesser separation will be adequate to insure against pollution of the waters withdrawn by or from said wells. Nothing in these regulations shall prevent the commissioner from requiring a greater separation distance when physical conditions necessitate such action to insure against pollution of the waters withdrawn from said wells

(b) **Access to area:** (1) Access roads. All-weather roads which provide access between public roads or highways and the solid waste disposal area shall be maintained so as to be passable by all vehicles which utilize the area.

(2) Access to the disposal area shall be controlled to prevent unauthorized use. Control may be accomplished through use of appropriate fences, gates and signs.

(c) **Fire protection.** Appropriate measures shall be taken to prevent and control fires.

(d) **Measuring procedures.** Daily records for regional facilities. Daily records shall be maintained in a manner acceptable by the commissioner. Such record shall be available for inspection by representatives of the department at any time. Monthly summaries of these records shall be submitted to the department no later than ten (10) days after the last day of each quarter.

(e) **Certified operators.** (1) An operator, certified by the Commissioner in accordance with Section 19-524b(b), Connecticut General Statutes, or a designee of the certified operator shall be present at a solid waste disposal area at all times during working hours to ensure that operations are conducted in conformance with applicable statutes and regulations.

(2) Unloading of solid wastes shall be restricted and controlled by the operator so as to facilitate the proper handling of solid wastes. Salvage at the working face shall be prohibited.

(3) The operator shall maintain a daily log, as prescribed by the Commissioner to record operational information.

(f) **Working face.** (1) Size of working face. The working face of a solid waste disposal area shall be so confined as to be easily maintained with the available equipment.

(2) The cell construction method of sanitary landfilling shall be used Solid waste shall be spread in layers not to exceed three feet thick while confining it to the smallest practicable area in order to conserve capacity of the solid waste disposal area, minimize moisture infiltration and settlement and public health problems. Each individual cell shall not exceed ten (10) feet in height unless the owner or operator of such solid waste disposal area can establish to the satisfaction of the commissioner that individual cells with a height greater than ten (10) feet may be utilized without interfering with the safe and sanitary operation of said disposal area. Cover material shall be used on each cell according to Section 19-524-6 (i).

(g) **Equipment.** (1) The equipment used for spreading, compacting and covering shall be of sufficient size and number to achieve maximum compaction and efficient operation as recommended by the Commissioner in the current guidelines.

(2) Equipment maintenance facilities. Provision shall be made for the routine operational maintenance of equipment at the solid waste disposal area or elsewhere, and for the prompt repair or replacement of equipment.

(3) Alternative equipment. The owner or operator of a solid waste disposal area shall establish a contingency plan outlining procedures for obtaining alternative equipment or other alternative method of disposal in the event of equipment breakdown.

(h) **Blowing litter.** Blowing litter shall be controlled by providing fencing near the working area or by the use of earth banks or natural barriers acceptable to the Commissioner. Solid wastes shall be unloaded in such a manner as to minimize scattering. The entire solid waste disposal area shall be cleared of litter at the end of each working day.

(i) **Cover operations.** (1) Cover material. Cover material shall be applied and compacted to a minimum thickness of six (6) inches on all exposed wastes by the end of each working day.

(2) Intermediate cover. On all but the final lift of a solid waste disposal area, if more than nine months is expected to elapse before another lift is added, a layer of suitable intermediate cover material, compacted to a minimum uniform depth of one (1) foot, shall be placed on such area and suitable vegetative cover shall be planted and maintained thereon.

(3) Final cover. A uniform layer of suitable final cover material compacted to a minimum depth of two (2) feet shall be placed over the entire surface of each portion of the final lift not later than one week following the final placement of solid waste in that portion of the area. Upon application of final cover, the area shall be regraded to prevent erosion and ponding, and suitable vegetative cover shall be planted and maintained thereon.

(j) **Vector control.** (1) Conditions shall be maintained that are unfavorable for the harboring, feeding and breeding of vectors.

(2) Additional means for controlling and exterminating vectors shall be instituted, whenever necessary in the judgment of the Commissioner, to prevent the transmission of disease.

(k) **Decomposition gases.** Decomposition gases generated within the solid waste disposal area shall be controlled, as necessary, to avoid posing hazard to any persons and property and to minimize adverse environmental effects.

(l) **Exclusion.** (1) Hazardous wastes and/or Industrial wastes which are toxic, hazardous to handle or may cause contamination of ground or surface waters shall be excluded from the solid waste disposal area or dis-

posed of under the direction of the Department of Environmental Protection and with written approval from the Commissioner.

(2) Liquid wastes shall be excluded from the solid waste disposal area or disposed of under the direction of the Department of Environmental Protection and with the written approval from the Commissioner.

(m) **Resource recovery.** Materials to be recycled shall be maintained in a separate area so as not to interfere with disposal operations. Materials held for reuse or resale shall be adequately screened or removed at frequent intervals.

(n) Within ninety (90) days of completion of construction, the department shall be furnished with a complete set of as-built drawings of the facility.

Sec. 19-524-7. Operation and management of solid waste transfer stations

(a) An applicant wishing to establish a solid waste transfer station must obtain approval of the plans and specifications from the Department by issuance of a permit.

(b) An application for a transfer station shall include, but need not be limited to the following:

(1) An application form as prescribed by the Commissioner.

