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Appendix A

CWM Model City Transportation Rules and Regulations

CWM CHEMICAL SERVICES, LLC.
MODEL CITY FACILITY
TRANSPORTER RULES AND REGULATIONS

As the acknowledged leader in the hazardous waste industry, our responsibility is to establish very high hazardous waste management standards.

These standards provide maximum protection to our customers, employees, regulators, and the community.

A key component of our business is the transportation of wastes to our facility. Safe transport is as important as safe storage, treatment, destruction or disposal. Hence, we have developed very stringent transporter requirements to ensure the safety of our employees, our neighbors, and people in the communities in which we do business. Our concern for safety demands that we rigidly enforce these rules and regulations.

Therefore, we require that EVERY driver adhere to all Local, State and Federal laws, and our CWM Model City rules and regulations. Please review the attached Transporter Rules and Regulations. It is required that all transporters sign the acknowledgement page and that all drivers transporting to CWM Model City keep a copy of these rules and regulations in their vehicle.

Michael Mahar
District Manager
CWM Chemical Services, LLC.

Revised 2/1/07

Regulatory and CWM, Model City compliance:

All transporters will comply with all Federal DOT requirements as found in 49CFR; NYS DEC requirements as found in 6NYCRR Parts 364 and 373; and NYS DOT requirements as found in Parts 390-396 of the Federal Motor Carriers Safety Regulations. All transporters will also comply with this document, the Model City Transporter Rules and Regulations (Transporter Rules), which is referenced in our permit to operate. The Transporter Rules include restrictions included in the Community Advisory Committee (CAC) Agreement.

Scheduling:

- All trucks will be scheduled for arrival on site during operating hours. Drivers should arrive within 15 minutes on either side of their **scheduled appointment time**. If for any reason you cannot make your appointment, please contact the transportation department at 1-800-843-3604

- Trucks carrying waste will be scheduled for arrival prior to 7:15 am or after 9:15 am on the days when the Lewiston-Porter School is in session. CWM has agreed to a “black out” period for scheduled arrivals between 7:30 a.m. and 9:00 a.m. and 2:15 p.m. and 3:45 p.m. on school days. Trucks arriving during the “black out periods” mentioned above will be subjected to an offense*.

- Trucks carrying wastes or similar hazardous materials will be scheduled for arrival or departure during the hours of 5:00 a.m. and 10:00 p.m. Trucks must not enter the Towns of Lewiston or Porter other than during normal operating hours (5 a.m.-10 p.m.). Trucks arriving outside of normal business hours will be subjected to an offense*.

- All trucks transporting, in bulk, blended fuels, PCB contaminated oils, or liquid or solid materials, which present a risk of, vapor release or fuming will be scheduled to arrive or depart the facility between 5:00 - 7:00 a.m. or between 4:00 - 9:00 p.m. on the days when the Lewiston-Porter School is in session.

**See Violations and Penalties section on the next page.*

Designated Route:

State/Federal highways only when entering Niagara County to Rte. 104 or
NYS Thruway (I-190) north to Rte. 265 (north) to Rte. 104 then:

1. Route 104 to Route 18
2. North on Route 18 approximately 5 miles to Balmer Road
3. Right (east) on Balmer Road
4. Proceed 3 miles to Guardhouse at truck/plant entrance

The reverse should be followed when leaving the facility. All waste haulers MUST use this route unless the CWM guard directs the driver north on Route 18 to Route 93 east during school "black out" hours for empty loads only.

* **NO STOPPING OR STANDING** along the designated route.

* Absolutely **NO DEVIATION** from the designated route. Trucks are not to be on any roadway other than State/Federal highways when in Niagara County (with the exception of Balmer Road).

* **NO CONVOYS** in the Towns of Lewiston or Porter (keep trucks 1/4 mile apart) to the extent possible.

Inspection upon arrival

In accordance with CWM's Operating Permit, the Waste Transporter Permit and the transportation vehicle will be inspected and if any of the following are identified, the Department of Environmental Conservation (DEC) will be notified and the agency may pursue enforcement:

- No Waste Transporter Permit, expired permit or discrepancies in permit
- Leaking vehicle

Violations and Penalties

If any of the following violations are noted/reported, barring the most extenuating circumstances, it will be considered an offense and will be subject to the CWM enforcement program outlined below:

- Arrival during black out hours (7:30-9:00 a.m. and 2:15-3:45 p.m.) on school days
- Entering the Towns of Lewiston or Porter other than during normal operating hours (5 am- 10 pm)
- Traveling off the designated route
- Parking or standing on the designated route
- Convoying in the Towns of Lewiston or Porter

A first offense will subject the driver and hauling contractor to a warning. In addition, the driver and transporter will be requested to attend a transporter training class presented by CWM.

A second offense by the same driver within 3 months will subject the driver to a one-month ban from the site. In addition, before the driver can return to the site, he/she will be required to have attended and completed a transporter training class presented by CWM.

If a transporter has three or more offenses in a 3-month period (including single offenses by three separate drivers), a designated management representative from the transporter will be required to attend and complete the transporter training class. In addition, a loss of business penalty will be imposed. The transporter will be banned from the site for the equivalent of four weeks, which must be completed within six months from the date of the third violation.

CWM reserves the right to take further action other than that listed above, if, in CWM's judgement, further action is warranted.

On-Site:

Leaking vehicles will be addressed or corrected upon arrival at the expense of the transporter. Leaking loads that do not conform to the waste profile will be required to stop the leak before the vehicle leaves the facility.

Overweight vehicles may require special safety attention that may delay servicing loads and may result in special charges to the transporter.

CWM Site Safety Rules must be followed (refer to page 4).

CWM CHEMICAL SERVICES, LLC. SAFETY RULES

NYSDEC OHMS Document No. 201469232-00005

It is the policy of this facility to provide a safe and healthy working environment for our employees, contractors, drivers, and visitors entering our facility.

Please review and become familiar with the following requirements. They have been implemented specifically to assure that your visit to our site will not subject you, our employees and/or facility to any type of exposure, physical hazard, and/or any type of regulatory non-compliance. It is essential that you comply fully with these requirements.

*** Drivers must be trained and be current in OSHA Standard 29CFR 1910.120 Hazardous Waste Operations and Emergency Response. Drivers may be requested to provide current OSHA documentation.**

- **<u>Personal Protective Equipment (PPE):</u> A driver must provide his own equipment. Any driver who fails to wear the proper <u>PPE while on site</u> may be subject to a one-month ban from site. At a minimum, this equipment shall include:**
    1. **Hard hat, safety glasses (with side shields), long sleeved shirt, full length pants, and appropriate work shoes - must be worn upon entering the main gate and are out of your vehicle.**
    2. **Tyvek suits - tyvek must be worn while untarping.**
    3. **Tyvek suits and respirators - required inside the landfill perimeter and inside the Stabilization buildings.**
    4. **Gloves - must be worn when untarping/retarping vehicle and when off loading in the landfill.**
- **NO FACIAL HAIR POLICY - drivers <u>ARE NOT</u> permitted to have beards or facial hair which could prevent a good respirator face seal, as referenced in 29CFR, Part 1910.134 (e)(5)(i). This "Facial Hair" policy is strictly enforced.**
- **Use of cellular phones are prohibited while driving on site, dumping loads at stabilization, in landfill, or while on the Scale.**
- **All transporters are required to respond to emergency situations as directed by any member of supervision in the facility.**
- **Transporters shall report to CWM all accidents or occurrences (including spills) on site.**
- **Smoking or open flames <u>ARE NOT</u> permitted while within the facility. Smoking is permitted only in designated areas.**
- **Drivers are expected to remain in or near their vehicles except to scale in and out, tarp and untarp, complete paperwork, or perform activities necessary to unload or secure his vehicle after unloading (break room is exception).**
- **Eating is not permitted within the facility except in designated areas.**
- **<u>Drivers must observe & obey all posted safety and traffic signs and follow the instructions given by facility personnel.</u>**
- **Drivers are not to untarp their vehicles prior to staging at the sampling platform.**
- **Drivers must receive clearance before departing from the truck scale, sampling platform, before entering or departing the landfill cell, or stabilization building.**
- **Driver must notify the "Landfill Personnel" when entering the landfill if he believes his load is uneven, or if it contains potentially dangerous/awkward pieces that could present a hazard while unloading, and follow the directions of the operator in the landfill.**
- **Stay at least 50 feet from other vehicles in the landfill when unloading.**
- **Drivers must open tailgate of his vehicle prior to unloading.**
- **After unloading and while still inside the perimeter of the landfill cell, the driver must inspect his vehicle for the presence of waste residue. It is the driver's responsibility to remove this residue prior to leaving the cell. All tailgates or similar closures must also be secured prior to leaving the cell.**
- **Contaminated tyveks & gloves must be disposed of in the hazardous dumpster near the retarping racks. PPE discarded haphazardly is considered a violation and will be handled accordingly.**
- **NOTE: CWM personnel must clean the tires and inspect each vehicle prior to its departure from the landfill cell for waste residue on the wheels so as to prevent it from tracking waste out of the cell.**
- **Upon leaving the landfill, the truck will proceed directly to the retarp racks and then the scale prior to leaving the site. Depart the facility after all documents have been processed and the empty vehicle has been weighed. Absolutely no loitering.**