(2) A site plan, complete construction plans and specifications of the facility and all appurtenances, and an operation and management plan developed in accordance with applicable guidelines.

(3) A copy of any haul-away contract made by a city, town, borough or regional authority for collection, transportation, processing, storage and disposal outside its boundaries of solid wastes generated within its boundaries in accordance with Section 19-524g, Connecticut General Statutes.

(c) The plans for a transfer station which will operate for a period greater than two (2) years, submitted pursuant to Section 19-524-7(b)(2) shall indicate, at a minimum, that the following procedure or practices will be undertaken:

(1) A sign shall be posted at the entrance to the operation, which indicates the name of the permittee and hours of use of the operation; penalty for non-authorized use; necessary safety precautions; and any other pertinent information.

(2) A building roofed and enclosed on all sides or otherwise enclosed to satisfactorily control dust, litter, and other waste materials shall be provided.

(3) Screening shall be provided for a transfer station located within 500 feet of a residence.

(4) The station shall be operated under the close supervision of responsible individuals who have been certified by the Department and who are thoroughly familiar with the requirements and the operational procedures of the transfer station.

(5) Access shall be limited to those times that an attendant is on duty.

(6) There shall be no storage of solid waste in the building or yard for a period greater than 48 [forty-eight] hours, unless otherwise approved by the commissioner.

(7) Unloading of solid waste shall take place only within the enclosed structure and only in approved designated areas.

(8) Solid waste shall be confined to the unloading, loading and handling area.

(9) The transfer station and adjacent area shall be kept clean and free of litter.

(10) Sewage solids or liquids or other toxic or hazardous wastes in quantities detrimental to the normal operation of the transfer station shall be excluded unless for special handling have been submitted to the Department and approved in writing.

(11) Dust generated by the unloading of solid waste and the operation of the transfer station shall be controlled at all times so as to comply with the applicable Administrative Regulations for the Abatement of Air Pollution.

(12) Odor resulting from the unloading of solid waste and the operation of the transfer station shall be controlled at all times so as to comply with the applicable Administrative Regulations for the Abatement of Air Pollution.

(13) No open burning of solid waste shall be conducted except upon compliance with Section 19-508-17, Administrative Regulations for the Abatement of Air Pollution.

(14) Solid waste which is burning or is at a temperature likely to cause fire or is of a highly flammable or explosive nature shall not be accepted in the transfer station.

(15) Equipment shall be provided to control accidental fires and arrangements made with the local fire protection agency to immediately acquire services when needed.

(16) Means shall be provided to control flies, rodents and other insects or vermin.

(17) Provision shall be made for the routine operational maintenance of the transfer station and appurtenances.

(18) If for any reason the transfer station is rendered inoperable, an approved alternative method shall be available for solid waste processing.

(19) Should plans be made for termination of the operation of a transfer station, the permittee shall notify the Department in writing a minimum of 30 days prior to the proposed termination date and shall submit details of proposed alternative methods for solid waste processing and disposal or any further information deemed necessary by the Department.

(20) A minimum of twenty-four (24) hours storage capacity shall be provided for solid wastes in stations which have a design capacity of more than one hundred (100) tons of solid wastes per eight (8) hour day.

(d) Plans for transfer stations which will operate for a period of less than two (2) years submitted pursuant to Section 19-524-7(b) (2) shall contain information the Commissioner shall prescribe through Guidelines.

(e) Measuring procedures. Daily records for transfer stations. Daily records shall be maintained of all solid wastes received at all solid waste transfer stations. The records shall be maintained in a manner acceptable by the commissioner. Such records shall be available for inspection by representatives of the department at any time. Monthly summaries of these records shall be submitted to the department no later than ten (10) days after the last day of each quarter.

(f) Within ninety (90) days of completion of construction, the department shall be furnished with a complete set of as-built drawings of the facility.

Sec. 19-524-8. Bulky waste disposal

(a) Any person wishing to establish a solid waste disposal area specifically for bulky wastes, must obtain approval of the plans and specifications from the Department by issuance of a permit.

(b) An application for a bulky waste disposal area shall include, but need not be limited to the following:

(1) An application form as prescribed by the Commissioner.

(2) A site plan, complete construction plans and specifications of the facility and all appurtenances, and an operation and management plan developed in accordance with applicable guidelines.

(c) The plans submitted pursuant to Section 19-524-8(b)(2) shall indicate, but need not be limited to, that the following procedures or practices shall be undertaken:

(1) Bulky wastes will not be placed so as to contact with either ground or surface water. A minimum of twenty-four (24) inches shall be maintained between the base of deposited bulky wastes and the maximum high water table, unless specifically authorized otherwise by the commissioner.

(2) All bulky wastes shall be spread and compacted upon deposit. The working face of the disposal area shall be so confined as to be easily maintained with available equipment.

(3) Deposited bulky wastes shall be covered weekly or at such more frequent intervals as necessary to prevent fires and the harborage and breeding of vectors.

(4) Access to the disposal area shall be controlled to assure safe and sanitary operation of the facility.

(5) Upon completion of any portion of the operation, said portion shall be closed in accordance with Section 19-524-12 of these regulations.

(d) This regulation does not require separate bulky waste disposal areas to be established. Disposal of bulky wastes at a site operated under Section 19-524-6 of these regulations must comply with that section.

(e) Within ninety (90) days of completion of construction, the department shall be furnished with a complete set of as-built drawings of the facility.

Sec. 19-524-9. Variances

(a) Any owner or operator of a solid waste facility may apply to the Commissioner for a variance from one or more of the provisions of these regulations or guidelines promulgated hereunder. Variance may be sought for design of operation and maintenance procedures and/or temporary operations.

(b) Requests for variance shall be on forms prescribed by the Commissioner and shall supply such information as he requires, including but not limited to:

(1) the nature and location of the solid waste facility.

(2) the reasons for which the variance is required, including the economic, technological and environmental justification.

(3) a description of interim control measures to be taken by the facility in lieu of compliance and any possible damages occurring therefrom.

(4) a specific schedule of measures to be taken to bring the facility into eventual compliance with those regulations from which the variance is sought.

(5) any other relevant information the commissioner may require in order to make a determination regarding the application.

(c) No variance shall be approved unless the applicant shall establish to the commissioner's satisfaction that:

(1) Conditions occurring during the period of variance will protect the public health, the natural resources and environment of the state and control air, water, and land pollution.

(2) Compliance with the regulation would produce practical difficulty or hardship without equal or greater benefits to the public.

(3) A variance may not be granted for a period to exceed two (2) years.

(d) In making a determination on granting a variance, the commissioner shall consider:

(1) the character and degree of injury to or interference with safety, health, natural resources and environment or the reasonable use of property which is caused or threatened to be caused:

(2) the social and economic value of the activity for which the variance is sought:

(3) the suitability of unsuitability of the activity to the area in which it is located:

(4) the impracticability, both scientific and economic, of complying with the regulation from which the variance is sought.

Sec. 19-524-10. Violations

(a) No person shall violate or cause the violation of any applicable regulation.

(b) **Remedies for violations.** (1) The Commissioner shall designate employees of the Department of Environmental Protection who shall, acting with or without complaints, conduct investigations and ascertain whether the Department's regulations are being complied with.

(2) Whenever these employees determine that any regulation promulgated by the Commissioner has been violated or there has been a failure to comply therewith, they shall make and serve upon the person or persons responsible for the violations or failure, a written order specifying the nature of the violation or failure and affording a reasonable period of time for its correction. Nothing herein shall be construed to limit the rights of the commissioner to proceed with any other remedies that he may deem necessary.

(3) Unless the person or persons on whom an order has been served files a written answer thereto with the Commissioner within the time stated in the order and requests a hearing thereon, in accordance with Section 19-524-11 such order shall become final and effective.

Sec. 19-524-11. Hearings

(a) Any person considering himself aggrieved by order of the Commissioner issued pursuant to Section 19-524b, Connecticut General Statutes, may file a written answer and request a hearing in accordance with Section 22a-8-2, Regulations of Connecticut State Agencies.

(b) Any proceeding wherein a hearing is held shall be considered a contested case as defined by Section 4-166, Connecticut General Statutes, and such proceeding shall conform to the requirements of the Connecticut Administrative Procedure Act, Section 4-166 et seq., Connecticut General Statutes.

Sec. 19-524-12. Closing of solid waste facilities

(a) If an owner or permittee intends to close a solid waste disposal facility, he must notify the Commissioner of his intention to do so at least thirty (30) days prior to the closing.

(b) When closing a solid waste disposal area, the regulations governing such closing are 19-524-6(a) (2) concerning grading and seeding; 19-524-6(i) (3) concerning final cover; 19-524-6(j) (2) concerning vector control and 19-524-6(k) concerning decomposition gases.

(c) The Commissioner may require additional construction or information submitted, as he deems necessary, to insure the proper closing of any facility so as to preserve and protect the natural resources and environment of the State of Connecticut.

(d) The Commissioner shall inspect or cause to be inspected all solid waste facilities that have been closed to determine if the closing is complete. He shall notify the owner of a closed solid waste facility if the closing is satisfactory and shall order necessary construction or other steps to be taken to bring unsatisfactory sites into compliance with applicable regulations.

(e) Information concerning the use of the site following closing shall also be submitted to the Commissioner for his approval.

(f) Within ninety (90) days of completion of construction, the department shall be furnished with a complete set of as-built drawings of the facility.

Sec. 19-524-13. Contract approval

The operator of any solid waste facility to receive solid wastes through the provisions of a contract submitted to the commissioner for approval pursuant to section 19-524g of the Connecticut general statutes shall submit the following information to the commissioner:

(a) Information to be submitted if the facility is a disposal area:

(1) Unless previously submitted, a detailed site map showing the proposed final topography of the site. The map shall be developed in conformance with the guidelines prepared pursuant to section 19-524-4b (3) (c) of these regulations.

(2) A topographic survey of all permitted areas which have been filled as of a date no more than six (6) months prior to the date of contract execution. The survey maps shall be developed in conformance with the guidelines prepared pursuant to section 19-524-4b (3) (c) of these regulations.

(3) Daily records of all wastes received at the facility prepared in accordance with section 19-524-6d of these regulations since the topographic survey was made pursuant to section 19-524-13 (a) (2) of these regulations.

(4) Unless previously submitted, all monthly summaries of wastes received from any municipal or other source which may continue to use the site during any part of the proposed contract term. If no summaries are available, copies of contracts, lists of sources and estimates of volumes of all wastes expected to be received during the life of proposed contract shall be submitted

(5) Any further information deemed by the commissioner to be necessary to determine whether the proposed contract should be approved.