Revised 2/1/07

THE TRANSPORTER AGREES AND CERTIFIES THAT FOR ALL TRANSPORTER EMPLOYEES THAT WILL BE TRANSPORTING WASTE TO OR FROM CWM:

A. **ALL TRANSPORTER** Employees will comply with all Federal, State and Local Safety Laws and Rules.

B. **ALL TRANSPORTER** employees will comply with all CWM Chemical Services, LLC. Safety and Operating Rules and Regulations as posted by signs or communicated by other means at the Model City facility.

C. **ALL TRANSPORTER** employees have been trained in the applicable work tasks to be performed by them.

D. **ALL TRANSPORTER** employees, working in a site designated active/hazardous area, will be trained and are medically qualified in all facets of personal health and safety of hazardous waste operations and have received a minimum of 24 hours training in accordance with the general industry (OSHA) standards 29CFR 1910.120 "Hazardous Waste Operations and Emergency Response".

E. **ALL TRANSPORTER** employees will observe the "black out" hours (7:30am - 9:00 a.m. and 2:15pm - 3:45 p.m.) and arrive at Model City at their designated scheduled time.

F. **ALL TRANSPORTER** employees have been properly instructed to insure strict observation of all safety rules, regulations and routing.

G. **ALL TRANSPORTER** employees have been provided with a copy of this document and instructed to carry it in their vehicles at all times when transporting to CWM Model City.

H. **HE/SHE** will take positive action to cause all such employees to comply with all laws, rules and regulations contained in this document.

______________________________________ ________________________
Signature Date

____
Company Name

____
Company Address

__________________________ ______________________________
EPA Transporter ID# NYS DEC ID#

Revised 2/1/07

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Appendix B

Hazardous Materials Managed at the Model City Facility

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION)[**]

NYS Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
B001	PCB Oil (concentrated)	Toxic	B
B002	Petroleum Oil or other liquids (50 to 500 ppm)	Toxic	B
B003	Petroleum Oil or other liquids (greater than 500 ppm)	Toxic	B
B004	PCB Articles (50 to 500 ppm)	Toxic	B,L
B005	PCB Articles (greater than 500 ppm)	Toxic	B,L
B006	PCB Transformers	Toxic	B,L
B007	Other PCB Wastes	Toxic	B,L

[**]All footnotes may be referenced at the end of Table C-2 of the Waste Analysis Plan.

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F AND K DESIGNATION)**

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
D001	Ignitable waste	Ignitable	L,B,AT
D002	Corrosive waste	Corrosive	L,B,AT
D003	Reactive waste	Reactive	L,T
D004	Arsenic	Toxicity Characteristic	L,AT,B
D005	Barium	Toxicity Characteristic	L,AT,B
D006	Cadmium	Toxicity Characteristic	L,AT,B
D007	Chromium	Toxicity Characteristic	L,AT,B
D008	Lead	Toxicity Characteristic	L,AT,B
D009	Mercury	Toxicity Characteristic	L,AT,B
D010	Selenium	Toxicity Characteristic	L,AT,B
D011	Silver	Toxicity Characteristic	L,AT,B
D012	Endrin	Toxicity Characteristic	T,B,L
D013	Lindane	Toxicity Characteristic	T,B,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F AND K DESIGNATION)**

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
D014	Methoxychlor	Toxicity Characteristic	T,B,L
D015	Toxaphene	Toxicity Characteristic	T,B,L
D016	2,4-D	Toxicity Characteristic	T,B,L
D017	2,4,5-TP Silvex	Toxicity Characteristic	T,B,L
D018	Benzene	Toxicity Characteristic	B,T,L,AT
D019	Carbon Tetrachloride	Toxicity Characteristic	B,T,L,AT
D020	Chlordane	Toxicity Characteristic	B,T,L,AT
D021	Chlorobenzene	Toxicity Characteristic	B,T,L,AT
D022	Chloroform	Toxicity Characteristic	B,T,L,AT
D023	o-cresol	Toxicity Characteristic	B,T,L,AT
D024	m-cresol	Toxicity Characteristic	B,T,L,AT
D025	p-cresol	Toxicity Characteristic	B,T,L,AT
D026	Cresol	Toxicity Characteristic	B,T,L,AT

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F AND K DESIGNATION)**

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
D027	1,4-Dichlorobenzene	Toxicity Characteristic	B,T,L,AT
D028	1,2-Dichloroethylene	Toxicity Characteristic	B,T,L,AT
D029	1,1-Dichloroethylene	Toxicity Characteristic	B,T,L,AT
D030	2,4-Dinitrotoluene	Toxicity Characteristic	B,T,L,AT
D031	Heptachlor	Toxicity Characteristic	B,T,L,AT
D032	Hexachlorobenzene	Toxicity Characteristic	B,T,L,AT
D033	Hexachloro-1,3-butadiene	Toxicity Characteristic	B,T,L,AT
D034	Hexachloroethane	Toxicity Characteristic	B,T,L,AT
D035	Methyl Ethyl Ketone	Toxicity Characteristic	B,T,L,AT
D036	Nitrobenzene	Toxicity Characteristic	B,T,L,AT
D037	Pentachlorophenol	Toxicity Characteristic	B,T,L,AT
D038	Pyridine	Toxicity Characteristic	B,T,L,AT
D039	Tetrachloroethylene	Toxicity Characteristic	B,T,L,AT

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F AND K DESIGNATION)**

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
D040	Trichloroethylene	Toxicity Characteristic	B,T,L,AT
D041	2,4,5-Trichlorophenol	Toxicity Characteristic	B,T,L,AT
D042	2,4,6-Trichlorophenol	Toxicity Characteristic	B,T,L,AT
D043	Vinyl Chloride	Toxicity Characteristic	B,T,L,AT

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION)[**] (Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
F001	Spent Halogenated Solvents	Toxic	B,T,L,AT
F002	Spent Halogenated	Toxic	B,T,L,AT
F003	Spent non-halogenated solvents	Ignitable	B,T,L,AT
F004	Spent non-halogenated solvents	Toxic	B,T,L,AT
F005	Spent non-halogenated solvents	Ignitable, Toxic	B,T,L,AT
F006	Wastewater treatment sludges from electroplating	Toxic	L,AT
F007	Spent cyanide plating bath; solutions from electroplating	Reactive, Toxic	AT,L
F008	Plating bath sludges	Reactive, Toxic	AT,L
F009	Spent stripping and and cleaning bath solutions from electroplating	Reactive, Toxic	AT,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
F010	Quenching bath sludges from oil baths from metal heat treating	Reactive, Toxic	T,L
F011	Spent cyanide solu- tions from salt bath cleaning from metal heat treating	Reactive, Toxic	AT,L
F012	Quenching wastewater treatment sludges from metal heat treating	Toxic	L,AT
F019	Wastewater treat- ment sludges	Toxic	L,AT
F020(4)	Wastes from the production or use of tri- or tetra- chlorophenol	Acute Hazardous	AT,L,T
F021(4)	Wastes from the production or use of pentachlorophenol	Acute Hazardous	AT,L,T
F022(4)	Wastes from the manufacturing of tetra-, penta-, or hexachlorobenzenes	Acute Hazardous	AT,L,T