(b) Information to be submitted if the facility is a transfer station, resource recovery facility, or other volume reduction facility:

(1) Daily records of all wastes received at the facility prepared in accordance with section 19-524-7 (e) if the facility is a transfer station, and in accordance with 19-524-14 (d) (1) if the facility is a resource recovery facility.

(2) All information deemed by the commissioner to be necessary to determine whether the proposed contract should be approved.

(c) The commissioner may impose any conditions he deems necessary upon an approval of the contract.

(d) No contract approval shall be effective until all contract parties and the commissioner shall have signed the appproval. Such signatures shall constitute an agreement to abide by the terms and conditions therein.

Sec. 19-524-14. Operation and management of solid waste resource recovery facilities

(a) Approval of plans and specifications. Any person wishing to establish a solid waste resource recovery facility must obtain approval of the plans and specifications from the department by issuance of a permit.

(b) Application for permits. An application for a resource recovery facility shall include, but need not be limited to the following:

(1) An application form as prescribed by the commissioner.

(2) Complete engineering plans, specifications on all process equipment, material flow and balance and an operational and management plan developed in accordance with applicable guidelines.

(3) Any additional information requested by the commissioner concerning an application which he determines is necessary.

(c) Plans and specifications. The plans for a resource recovery facility which will operate for a period greater than two (2) years, submitted pursuant to section 19-524-14 (b) (2) shall indicate, at a minimum that the following procedure or practices will be undertaken:

(1) A sign shall be posted at the entrance to the operation, which indicates the name of the permittee and hours of use of the facility; penalty for non-authorized use; necessary safety precautions; and any other pertinent information.

(2) There shall be no storage of solid waste in the facility or yard for a period greater than twenty-four (24) hours except in the event of an emergency when the storage will be limited to the design storage capacity.

(3) Unloading of solid waste shall take place only within the enclosed structure and/or only in approved designated areas.

(4) Solid waste shall be confined to the unloading, loading and handling area.

(5) The facility and adjacent area shall be kept clean and free of litter.

(6) Sewage solids or liquids or other toxic or hazardous wastes as in quantities detrimental to the normal operation of the resource recovery facility shall be excluded unless the facility is designed to handle such materials or plans for the special handling have been submitted to the department and approved in writing.

(7) Dust resulting from the unloading of solid waste and the operation of the resource recovery facility shall be controlled at all times so as to comply with the applicable administrative regulations for the abatement of air pollution.

(8) Odor resulting from the unloading of solid waste and the operation of the resource recovery facility shall be controlled at all times so as to comply with the applicable administrative regulations for the abatement of air pollution.

(9) Equipment shall be provided to control fires and arrangements made with the local fire protection agency to immediately acquire services when needed.

(10) The resource recovery facility design and/or equipment shall provide for explosion protection.

(11) If for any reason the resource recovery facility is rendered inoperable, an approved alternative method shall be available for the processing or transfer and disposal of solid waste.

(d) Measuring procedures. (1) Daily records for resource recovery facilities. Daily records shall be maintained of all solid wastes received at all resource recovery facilities. The records shall be maintained by completing forms provided by the commissioner. Such records shall be available for inspection by representatives of the department at any time. Monthly summaries of these records shall be submitted to the department no later than ten (10) days after the last day of each quarter.

(e) Within ninety (90) days of completion of construction, the department shall be furnished with a complete set of as-built drawings of the facility.

Be it known that the foregoing regulations are amended as hereinabove stated by the aforesaid agency pursuant to section 19-524C of the general statutes, after publication in the Connecticut Law Journal on September 6, 1977, of the notice of the proposal to amend such regulations, and the holding of an advertised public hearing on the 11th day of October, 1977.

Wherefore, the foregoing regulations are hereby amended as hereinabove stated, effective when filed with the Secretary of the State.

In Witness Whereof: October 24, 1977, Stanley J. Pac, Commissioner.

APPENDIX C

Connecticut Regulations Governing
Wastewater Treatment Plant
Operator Certification

Certification of Operators of Wastewater Treatment Plants

Section 1. Sections 25-26-7 to 25-26-14, inclusive, are hereby repealed.

Sec. 2. The regulations governing certification of operators of wastewater treatment plants is amended to add sections 25-26-15 to 25-26-23 as follows:

Sec. 25-26-15. General

Each wastewater treatment plant in the state of Connecticut classified under section 25-26-22 of these regulations shall have a qualified wastewater treatment plant operator who shall possess a certificate of the grade of that plant or higher. The commissioner may waive this requirement for certain types and sizes of plants. These regulations are promulgated under authority of section 7 of Public Act No. 872 and section 25-26 of the Connecticut General Statutes.

Sec. 25-26-16. Definitions

As used in sections 25-26-15 to 25-26-23, inclusive,

(a) "Commissioner" means the commissioner of environmental protection;

(b) "certificate" means certificate of competency issued by the commissioner stating that the operator has met the requirements for the specified operator classification of the certification program,

(c) "wastewater treatment plant" means the facility or group of units provided for treatment of wastewater,

(d) "wastewater treatment plant operator" means the person who has direct responsibility for the operation of the wastewater treatment plant,

(e) "population equivalent" means the calculated population which would normally contribute an equal amount of biochemical oxygen demand per day, computed on the basis of two-tenths pounds of five day, twenty degrees Centigrade, biochemical oxygen demand per capita per day. The term "population" as used herein to express strength of wastewater or persons served by a wastewater treatment works is considered to mean "population equivalent".

Sec. 25-26-17. Application for certification

(a) An operator desiring to be certified shall file application with the commissioner not later than one month preceding the date of the examination on an application form provided by the commissioner.

(b) The commissioner shall review applications and supporting documents, determine the eligibility of the applicant for the examination and notify him of his status in writing.

Sec. 25-26-18. Examinations

(a) The commissioner shall prepare written examinations to be used in determining knowledge, ability and judgment of the operators.

(b) Examinations shall be held at least once annually at places and times set by the commissioner, with at least thirty days advance notice given by the commissioner.

(c) Except in such cases as the commissioner may decide represent proper exceptions, all examinations shall be written. All examinations shall be graded by the commissioner, or by his designee, and the applicant shall be notified of the outcome. Papers will not be returned to the applicant, but the results shall be reviewed with a member of the state department of environmental protection upon request by the applicant.

(d) Separate examinations shall be prepared to cover basic differences in the duties and responsibilities of oper-

ators, types of facilities, variations in wastewater quantity and quality, conditions of receiving waters and other pertinent matters.

(e) Applicants who fail to pass an examination may request the examination at subsequent regularly scheduled examinations but no sooner than six months after failing the previous examination. No applicant shall be permitted to take more than two (2) examinations of the same grade within an eighteen month period.

Sec. 25-26-19. Issuance of certificates.

(a) Upon satisfactory fulfillment by an applicant of the requirements provided herein, the commissioner shall issue to him a suitable certificate designating his competency. The certificate shall indicate the class of treatment plant for which the operator is qualified. The certificate shall be prominently displayed in the office of the wastewater treatment plant.

(b) Certificates shall be permanent unless revoked for cause, replaced by one of a higher grade or invalidated under subsection (c) or (d) of this section.

(c) Certificates shall be valid only so long as the holder uses reasonable care, judgment and application of his knowledge in the performance of his duties. No certificate shall be valid if it was obtained through fraud, deceit or the submission of inaccurate data on qualifications.

(d) The certificates of operators who terminate their employment at a treatment plant shall be valid for two years after such termination and thereafter shall automatically be invalidated. Operators whose certificates are invalidated may be issued new certificates of like classification on presentation of appropriate proof of competency to the commissioner. Successful completion of an examination may be required at the discretion of the commissioner.

(e) Certificates may be issued, without examination, in a comparable classification to any person who holds a certificate issued by any state, territory or possession of the United States, any country, or the New England Water Pollution Control Association if in the judgment of the commissioner the requirements for certification of operators under which such person's certificate was issued do not conflict with the provisions of these regulations.

(f) Certificates of proper classification may be issued without examination to a person or persons certified by the governing body or owner to have been in responsible charge of the wastewater treatment plant or system on the effective date of these regulations.

(g) Certificates issued without written examination, except (e) above, shall be valid only in that plant or system by which the operator was employed at the time the certificate was issued.

Sec. 25-26-20. Revocation of certificate.

The commissioner may revoke the certificate of an operator, following a hearing before the commissioner or his designated representative, when it is found that the operator has practiced fraud or deception, that reasonable care, judgment or the application of his knowledge or ability was not used in the performance of his duties or that the operator is incompetent or unable properly to perform his duties. Appeal from the decision of the commissioner may be made to any court of competent jurisdiction.

Sec. 25-26-21. Advisory committee.

(a) The commissioner shall appoint an advisory committee composed of at least six persons as follows. Three shall be operators certified as to competency under provisions of these regulations, two shall be members of the staff of the department of environmental protection whose regular duties involve wastewater treatment plant operation; one shall hold the position of either city or town manager, city or town engineer or municipal director of public works, or their equivalent and one shall be a qualified educator familiar with operator training.

(b) Each member of the committee, with the exception of the members from the department of environmental protection, shall be appointed for a three year term except in the case of the initial appointment. The municipal representative and one of the operators shall be appointed for one year, one of the operators shall be appointed for two years, one of the operators and the educator shall be appointed for three years.

(c) The advisory committee shall serve without compensation and shall meet at the discretion of the commissioner.

(d) The committee shall advise and assist the commissioner in the administering of the certification program as follows:

(1) Review the classification of the waste treatment plants;

(2) encourage other operators in addition to those required by virtue of their responsibility as operator in charge to become certified,

(3) promote regular training schools and programs.

(4) review and assist in the preparation of the written examinations,

(5) review revocations of certificates.

Sec. 25-26-22. Classification of wastewater plants.

(a) The commissioner shall, from time to time, classify wastewater treatment plants into categories based on type and complexity of plant and the design population equivalent. Normally, design population equivalent shall be used. In cases where actual population may not reach design population for a considerable number of years the actual population may be used. In general, the categories will be as indicated in subsections (b) to (h) inclusive, as in this section. The commissioner may upgrade individual plants above the standard category if in his opinion the complexity of plant and degree of skill required for its operation are not properly accounted for in the following categories:

(b) Grade I Plants

(1) Plants serving up to five thousand population employing non-mechanical biological treatment.

(c) Grade II Plants

(1) Plants serving under five thousand population.

(d) Grade III Plants

(1) Plants serving five thousand to fifteen thousand population.