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
F023(4)	Wastes from the production of materials or equipment previously used for the production of use of tri- and tetrachlorophenols	Acute Hazardous	AT,L,T
F024	Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes	Toxic	B,L,T
F025	Condensed light ends and other wastes from the production of certain chlorinated aliphatic hydrocarbons	Toxic	B,L,T
F026(4)	Wastes from the production of materials on equipment previously used for the use of tetra-, penta-, or hexachlorobenzene	Acute Hazardous	AT,L,T
F027(4)	Discarded unused formulations containing tri, tetra-, or pentachlorophenol	Acute Hazardous	AT,L,T

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
F028(4)	Residues from the incineration or thermal treatment of soil with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027	Toxic	AT,L,T
F032	Wastewaters, process residuals, drippage &spent formulations from wood preserving using chlorophenolic formulations	Toxic	B, T, L
F034	Same as above, substitute creosote for chlorophenolic	Toxic	B, T, L
F035	Same as above, substitute preservatives containing arsenic or chromium	Toxic	B, T, L
F037	Petroleum refinery oil/water/ solids separation sludge	Toxic	B, T, L
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge	Toxic	B, T, L
F039	Multisource Leachate	Toxic	AT,B,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F AND K DESIGNATION)[**] (Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K001	Bottom sediment sludge	Toxic	T,L
K002	Wastewater treatment sludge	Toxic	L,AT
K003	Wastewater treatment sludge	Toxic	L,AT
K004	Wastewater treatment sludge	Toxic	L,AT
K005	Wastewater treatment sludge	Toxic	L,AT
K006	Wastewater treatment sludge	Toxic	L,AT
K007	Wastewater treatment sludge	Toxic	L,AT
K008	Oven Residue	Toxic	L,AT
K009	Distillation bottoms	Toxic	B,T,L
K010	Distillation side cuts	Toxic	B,T,L
K011	Bottom stream from wastewater stripper	Reactive, Toxic	T,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F AND K DESIGNATION)[**]
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K013	Bottom stream from acetonitrile column	Reactive, Toxic	B,T,L
K014	Bottoms from acetoni- trile purification	Toxic	B,T,L
K015	Still bottoms from distillation	Toxic	B,T,L
K016	Heavy ends or distil- lation residue	Toxic	B,T,L
K017	Heavy ends (still bottoms)	Toxic	B,T,L
K018	Heavy ends	Toxic	B,T,L
K019	Heavy ends	Toxic	B,T,L
K020	Heavy ends	Toxic	B,T,L
K021	Aqueous spent antimony catalyst	Toxic	L,T
K022	Distillation bottom tars	Toxic	B,T,L
K023	Distillation light ends	Toxic	B,T,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F AND K DESIGNATION)[**] (Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K024	Distillation bottoms	Toxic	B,T,L
K025	Distillation bottoms	Toxic	B,T,L
K026	Stripping still tails	Toxic	B,T,L
K027	Centrifuge and distillation residues from TDI	Reactive, Toxic	T,L
K028	Spent catalyst	Toxic	T,L
K029	Product steam stripper	Toxic	B,T,L
K030	Column bottoms or heavy ends	Toxic	B,T,L
K031	By-product salts	Toxic	T,L
K032	Wastewater treatment sludge	Toxic	AT,T,L
K033	Wastewater and scrub water	Toxic	AT,B,T,L
K034	Filter solids	Toxic	T,L
K035	Wastewater treatment sludges	Toxic	T,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F, AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K036	Still bottoms	Toxic	B,T,L
K037	Wastewater treatment washing and stripping	Toxic	L,T
K038	Wastewater from washing and stripping	Toxic	AT,B,T,L
K038	Distillation bottoms	Toxic	B,T,L
K039	Filter cake	Toxic	L,T
K040	Wastewater treatment sludge	Toxic	L,T
K041	Wastewater treatment sludge	Toxic	L,T
K042	Heavy ends or dis-tillation residues	Toxic	B,T,L
K043	2,6 dichlorophenol waste	Toxic	B,T,L
K044	Wastewater treatment sludges	Reactive	L (if non-reactive)

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION) (Continued)**

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K045	Spent Carbon	Reactive	T,L (if non-reactive)
K046	Wastewater treatment sludges	Toxic	L
K047	Pink/redwater	Reactive	AT,B,L (if non-reactive)
K048	DAF/float	Toxic	B,AT,T,L
K049	Slop oil emulsion solids	Toxic	B,AT,T,L
K050	Heat exchanger bundle cleaning sludge	Toxic	B,AT,T,L
K051	API separator sludge	Toxic	B,AT,T,L
K052	Tank bottoms	Toxic	B,AT,T,L
K060	Ammonia still lime sludge	Toxic	L
K061	Emission control dust/sludge	Toxic	L
K062	Spent pickle liquor	Corrosive, toxic	AT,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F, AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K064	Copper Production - Acid Plant blowdown sludge from thickening	Toxic	L,T
K065	Lead Smelting - surface impoundment solids and sludges	Toxic	L,T
K066	Zinc Production - Sludge from treatment of wastewater, acid plant waste	Toxic	L,T
K069	Emission control dust/sludge	Toxic	L
K071	Brine purification muds	Toxic	L,AT
K073	Chlorinated hydro-carbon wastes	Toxic	B,T,L
K083	Aniline wastes	Toxic	B,T,L
K084	Wastewater treatment sludges	Toxic	L,T
K085	Distillation or fraction-ation column bottoms	Toxic	B,T,L
K086	Solvent washes and sludges	Toxic	B,AT,L,T

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F, AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K087	Decanter tank tar sludge	Toxic	B,T,L
K088	Spent Potliner	Toxic	L,T
K088	Aluminum Reduction - spent potliners from primary aluminum reduction	Toxic	L,T
K090	Ferro-Chromium Silicon Production - emission control dust or sludge	Toxic	L,T
K091	Ferro-Chromium Production-emission control dust or sludge	Toxic	L,T
K093	Distillation light ends	Toxic	B,T,L
K094	Distillation bottoms	Toxic	B,T,L
K095	Distillation bottoms	Toxic	B,T,L
K096	Heavy ends	Toxic	B,T,L
K097	Vacuum stripper discharger	Toxic	B,T,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K098	Untreated process wastewater	Toxic	AT,B,T,L
K099	Untreated wastewater	Toxic	AT,B,T,L
K100	Waste leaching solution	Toxic	AT,L
K101	Distillation tar residues	Toxic	B,T,L
K102	Residue from activated carbon	Toxic	L,T
K103	Process residues	Toxic	B,T,L
K104	Combined wastewater	Toxic	B,T,AT,L
K105	Separated aqueous stream from product washing step of chlorobenzenes	Toxic	B,T,L
K105	Separated aqueous stream	Toxic	B,T,AT,L
K106	Wastewater treatment sludge	Toxic	L,AT

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K107(5)	Column bottoms from 1,1-dimethyl-hydrazine production	Corrosive, Toxic	B,T,AT,L
K108(5)	Condensed column overheads from 1,1-dimethyl-hydrazine production	Ignitable, Toxic	B,T,AT,L
K109(5)	Spent filter cartridges from 1,1-dimethyl-hydrazine production	Toxic	B,T,L
K110(5)	Condensed column overheads from intermediate separation from 1,1-dimethyl-hydrazine production	Toxic	B,T,L
K111	Product washwaters of dinitrotoluene	Toxic	B,T,L
K112	Reaction by-product water of toluenediamine	Toxic	B,T,L
K113	Condensed liquid light ends of toluenediamine	Toxic	B,T,L
K114	Vicinals of toluenediamine	Toxic	B,T,L
K115	Heavy ends of toluenediamine	Toxic	B,T,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(B, D, F, AND K DESIGNATION)**
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K116	Organic condensate of TDI	Toxic	B,T,L
K117	Wastewater of ethylene dibromide	Toxic	B,T,L
K118	Spent absorbent solids of ethylene dibromide	Toxic	B,T,L
K123(5)	Process wastewater from the production of Ethylene bisdi-thiocarbamic acid	Toxic	L,T
K124(5)	Reactor Vent Scrubber from ethylenebis-di-thiocarbamic acid	Toxic	L,T
K125(5)	Filter, Evaporation & Centrifuge Solids ethylenebis-dithio-carbamic acid	Toxic	L,T
K126(5)	Baghouse dust and floor sweepings from ethylenebis-dithio-carbamic acid	Toxic	L,T
K131(5)	Wastewater from methyl bromide production	Toxic	L,T

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION)
(Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K132(5)	Spent absorbent and wastewater separator solids from methyl bromide production	Toxic	L,T
K136	Still bottoms of ethylene dibromide	Toxic	B,T,L
K140	Floor sweepings, off-specification product and spent filter media from the production of 2,4,6-Tribromophenol	Toxic	B,T,L,AT
K141	Process residues from the recovery of coal tar	Toxic	L, T
K142	Tar storage tank residues from production of coke	Toxic	L,T
K143	Process residues from recovery of light oil	Toxic	L,T
K144	Wastewater sump residues from light oil refining	Toxic	L,T
K145	Residues from naphthalene collection and recovery operations	Toxic	L,T
K147	Tar storage tank residues from coal tar refining	Toxic	L,T

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION)** (Continued)

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K148	Residues from coal tar distillation	Toxic	L,T
K149	Distillation or fractionation bottoms from alpha or methyl chlorinated toluene, ringed chlorinated toluene, benzoyl chloride	Toxic	B,T,L
K150	Residuals from production of alpha-chlorinated toluenes	Toxic	B,T,L
K151	Wastewater treatment sludges from production of alpha-chlorinated toluenes	Toxic	B,T,L
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes	Toxic	B,T,AT,L
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes	Toxic	B,T,AT,L
K158	Bag house dust, and filter/ separation solids from the production of carbamates and carbamoyl oximes	Toxic	B,T,L
K159	Organics from the treatment of thiocarbamate wastes	Toxic	B,T,AT,L

TABLE C-1

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY (B, D, F, AND K DESIGNATION) (Continued)**

EPA Hazardous Waste No.	Waste Common Name	Basis for Listing Hazardous Waste	TSD(1)(2) Option
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts (This does not include K125 or K126)	Toxic	B,T,L
K169	Crude oil storage tank sediment from petroleum refining operations	Toxic	B,T,L
K170	Clarified slurry oil storage tank sediment and/or in-line filter/separation solids from petroleum refining operations	Toxic	B,T,L
K171	Spent hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic units	Toxic	B,T,L
K172	Spent hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic units	Toxic	B,T,L
K174	Wastewater treatment sludges from the production of ethylene dichloride or vinyl chloride monomer unless the sludges are landfilled in a Subtitle C or non-haz landfill permitted by federal or state government	Toxic	B,T,L
K175	Wastewater treatment sludges from the production of vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process	Toxic	B,T,L
K176	Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide)	Toxic	B,T,L
K177	Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from production of intermediates (e.g., antimony metal or crude antimony oxide)	Toxic	B,T,L
K178	Solids from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-ilmenite process	Toxic	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**

The following list of materials are identified as acute hazardous wastes. The primary hazard has been identified by the following letters: R = reactive; I = ignitable, C = corrosive; T = toxic. If no letter is shown, the compound should be considered as acute hazardous waste for waste numbers beginning with a P.

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P001	Warfarin	T,B,L
P001	3-(alpha-acetonylbenzyl)-4-hydroxycoumarin and salts	T,B,L
P002	Acetamide, N-(aminothioxomethyl)-	T,B,L
P002	1-Acetyl-2-thiourea	T,B,L
P003	2-Propenal	T,B,L
P003	Acrolein	T,B,L
P004	Isocyanic acid, methyl ester	T,L
P004	Aldrin	T,B,L
P004	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, exo-dimethanonaphthalene	T,B,L
P005	Allyl alcohol	T,B,L
P005	2-Propen-1-ol	T,B,L
P006	Aluminumphosphide	T,L (if non-reactive)
P007	3(2H)-Isoxazolone, 5-(aminomethyl)	T,B,L
P007	5-(Aminomethyl)-3-isoxazolol	T,B,L
P008	4-Pyridinamine	T,B,L
P008	4-alpha-Aminopyridine	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P009	Ammoniumpicrate (R)	L,(not handled if shock sensitive)
P009	Phenol, 2,4,6-trinitro-, ammonium salt (R)	L,(not handled if shock sensitive)
P010	Arsenic acid	L
P011	Pyrophosphoric acid, tetraethyl ester	T,B,L
P011	Arsenic (V) oxide	L
P011	Arsenic pentoxide	L
P012	Arsenic (III) oxide	L
P012	Arsenic trioxide	L
P013	Barium cyanide	L
P014	Benzenethiol	T,B,L
P014	Thiophenol	T,L
P015	Beryllium dust	L
P016	Bis(chloromethyl)ether	T,B,L
P016	Methane, oxybis(chloro-	T,B,L
P017	2-Propanone, 1-bromo-	T,B,L
P018	Brucine	T,B,L
P018	Strychnidin-10-one, 2, 3-dimethoxy-	T,B,L
P020	Phenol, 2,4-dinitro-6(1-methylpropyl)-	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P020	Dinoseb	T,B,L
P021	Calcium cyanide	T,L
P022	Carbon disulfide	T,L
P022	Carbon bisulfide	T,L
P023	Chloroacetaldehyde	T,B,L
P023	Acetaldehyde, chloro-	B,T,L
P024	p-Chloroaniline	T,B,L
P024	Benzenamine, 4-chloro-	T,B,L
P026	Thiourea, (2-chlorophenyl)-	T,B,L
P026	1-(o-Chlorophenyl)thiourea	T,B,L
P027	Propanenitrile, 3-chloro-	T,B,L
P027	3-Chloropropionitrile	T,B,L
P028	Benzene, (chlormethyl)-	T,B,L
P028	Benzyl chloride	T,B,L
P029	Copper cyanides	L
P030	Cyanides (soluble cyanide salts), not elsewhere specified	L,T
P031 (5)	Cyanogen	L
P033(5)	Chlorine cyanide	L
P034	4,6-Dinitro-o-cyclohexylphenol	T,B,L
P034	Phenol, 2-cyclohexyl-4,6-dinitro-	T,B,L

[**]All footnotes may be referenced at the end of Table C-2 of the Waste Analysis Plan.