(e) Grade IV Plants

(1) Plants serving fifteen to fifty thousand population.

(f) Grade V Plants

(1) Plants serving fifty thousand to one hundred thousand population.

(g) Grade VI Plants

(1) Plants serving one hundred thousand to two hundred thousand population.

(h) Grade VII Plants

(1) Plants serving more than two hundred thousand population.

Sec. 25-26-23. Qualifications of wastewater treatment plant operators.

(a) There shall be seven grades of operators to parallel the classification of plants described in section 25-26-22. Grade I certified operators shall be considered as qualified to supervise operation of Grade I plants. Grade II certified operators shall be considered as qualified to supervise operation of Grade II plants, etc.

(b) Applicants in all classifications shall meet the following general requirements:

(1) Be in satisfactory physical condition,

(2) be able to read and write in the English language;

(3) produce evidence of satisfactory completion of educational courses available and recognized by the commissioner consistent with the grade applied for,

(4) be able to maintain desirable logs and records of operation and maintenance in a treatment works of a classification consistent with the grade applied for,

(5) produce evidence satisfactory to the commissioner of ability and experience in handling men and dealing with the public to a degree consistent with the requirements of the grade applied for;

(6) produce evidence satisfactory to the commissioner of

(A) Satisfactory moral character; (B) integrity, (C) ability to cooperate with others; (D) industriousness, initiative and judgment to a degree necessary to secure satisfactory operating results.

(c) Education may be substituted for a portion of the experience required in subdivisions (2) to (6), inclusive, of subsection (d) to the degree here indicated. Experience, to be acceptable, shall be the result of satisfactory accomplishment of work.

(1) For Grade I, no substitution;

(2) for other grades as follows, except for the limitation in subdivisions (2), (3), (4) and (5) of subsection (d):

Extent of Education	*Experience Equivalent*
Bachelor's degree.	
In sanitary, chemical or public health engineering	5 years
In civil, mechanical or electrical engineering	4 years
In chemistry or bacteriology	4 years
In other fields or an associate degree in the above specialized areas	3 years
Graduation from high school	2 years

(3) Various other educational and experience attainments shall be considered as experience to the degree adjged proper by the commissioner.

(d) Operator Grades

(1) Grade I Operator. Applicants for this grade shall submit satisfactory evidence of at least one years experience in responsible charge or in operation of a plant in this, or a higher grade. Educational attainment shall be satisfactory to the commissioner.

(2) Grade II Operator: Applicants for this grade shall submit satisfactory evidence of at least two years experience in responsible charge of a plant in grade I or higher, or two years experience in operation of a plant in grade II or higher; and submit satisfactory evidence of mechanical or chemical aptitude. Education may be substituted for not more than one year of experience, subsection (c) notwithstanding.

(3) Grade III Operator: Applicants for this grade shall pass a grade III examination; and shall submit satisfactory evidence of at least three years experience in responsible charge of a plant in grade II or higher or three years experience in operation of a plant in grade II or higher; and have an education equivalent at least to that of a high school graduate with mechanical or chemical aptitude. Education may be substituted for not more than two years of experience, subsection (c) notwithstanding.

(4) Grade IV Operator: Applicants for this grade shall pass a grade IV examination; and shall submit satisfactory evidence of at least five years experience in responsible charge of a plant in grade III or higher or of six years experience in the operation of a plant in grade III or higher; and have an education equivalent at least to that of a high school graduate, with mechnical and chemical aptitude. Education may be substituted for not more than three years of experience, subsection (c) notwithstanding.

(5) Grade V Operators: Applicants for this grade shall pass a grade V examination; and submit satisfactory evidence of at least six years experience in responsible charge of a plant in grade III or higher or of at least eight years experience in the operation of a plant in grade III or higher and have an education at least equivalent to that of a high school graduate with mechanical and chemical aptitude. Education may be substituted for not more than four years of experience, subsection (c) notwithstanding.

(6) Grade VI Operator. Applicants for this grade shall pass a grade VI examination, and submit satisfactory evidence of at least eight years experience in responsible charge of a plant in grade III or higher or of at least ten years experience in the operation of a plant in grade II or higher have a college education with a bachelor's degree in one of the fields for which four or more years of "experience equivalent" is allowed in subsection (c), except under those unusual circumstances where self-education of an individual can be accepted as a satisfactory substitute by the commissioner, and have a high degree of mechanical and chemical aptitude. Education may be substituted for experience to the degree indicated in subsection (c).

(7) Grade VII Operators: Applicants for this grade shall either be certified grade VI operators or have passed a grade VI examination, shall submit satisfactory evidence of at least ten years experience in responsible charge of a plant in grade III or higher; or at least twelve years experience in the operation of a grade III plant or higher, shall have a college education with a bachelor's degree in one of those fields for which four or more years of "experience equivalent" is allowed in subsection (c), except those unusual circumstances where self-education of an individual can be accepted as a satisfactory substitute by the commissioner, and have a high degree of mechanical and chemical aptitude. Education may be substituted for experience to the degree indicated in subsection (c)

(8) Operator-in-Training:

(A) The commissioner may permit an applicant for grade I, II, or III certification as a wastewater plant operator to take an examination in a given class, if the individual has submitted evidence of education or experience in technical fields other than wastewater works, for the purpose of becoming an operator-in-training.