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P036	Dichlorophenylarsine	T,B,L
P036	Phenyl dichloroarsine	T,B,L
P037	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo, exo-1,4:5,8-dimethanonaphthalene	T,B,L
P037	Dieldrin	T,B,L
P038	Diethylarsine	T,B,L
P038	Arsine, diethyl-	T,B,L
P039	O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate	T,B,L
P039	Disulfoton	T,B,L
P040	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	T,B,L
P040	O,O-Diethyl O-pyrazinyl phosphorothioate	T,B,L
P041	Diethyl-p-nitrophenyl phosphate	T,B,L
P041	Phosphoric acid, diethyl p-nitrophenyl ester	T,B,L
P042	1,2-Benzenediol,4-[1-hydroxy-(methylamino) ethyl]	T,B,L
P042	Epinephrine	T,B,L
P043	Diisopropyl fluorophosphate	T,B,L
P043	Phosphorofluoric acid, bis (1-methlyethyl)-ester	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methlyamino) -2-oxoethyl]ester	T,B,L
P044	Dimethoate	T,B,L
P045	Thiofanox	T,B,L
P045	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[methylamino)carbonyl]oxime	T,B,L
P046	alpha, alpha-Dimethylphenethylamine	T,B,L
P046	Ethanamine, 1,1-dimethyl-2-phenyl-	T,B,L
P047	Phenol, 2,4-dinitro-6-methyl-	T,B,L
P047	4,6-Dinitro-o-cresol and salts	T,B,L
P048	Phenol, 2,4-dinitro-	T,B,L
P048	2,4-Dinitrophenol	T,B,L
P049	Thiomidodicarbonic diamide	T,B,L
P049	2,4-Dithiobiuret	T,B,L
P050	Endosulfan	T,B,L
P050	5-Norbornane-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite	T,B,L
P051	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo, endo-1,4:5,8-dimethanonaphthalene	T,B,L
P051	Endrin	T,B,L
P054	Ethylenamine	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P054	Aziridine	T,B,L
P056(5)	Fluorine	L
P057	Fluoroacetamide	T,B,L
P057	Acetamide, 2-fluoro-	T,B,L
P058	Acetic acid, fluoro-, sodium salt	T,B,L
P058	Fluoroacetic acid, sodium salt	T,B,L
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-hep-tachloro-3a, 4,7,7a-tetrahydro	T,B,L
P059	Heptachlor	T,B,L
P060	1,2,3,4,10,10-Hexachloro-1,4,4a,8,8a-hexahydro-1,4:5,8-endo,endo-dimethan-onophthalene	T,B,L
P060	Hexachlorohexahydro-exo, exo-dimethanonaphthalene	T,B,L
P062	Hexaethyl tetraphosphate	T,B,L
P062	Tetraphosphoric acid, hexaethyl ester	T,B,L
P063(5)	Hydrogen Cyanide	L
P064	Methyl isocyanate	T,L
P065(5)	Fulmic Acid, Mercury Salt	L
P066	Acetimidic acid, N-[(methyl-carbamoyl)oxy]thio-, methyl ester	T,B,L
P066	Methomyl	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P067	1,2-Propylenimine	T,B,L
P067	2-Methylaziridine	T,B,L
P068	Methyl hydrazine	T,B,L
P068	Hydrazine, methyl-	T,B,L
P069	2-Methyllactonitrile	T,B,L
P069	Propanenitrile, 2-hydroxy-2-methyl-	T,B,L
P070	Propanal, 2-methyl-2-(methlythio)-,O-[(methlyamino) carbonyl]oxime	T,B,L
P070	Aldicarb	T,B,L
P071	O,O-Dimethyl O-p-nitrophenyl phosphorothioate	T,B,L
P071	Methyl parathion	T,B,L
P072	Thiourea, 1-napthalenyl-	T,B,L
P072	alpha-Naphthylthiourea	T,B,L
P073	Nickel tetracarbonyl	L,T
P073	Nickel carbonyl	L,T
P074	Nickel(II) cyanide	L,T
P074	Nickel cyanide	L,T
P075	Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl-, and salts	T,B,L
P075	Nicotine and sal	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**]
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P076	Nitric oxide	L,T
P077	p-Nitroaniline	T,B,L
P077	Benzenamine, 4-nitro-	T,B,L
P078(5)	Nitrogen Dioxide	L
P081(5)	Nitroglycerine	L
P082	N-Nitrosodimethylamine	T,B,L
P082	Dimethylnitrosamine	T,B,L
P084	Ethenamine, N-methyl-N-nitroso-	T,B,L
P084	N-Nitrosomethylvinylamine	T,B,L
P085	Octamethylpyrophosphoramide	T,B,L
P085	Diphosphoramide, octamethyl-	T,B,L
P087	Osmium tetroxide	L
P087	Osmium oxide	L
P088	7-Oxabicyclo[2.2.1]heptane-2, 3dicarboxylic acid	T,B,L
P088	Endothall	T,B,L
P089	Phosphorothioic acid, O,O-diethyl O-(p-nitrophenol)ester	T,B,L
P089	Parathion	T,B,L
P092	Mercury, (acetato-O)phenyl-	T,B,L
P092	Phenylmercuric acetate	T,B,L
P093	Thiourea, phenyl-	T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P093	N-Phenylthiourea	T,B,L
P094	Phorate	T,B,L
P094	Phosphorothioic acid, O,O-diethyl S-(ethylthio) methyl ester	T,B,L
P095 (5)	Phosgene	L
P096 (5)	Hydrogen Phosphide	L
P097	Famphur	T,B,L
P097	Phosphorothioic acid, O,O-dimethyl O-[p-dimethylamino)-sulfonyl) phenyl]ester	T,B,L
P098	Potassium cyanide	T,L
P099	Potassium silver cyanide	L
P101	Ethyl cyanide	T,B,L
P101	Propanenitrile	T,B,L
P102	2-Propyn-1-01	T,B,L
P102	Propargyl alcohol	T,B,L
P103	Carbamimidoselenoic acid	T,B,L
P103	Selenourea	T,B,L
P104	Silver cyanide	L
P105	Sodium azide	L,(not handled if shock sensitive)

TABLE C-2

**HAZARDOUS MATERIALS MANAGED AT
MODEL CITY FACILITY[**]
(continued)**

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P106	Sodium cyanide	T,L
P108	Strychnidin-10-one, and salts	T,B,L
P108	Strychnine and salts	T,B,L
P109	Dithiopyrophosphoric acid, tetraethyl ester	T,B,L
P109	Tetraethyldithiopyrophosphate	T,B,L
P110	Plumbane, tetraethyl-	T,B,L
P110	Tetraethyl lead	T,B,L
P111	Tetraethylpyrophosphate	T,B,L
P112	Tetranitromethane (R)	L,T
P112	Methane, tetranitro-(R)	L,T
P113	Thallium(III) oxide	L
P113	Thallic oxide	L
P114	Thallium(I) selenite	L
P115	Sulfuric acid, thallium (I) salt	L
P115	Thallium(I) sulfate	L
P116	Thiosemicarbazide	T,B,L
P116	Hydrazinecarbothioamide	T,B,L
P118	Methanethiol, trichloro-	T,B,L
P118	Trichloromethanethiol	T,L

[**]All footnotes may be referenced at the end of Table C-2 of the Waste Analysis Plan.

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P119	Vanadic acid, ammonium salt	L
P119	Ammonium vanadate	L
P120	Vanadium pentoxide	L
P120	Vanadium(V) oxide	L
P121	Zinc cyanide	L
P122	Zinc Phosphide (R,T) when present at concentration greater than 10%	T,L
P123	Toxaphene	T,B,L
P123	Camphene, octachloro-	T,B,L
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate (Carbofuran)	AT,T,B,L
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester) (Mexacarbate)	AT,T,B,L
P185	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-,o-[(methylamino)carbonyl]oxime (Tirpate)	AT,T,B,L
P188	Benzoic acid, 2-hydroxy, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a, 8-trimethylpyrrolo[2,3-b]indol-5-yl methlycarbamate ester (1:1) (Physostigmine salicylate)	AT,T,B,L
P189	Carbamic acid, [(dibutylamino)this] methyl-,2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan)	AT,T,B,L
P190	Carbamic acid, methyl-,3-methylphenyl ester (Metolcarb)	AT,T,B,L
P191	Carbamic acid, dimethyl-,1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester (Dimetilan)	AT,T,B,L
P192	Carbamic acid, dimethyl-,3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan)	AT,T,B,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
P194	Ethanimidothioc acide, 2-(dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2-oxo-,methyl ester (Oxamyl)	AT,T,B,L
P196	Manganese, bis(dimethylcarbamodithioato-S,S')-, (Manganese dimethyldithiocarbamate)	AT,T,B,L
P197	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino)carbonyl] oxy]penyl]-,(Formparanate)	AT,T,B,L
P198	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)carbonyl]oxy]phenyl]-, monohydrochloride (Formetanate hydrochloride)	AT,T,B,L
P199	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate (Methiocarb)	AT,T,B,L
P201	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb)	AT,T,B,L
P202	Phenol, 3-(1-methylethyl)-, methyl carbamate 3-Isopropylphenyl N-methylcarbamate (m-Cumenyl methylcarbamate)	AT,T,B,L
P203	Propanal, 2-methyl-2-(methysulfonyl)-, o-[(methylamino)carbonyl] oxime (Aldicarb sulfone)	AT,T,B,L
P204	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-,methylcarbamate (ester), 3aS-cis)-(Physostigmine)	AT,T,B,L
P205	Zinc, bis(dimethylcarbamodithioato-S,S')-, (Ziram)	AT,T,B,L

The following list of materials are identified as toxic wastes. The primary hazard has been identified by the following letters: R = reactive; I = ignitable, C = corrosive; T = toxic. If no letter is shown, the compound should be considered as toxic waste for waste numbers beginning with a U.

U001	Acetaldehyde (I)	B,T,L
U001	Ethanal (I)	B,T,L
U002	Acetone (I)	B,T,L
U002	2-Propanone (I)	B,T,L

TABLE C-2
HAZARDOUS MATERIALS MANAGED AT
MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U003	Ethanenitrile (I,T)	B,T,L
U003	Acetonitrile (I,T)	B,T,L
U004	Acetophenone	B,T,L
U004	Ethanone, 1-phenyl-	B,T,L
U005	Acetamide, N-9H-fluoren-2yl-	B,T,L
U005	2-Acetylaminofluorene	B,T,L
U006	Ethanoyl chloride (C.R.T.)	L,T
U006	Acetyl chloride (C,R,T)	L,T
U007	Acrylamide	B,T,L
U007	Benzene, 1,2,4,5-tetrachloro-	B,T,L
U007	2-Propenamide	B,T,L
U008	Acrylic acid (I)	B,T,L
U008	2-Propenoic acid (I)	B,T,L
U009	Acrylonitrile	B,T,L
U009	2-Propenenitrile	B,T,L
U010	Azirino(w',3':3,4)pyrrolo(1,2-a) indole-4,7-dione, 6-amino-8 [((aminocarbonyl)oxy)methyl]- 1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-	B,T,L
U010	Mitomycin C	B,T,L
U011	Amitrole	B,T,L
U011	1H-1,2,4-Triazol-3-amine	B,T,L
U012	Aniline (I,T)	B,T,L
U012	Benzenamine (I,T)	B,T,L
U014	Auramine	B,T,L
U014	Benzenamine, 4,4'- carbonimidoylbis (N,N-di-methyl-	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U015	Azaserine	B,T,L
U015	L-Serine, diazoacetate (ester)	B,T,L
U016	Benz[c]acridine	B,T,L
U016	3,4-Benzacridine	B,T,L
U017	Benzal chloride	B,T,L
U017	Benzene, (dichloromethyl)-	B,T,L
U018	1,2-Benzanthracene	B,T,L
U018	Benz[a]anthracene	B,T,L
U019	Benzene (I,T)	B,T,L
U020	Benzenesulfonyl chloride (C,R)	L,T
U020	Benzenesulfonic acid chloride (C,R)	L,T
U021	Benzidine	B,T,L
U021	(1,1'-Biphenyl)-4,4'-diamine	B,T,L
U022	Benzo[a]pyrene	B,T,L
U022	3,4-Benzopyrene	B,T,L
U023	Benzotrichloride (C,R,T)	T,L
U023	Benzene, (trichloromethyl)- (C,R,T)	T,L
U024	Ethane, 1,1'-[methylenebis(oxy)] bis[2-choro-	B,T,L
U024	Bis(2-chloroethoxy) methane	B,T,L
U025	Ethane, 1,1'-oxybis [2-chloro-	B,T,L
U025	Dichloroethyl ether	B,T,L
U026	Chlornaphazine	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U026	2-Naphthylamine,N,N'-bis (2-chloromethyl)-	B,T,L
U027	Bis(2-chloroisopropyl) ether	B,T,L
U027	Propane, 2,2'oxybis(2-chloro-	B,T,L
U028	1,2-Benzenedicarboxylic acid, [bis(2-ethyl-hexyl)]ester	B,T,L
U028	Bis(2-ethylhexyl)phthalate	B,T,L
U029	Methyl bromide	B,T,L
U029	Methane, bromo-	B,T,L
U030	Benzene, 1-bromo-4-phenoxy-	B,T,L
U030	4-Bromophenyl phenyl ether	B,T,L
U031	1-Butanol (I)	B,T,L
U031	n-Butyl alcohol (I)	B,T,L
U032	Calcium chromate	L
U032	Chromic acid, calcium salt	L
U033 (5)	Carbon Oxyfluoride	L
U034	Acetaldehyde, trichloro-	B,T,L
U034	Chloral	B,T,L
U035	Butanoic acid, 4-[Bis(2-chloro-ethyl)amino]benzene-	B,T,L
U035	Chlorambucil	B,T,L
U036	Chlordane, technical	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U036	4,7-Methanoindan, 1,2,4,5,6, 7,8,8-octa-chloro-3a,4,7,7a-tetrahydro-	B,T,L
U037	Benzene, chloro-	B,T,L
U037	Chlorobenzene	B,T,L
U038	Benzenacetic acid, 4-chloro-alpha-(4-chloro-phenyl)-alpha-hydroxy,ethyl ester	B,T,L
U038	Ethyl 4,4'-dichlorobenzilate	B,T,L
U039	4-Chloro-m-cresol	B,T,L
U039	Phenol, 4-chloro-3-methyl-	B,T,L
U041	1-Chloro-2,3-epoxypropane	B,T,L
U041	Oxirane, 2-(chloromethyl)-	B,T,L
U042	Ethene, 2-chloroethoxy-	B,T,L
U042	2-Cloroethyl vinyl ether	B,T,L
U043(5)	Vinyl Chloride	B,T,L
U044	Chloroform	B,T,L
U044	Methane, trichloro-	B,T,L
U045	Methane, chloro- (I,T)	B,T,L
U046	Chloromethyl methyl ether	B,T,L
U046	Methane, chloromethoxy-	B,T,L
U047	beta-Chloronaphthalene	B,T,L
U047	Naphthalene, 2-chloro-	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY** **(continued)**

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U048	o-Chlorophenol	B,T,L
U048	Phenol, 2-chloro-	B,T,L
U049	Benzenamine, 4-chloro-2-methyl-	B,T,L
U049	4-Chloro-o-toluidine, hydrochloride	B,T,L
U050	1,2-Benzophenanthrene	B,T,L
U050	Chrysene	B,T,L
U051	Creosote	B,T,L
U052	Cresols	B,T,L
U052	Cresylic acid	B,T,L
U053	2-Butenal	B,T,L
U053	Crotonaldehyde	B,T,L
U055	Benzene, (1-methylethyl)-(I)	B,T,L
U055	Cumene (I)	B,T,L
U056	Benzene, hexahydro-(I)	B,T,L
U056	Cyclohexane (I)	B,T,L
U057	Cyclohexanone (I)	B,T,L
U058	Cyclophosphamide	B,T,L
U058	2H-1,3,2-Oxazaphosphorine, [bis(2-chloro-ethyl)amino] tetrahydro-, oxide 2-	B,T,L
U059	Daunomycin	B,T,L