(B) Prerequisites for examination, and designation as an operator-in-training are the same as the prerequisites in grade I, II and III except that the experience time in wastewater works may be waived.

(C) Upon successfully passing an examination, the applicant shall be designated as an operator-in-training indicating that he has technical knowledge in the particular class for which he was examined and that he will be issued a certificate upon submission of evidence that he has completed the experience requirements.

Statement of Purpose: To amend departmental regulations governing certification of operators of wastewater treatment plants, in order to meet the requirements resulting from the provision of secondary treatment at all Connecticut wastewater treatment plants by adding sections 25-26-15 to 25-26-23

Be it known that the foregoing rules and regulations are adopted and promulgated by the undersigned pursuant to Public Act No 872 of the 1971 Public Acts after publication in the Connecticut Law Journal on October 17, 1972, of the notice of the proposal to adopt them, the holding of an advertised public hearing on November 21, 1972, on the issuance thereof and after consideration of all relevant matter presented pertaining to Certification of Operators of Wastewater Treatment Plants

In Witness Whereof, I have hereunto set my hand and seal this 19th day of February, 1974

DOUGLAS M. COSTLE
Commissioner

Approved: Attorney General, March 29, 1974; Standing Legislative Regulations Review Committee, May 22, 1974 Received and filed Secretary of the State, June 6, 1974 Effective June 6, 1974

APPENDIX D

City of Bridgeport's
Power Engineers, Boiler Tenders, or
Water Tenders Licensing Ordinance

AN ORDINANCE REVISING THE ORDINANCES OF THE CITY OF BRIDGEPORT RELATIVE TO THE LICENSING OF POWER ENGINEERS, BOILER TENDERS, OR WATER TENDERS.

Be It Ordained by the Common Council of the City of Bridgeport.

Section 41-1 Board of Power Engineers. There shall continue to be a board to be known as the Board of Examiners of Power Engineers which shall consist of three members, each of whom shall be a resident of the city and two of whom shall be practical power engineers having at least ten years' experience in the operation of steam boilers, steam turbines and steam engines Annually during the month of December the Mayor shall appoint, as a member of said board for a term of three years, a person who shall come within the classification of the member whose term shall have expired Said board shall meet at such times as it may determine or upon the call of its chairman for the purpose of holding examinations for the licenses provided in this ordinance.

Section 41-2 Licenses Required. No person shall be the engineer of, or shall have charge of, or operate, or perform the duties of boiler tender or water tender for any steam boiler, steam turbine or steam engine operating with more than fifteen pounds gauge pressure or more than twenty-five horsepower without having procured a license therefor from said board, except as provided in this ordinance.

Section 41-3 Application for a License. Application for such license shall be made to the board upon such forms as shall be prescribed by it. The applicant shall clearly indicate thereon the character of the license, for which application is made and the maximum gauge pressure and horsepower of the apparatus which the applicant intends to operate under his license In applying for said license, the applicant may apply for an interim certificate authorizing him to act as a power engineer, boiler tender or water tender in a specified power plant under supervision as hereinafter provided in the interim between such application and the date upon which the board shall pass upon his application. No such interim certificate shall be issued unless the licensed power engineer, boiler tender or water tender under whose supervision the applicant is to act under said certificate joins in requesting its issuance Such certificate may be issued by the board or by its chairman when the board is not in session Under such certificate, the applicant shall be privileged to act as power engineer, boiler tender or water tender in a specified power plant under the supervision of a licensed power engineer if the applicant seeks to be licensed as a power engineer or under the supervision of a licensed power engineer, boiler tender or water tender if the applicant seeks to be licensed as a boiler tender or water tender. Such certificate shall expire and be of no effect sixty days after the date of its issuance or at such earlier date as the board shall have passed upon the applicant's license application, and shall be surrendered to the board upon its expiration.

Section 41-4 Licenses, Issuance and Renewal. No such license shall be issued to any person until he shall have been examined by said board and demonstrated that he is qualified by training and experience to be licensed by it. The examination may include a written test, oral test, practical test or any combination of such tests as the board may determine to be necessary to test the qualification of applicants.

Although licenses shall not be necessary for the operation of low pressure boilers, the board shall examine applicants for low pressure boiler operator's license and shall issue licenses to such applicants as it shall determine to be qualified to operate steam-boilers operating with less than fifteen pounds gauge pressure.

No person shall be eligible for examination by said board, and no license shall be issued to any person unless he shall have attained the age of

twenty-one years, shall be of temperate habits, shall be able to read and write the English language and unless he shall possess the following educational and experience qualifications.

(a) To be licensed as a power engineer, the applicant (1) shall have served as a journeyman boiler maker or machinist engaged in the construction or repair of steam boilers or steam engines for a period of not less than four years and shall have had one year's experience in the operation and maintenance of stationary steam power plants; or (2) shall have had not less than two years of study at an engineering school and one year's experience in the operation and maintenance of stationary steam power plants, or (3) shall possess a power or stationary engineer's or marine engineer's certificate issued by the United States or a power or stationary engineer's certificate issued by any State or government subdivision thereof, or (4) shall have been employed as a boiler tender or water tender for not less than three years and shall have had experience in the operation and maintenance of boilers and engines.

(b) To be licensed as a boiler tender or water tender, the applicant (1) shall have the foregoing qualifications provided for the licensing of power engineers; or (2) shall have been employed as a boiler tender, water tender, oiler or assistant to a power engineer, boiler tender or water tender operating stationary steam plants having in excess of fifteen pounds gauge pressure or twenty-five horsepower for a period of not less than one year; or (3) shall have had theoretical and practical training in a technical school for boiler or water tenders for not less than one year together with not less than six months practical experience in the operation of steam boilers.

(c) To be licensed as a low pressure boiler operator, the applicant (1) shall have the foregoing qualifications provided for the licensing of power engineers or boiler or water tenders; or (2) shall have had at least six months' experience as a boiler tender or water tender or as an assistant to a qualified power engineer, boiler tender or water tender; or (3) shall have had not less than six months theoretical and practical training in a technical school for boiler or water tenders; or (4) shall have had not less than one year's experience in the operation of low pressure boilers.

Section 41-5 License Fees. No application for any of the foregoing licenses shall be received until the applicant shall have paid to said board for the use of the City an examination fee of ten dollars for a power engineer's examination, five dollars for a boiler tender's or water tender's examination and five dollars for a low pressure boiler operator's examination. The examination fee shall not be refunded to any applicant who fails to pass said examination or who fails to present himself for examination at such time within sixty days of the application as said board shall assign for the examination to the applicant Said fee, however, shall be refunded to the applicant who is not examined by the board because of his failure to meet the qualifications requisite for examination. A like examination fee shall be paid to the board at the time of filing any subsequent application for a license which requires an examination by the board No license shall be issued by the board until the following fees have been paid to it. a fee of five dollars for a power engineer's license and a fee of three dollars for a boiler tender's, water tender's or low pressure boiler operator's license Any unrevoked license shall be renewed without examination for a further period of one year on payment of an annual renewal fee of five dollars for power engineer and three dollars for boiler tender, water tenders and low pressure boiler operators within thirty days after its expiration The board may, in its discretion, renew any license within sixty days after its expiration provided the applicant justifies his failure to renew the same within said thirty day period Any application for a license which is made after a period of sixty days after the expiration of any former license possessed by the applicant shall be treated as a new application. If any applicant shall fail to pass an examination, he may re-apply for a license and to be examined therefor after a lapse of thirty days from the date of his original examination. If an applicant shall fail to pass an examination a second or more times, he may not reapply for a license and for re-examination until a lapse of six months from the date of the last examination.

Section 41-6 License, Posting of. Each license shall designate the duties for which it is issued and the maximum gauge pressure and horsepower which the license may operate thereunder. Said license shall be framed and hung in a conspicuous place in the

plant, or upon or near the equipment being operated under said license

Section 41-7 Revocation of License; Appeal. Said board shall have the power to revoke any license, upon hearing held after not less than five days notice to the licensee, if any license shall have been obtained from the board through fraud or misrepresentation or if the holder of the license shall have been found guilty by the board or by a court of competent jurisdiction of any fraud, deceit, gross negligence, incompetency or misconduct in his duties Any person aggrieved by the action of the board in refusing to grant a license or in revoking a license issued under the provisions of this ordinance may appeal to the Mayor by filing such appeal with the Mayor within ten days after receiving notice of such action from said board and the Mayor shall thereupon appoint three disinterested persons who shall be residents of the city, two of whom shall be practical power engineers having at least ten years' experience in the operation of steam boilers, steam turbines and engines, who shall meet within one week following said appointment to examine the person aggrieved and to confirm or reverse the decision of said board If they shall find the applicant qualified and entitled to the license in question, then such license shall be issued forwith. A new license, to replace any license which has been lost, destroyed, or mutilated, may be issued subject to the rules of the board and upon the payment of two dollars for the same.

Section 41-8 Prohibition Against Unlicensed Operation. Except as provided in this ordinance, no owner, lessee, agent or any other person having control of any premises shall permit the control, management or operation of any boiler, engine or turbine of more than fifteen pounds gauge pressure or more than twenty-five horsepower to be entrusted to any person other than a power engineer, boiler tender or water tender licensed hereunder. No engine, boiler or turbine over one hundred horsepower shall be operated except by, or under the supervision of, a power engineer

Section 41-9 Exceptions. Nothing in this ordinance shall apply to the operation of the locomotives of any railroad, nor to the operation of any steamboat by persons duly licensed by authority of the Federal Government.

Section 41-10 Penalty. Any person who shall violate any provision of Section 2 or Section 11 of this ordinance shall be fined not more than one hundred dollars or imprisoned not more than thirty days or both.

Section 41-11 Enforcement. This ordinance shall be enforced by the Inspector of Combustibles of the Fire Department.

Section 41-12 Payment of Fees for Renewals of License of Power Engineers, Boiler Tenders and Water Tenders serving in the Military or Naval Forces of the United States. During the period of time that any power engineer, boiler tender or water tender shall be a member of the Military or Naval forces of the United States no license fee shall be required to be paid to the city as provided by ordinance for the renewal of power engineer, boiler tender or water tender licenses of such persons. If, upon the expiration of any existing power engineer, boiler tender or water tender license, it shall appear to the satisfaction of the Board of Examiners of Power Engineers that any power engineer, boiler tender or water tender is a member of the Military or Naval Forces of the United States, such licenses shall be renewed by said Board even though no application for such renewal shall have been made to it.

Adopted December 1, 1952.

Attest:

JOHN M BRANNELLY,

City Clerk.