TABLE C-2

**HAZARDOUS MATERIALS MANAGED AT
MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U059	5,12-Naphthacenedione, (8S-cis) -8-acetyl-10[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl) oxyl]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy	B,T,L
U060	Dichloro diphenyl dichloroethane	B,T,L
U060	DDD	B,T,L
U061	DDT	B,T,L
U061	Dichloro diphenyl trichloroethane	B,T,L
U062	S-(2,3-Dichloroallyl) diisopropyl-thiocarbamate	B,T,L
U062	Diallate	B,T,L
U063	Dibenz[a,h]anthracene	B,T,L
U063	1,2:5,6-Dibenzanthracene	B,T,L
U064	Dibenz[a,i]pyrene	B,T,L
U064	1,2:7,8-Dibenzopyrene	B,T,L
U066	1,2-Dibromo-3-chloropropane	B,T,L
U066	Propane, 1,2-dibromo-3-chloro-	B,T,L
U067	Ethane, 1,2-dibromo-	B,T,L
U067	Ethylene dibromide	B,T,L
U068	Methane, dibromo-	B,T,L
U068	Methylene bromide	B,T,L
U069	Dibutyl phthalate	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U069	1,2-Benzenedicarboxylic acid, dibutyl ester	B,T,L
U070	Benzene, 1,2-dichloro-	B,T,L
U070	o-Dichlorobenzene	B,T,L
U071	Benzene, 1,3-dichloro-	B,T,L
U071	m-Dichlorobenzene	B,T,L
U072	p-Dichlorobenzene	B,T,L
U072	Benzene, 1,4-dichloro-	B,T,L
U073	(1,1'-Biphenyl)-4,4'-diamine, 3,3'dichloro-	B,T,L
U073	3,3'-Dichlorobenzidine	B,T,L
U074	1,4-Dichloro-2-butene (I,T)	B,T,L
U074	2-Butene, 1,4-dichloro-(I,T)	B,T,L
U075	Dichlorodifluoromethane	B,T,L
U075	Methane, dichlorodifluoro-	B,T,L
U076	Ethane, 1,1-dichloro-	B,T,L
U076	Ethylidene dichloride	B,T,L
U077	Ethane, 1,2-dichloro-	B,T,L
U077	Ethylene dichloride	B,T,L
U078	Ethene, 1,1-dichloro-	B,T,L
U078	1,1-Dichloroethylene	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U079	1,2-Dichloroethylene	B,T,L
U079	Ethene, trans-1,2-dichloro-	B,T,L
U080	Methylene chloride	B,T,L
U080	Methane, dichloro-	B,T,L
U081	1,4-Dichlorophenol	B,T,L
U081	Phenol, 2,4-dichloro-	B,T,L
U082	2,6-Dichlorophenol	B,T,L
U082	Phenol, 2,6-dichloro-	B,T,L
U083	1,2-Dichloropropane	B,T,L
U083	Propylene dichloride	B,T,L
U084	1,3-Dichloropropene	B,T,L
U084	Propene, 1,3-dichloro-	B,T,L
U085	2,2'-Bioxirane (I,T)	B,T,L
U085	1,2:3,4-Diepoxybutane (I,T)	B,T,L
U086	N,N-Diethylhydrazine	B,T,L
U086	Hydrazine, 1,2-diethyl-	B,T,L
U087	O,O-Diethyl-S-methyl-dithiophosphate	B,T,L
U087	Phosphorodithioic acid, O, O-diethyl-S-methylester	B,T,L
U088	1,2-Benzenedicarboxylic acid, diethyl ester	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U088	Diethyl phthalate	B,T,L
U089	Diethylstilbestrol	B,T,L
U089	4,4'-Stilbenediol, alpha,alpha' -diethyl-	B,T,L
U090	Benzene, 1,2-methylenedioxy-4-propyl-	B,T,L
U090	Dihydrosafrole	B,T,L
U091	(1,1'-Biphenyl)-4,4'diamine, 3,3'-dimethyl-	B,T,L
U091	3,3'-Dimethoxybenzidine	B,T,L
U092	Dimethylamine (I)	B,T,L
U092	Methanamine, N-methyl- (I)	B,T,L
U093	Benzenamine, N,N'-dimethyl-4-phenylazo-	B,T,L
U093	Dimethylaminoazobenzene	B,T,L
U094	7,12-Dimethylbenz[a]anthracene	B,T,L
U094	1,2-Benzanthracene 7,12-dimethyl-	B,T,L
U095	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-	B,T,L
U095	3,3'-Dimethylbenzidine	B,T,L
U096	alpha,alpha-Dimethylbenzyl-hydroperoxide (R)	L,T
U096	Hydroperoxide, 1-methyl-1-phenylethyl- (R)	L,T

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U097	Dimethylcarbamoyl chloride	T,L
U097	Carbamoyl chloride, dimethyl-	T,L
U098	1,1-Dimethylhydrazine	B,T,L
U098	Hydrazine, 1,1-dimethyl-	B,T,L
U099	1,2-Dimethylhydrazine	B,T,L
U099	Hydrazine, 1,2-dimethyl-	B,T,L
U101	2,4-Dimethylphenol	B,T,L
U101	Phenol,2,4-dimethyl-	B,T,L
U102	1,2-Benzenedicarboxylic acid, dimethyl ester	B,T,L
U102	Dimethyl phthalate	B,T,L
U103	Dimethyl sulfate	B,T,L
U103	Sulfuric acid, dimethyl ester	B,T,L
U105	Benzene, 1-methyl-1-2,4-dinitro-	T,L (not handled if explosive)
U105	2,4-Dinitrotoluene	B,T,L
U106	2,6-Dinitrotoluene	B,T,L
U106	Benzene, 1-methyl-2,6-dinitro-	B,T,L
U107	1,2-Benezenedicarboxylic acid, di-n-octyl ester	B,T,L
U107	Di-n-octylphthalate	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U108	1,4-Dioxane	B,T,L
U108	1,4-Diethylene dioxide	B,T,L
U109	1,2-Diphenylhydrazine	B,T,L
U109	Hydrazine, 1,2-diphenyl-	B,T,L
U110	Dipropylamine (I)	B,T,L
U110	1-Propanamine, N-propyl- (I)	B,T,L
U111	Di-N-propylnitrosamine	B,T,L
U111	N-Nitroso-N-propylamine	B,T,L
U112	Ethyl acetate (I)	B,T,L
U112	Acetic acid, ethyl ester (I)	B,T,L
U113	Ethyl acrylate (I)	B,T,L
U113	2-Propenoic acid, ethyl ester (I)	B,T,L
U114	Ethylenebis(dithiocarbamic acid)	B,T,L
U114	1,2-Ethanediylbiscarbamodithioic acid	B,T,L
U115	Ethylene oxide (I,T)	B,T,L
U115	Oxirane (I,T)	B,T,L
U116	Ethylene thiourea	B,T,L
U116	2-Imidazolidinethione	B,T,L
U117	Ethyl ether (I)	B,T,L
U117	Ethane, 1,1'-oxybis- (I)	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U118	Ethylmethacrylate	B,T,L
U118	2-Propenoic acid, 2-methyl-, ethyl ester	B,T,L
U119	Ethyl methanesulfonate	B,T,L
U119	Methanesulforic acid, ethyl ester	B,T,L
U120	Benzo[j,k]fluorene	B,T,L
U120	Fluoranthene	B,T,L
U121	Methane, trichlorofluoro-	B,T,L
U121	Methane, trichlorofluoro-	B,T,L
U121	Trichloromonofluoromethane	B,T,L
U122	Formaldehyde	B,T,L
U122	Methylene oxide	B,T,L
U123	Formic acid (C,T)	T,L,AT
U123	Methanoic acid (C,T)	B,T,L
U124	Furan (I)	B,T,L
U124	Furfuran (I)	B,T,L
U125	2-Furancarboxaldehyde (I)	B,T,L
U125	Furfural (I)	B,T,L
U126	Glycidyladehyde	B,T,L
U126	1-Propanol, 2,3-epoxy-	B,T,L
U127	Benezene, hexachloro-	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U127	Hexachlorobenzene	B,T,L
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	B,T,L
U128	Hexachlorobutadiene	B,T,L
U129	Hexachlorocyclohexane (gamma isomer)	B,T,L
U129	Lindane	B,T,L
U130	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	B,T,L
U130	Hexachlorocyclopentadiene	B,T,L
U131	Ethane 1,1,1,2,2,2-hexachloro-	B,T,L
U131	Hexachloroethane	B,T,L
U132	Hexachlorophene	B,T,L
U132	2,2'-Methylenebis(3,4,6-trichlorophenol)	B,T,L
U133	Diamine (R,T)	T,L
U133	Hydrazine (R,T)	T,L
U134	Hydrofluoric acid (C,T)	T,L
U134	Hydrogen fluoride (C,T)	T,L
U135(5)	Hydrogen Sulfide	T,L
U136	Cacodylic acid	B,T,L
U136	Hydroxydimethylarsine oxide	B,T,L

**All footnotes may be referenced at the end of Table C-2 of the Waste Analysis Plan.

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U137	Inden[1,2,3-cd]pyrene	B,T,L
U137	1,10-(1,2-phenylene)pyrene	B,T,L
U138	Methyl iodide	B,T,L
U138	Methane, iodo-	B,T,L
U140	Isobutyl alcohol (I,T)	B,T,L
U140	1-Propanol, 2-methyl-	B,T,L
U141	Benzene, 1,2-methylenedioxy-4-propenyl-	B,T,L
U141	Isosafrole	B,T,L
U142	Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one	B,T,L
U142	Kepone	B,T,L
U143	Lasiocarpine	B,T,L
U144	Acetic acid, lead salt	L
U144	Lead acetate	L
U145	Lead phosphate	L
U145	Phosphoric acid, Lead salt	L
U146	Lead subacetate	L
U147	Maleic anhydride	T,B,L

[**]All footnotes may be referenced at the end of Table C-2 of the Waste Analysis Plan.

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U147	2,5-Furandione	T,B,L
U148	1,2-Dihydor-3,6-pyradizinedione	T,B,L
U148	Maleic hydrazide	T,B,L
U149	Propanedinitrile	B,T,L
U149	Malononitrile	B,T,L
U150	Alanine, 3-[p-bis(2-chlorethyl)amino] phenyl-,L-	B,T,L
U150	Melphalan	B,T,L
U151	Mercury	T,L,
U152	2-Propenenitrile, 2-methyl- (I,T)	B,T,L
U152	Methacrylonitrile (I,T)	B,T,L
U153 (5)	Methanethiol	L
U154	Methanol (I)	B,T,AT,L
U154	Methyl alcohol (I)	B,T,AT,L
U155	Pyridine, 2-[(2-dimethylamino)-2-thenylamino]-	B,T,L
U155	Methapyrilene	B,T,L
U156	Carbonochloridic acid, methyl ester (I,T)	B,T,L
U156	Methyl chlorocarbonate (I,T)	B,T,L
U157	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-,	B,T,L

TABLE C-2

**HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**]
(continued)**

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U157	3-Methylcholanthrene	B,T,L
U158	Benzenamine, 4,4'-methylenebis (2-chlora	B,T,L
U158	4,4'-Methylenebis (2-chloroaniline)	B,T,L
U159	2-Butanone (I,T)	B,T,L
U159	Methyl ethyl ketone (I,T)	B,T,L
U160	2-Butanone peroxide (R,T)	T,L
U160	Methyl ethyl ketone peroxide (R,T)	T,L
U161	Methyl isobutyl ketone (I)	B,T,L
U161	4-Methyl-2-pentanone (I)	B,T,L
U162	Methyl methacrylate (I,T)	B,T,L
U162	2-Propenoic acid, 2-methyl- methyl ester (I,T)	B,T,L
U163	Guanidine, N-nitroso-N-methyl- N'nitro-	B,T,L
U163	N-Methyl-N'-nitro-N- nitrosoguanidine	B,T,L
U164	4(1H)-Pyrimidinone, 2,3- dihydro-6-methyl-2-thioxo-	B,T,L
U164	Methylthiouracil	B,T,L
U165	Naphthalene	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U166	1,4-Naphthalenedione	B,T,L
U166	1,4,Naphthaquinone	B,T,L
U167	1-Naphthylamine	B,T,L
U167	alpha-Naphthylamine	B,T,L
U168	2-Naphthylamine	B,T,L
U168	beta-Naphthylamine	B,T,L
U169	Benzene, nitro- (I,T)	B,T,L
U169	Nitrobenzene (I,T)	B,T,L
U170	Phenol, 4-nitro-	B,T,L
U170	p-Nitrophenol	B,T,L
U171	2-Nitropropane (I)	B,T,L
U171	Propane, 2-nitro- (I)	B,T,L
U172	1-Butanamine, N-butyl-N-nitroso-	B,T,L
U172	N-Nitrosodi-n-butylamine	B,T,L
U173	Ethanol, 2,2'-(nitrosoimino)bis-	B,T,L
U173	N-Nitrosodiethanolamine	B,T,L
U174	Ethanamine, N-ethyl-N-nitroso-	B,T,L
U174	N-Nitrosodiethylamine	B,T,L
U176	Carbamide, N-ethyl-N-nitroso-	B,T,L
U176	N-Nitroso-N-ethylurea	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U177	Carbamide, N-methyl-N-nitroso-	B,T,L
U177	N-Nitroso-N-methylurea	B,T,L
U178	Carbamic acid, methylnitroso-, ethyl ester	B,T,L
U178	N-Nitroso-N-methylurethane	B,T,L
U179	N-Nitrosopiperidine	B,T,L
U179	Pyridine, hexahydro-N-nitroso-	B,T,L
U180	Pyrrole, tetrahydro-N-nitroso-	B,T,L
U180	N-Nitrosopyrrolidine	B,T,L
U181	Benzemamine, 2-methyl-5-nitro	B,T,L
U181	5-Nitro-o-toluidine	B,T,L
U182	Paraldehyde	B,T,L
U182	1,3,5-Trioxane,2,4,5-trimethyl-	B,T,L
U183	Benzene, pentachloro-	B,T,L
U183	Pentachlorobenzene	B,T,L
U184	Ethane, pentachloro-	B,T,L
U184	Pentachloroethane	B,T,L
U185	Benzene, pentachloro-nitro-	B,T,L
U185	Pentachloronitrobenzene	B,T,L
U186	1-Methylbutadiene (I)	B,T,L
U186	2,3-Pentadiene (I)	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U187	Acetamide, N-(4-ethoxyphenyl)-	B,T,L
U187	Phenacetin	B,T,L
U188	Benzene, hydroxy-	B,T,L
U188	Phenol	B,T,L
U189 (5)	Phosphorous sulfide	L
U190	1,2-Benzenedicarboxylic acid anhydride	B,T,L
U190	Phthalic anhydride	B,T,L
U191	2-Picoline	B,T,L
U191	Pyridine, 2-methyl-	B,T,L
U192	3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide	B,T,L
U192	Pronamide	B,T,L
U193	1,3-Propane sultone	B,T,L
U193	1,2-Oxathiolane, 2,2-dioxide	B,T,L
U194	1-Propanamine (I,T)	B,T,L
U194	N-Propylamine (I,T)	B,T,L
U196	Pyridine	B,T,L
U197	1,4-Cyclohexadienedione	B,T,L
U197	p-Benzoquinone	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U200	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[3,4,5-trimethoxy-benzoyl)oxy]-, methyl ester	B,T,L
U200	Reserpine	B,T,L
U201	1,3-Benzenediol	B,T,L
U201	Resorcinol	B,T,L
U202	1,2-Benzisothiazolin-3-0ne, 1,1-dioxide	B,T,L
U202	Saccharin and salts	B,T,L
U203	Benzene, 1,2-methylenedioxy-4-allyl-	B,T,L
U203	Safrole	B,T,L
U204	2,4,4-D,salts and esters	B,T,L
U204	Seleniumdioxide	L
U204	Selenious acid	L
U205	Selenium disulfide (R,T)	T,L
U205	Sulfur selenide (R,T)	T,L
U206	D-Glucopyranose, 2-deoxy-2(3-methyl-3-nitro-soureido)-	B,T,L
U206	Streptozotocin	B,T,L
U207	1,2,4,5-Tetrachlorobenzene	B,T,L
U208	Ethane, 1,1,1,2-tetrachloro-	B,T,L
U208	1,1,1,2-Tetrachloroethane	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U209	Ethane, 1,1,2,2-tetrachloro-	B,T,L
U209	1,1,2,2-Tetracloroethane	B,T,L
U210	Ethene, 1,1,2,2-tetrachloro-	B,T,L
U210	Tetrachloroethylene	B,T,L
U211	Carbon tetrachloride	B,T,L
U211	Methane, tetrachloro-	B,T,L
U213	Furan, tetrahydro- (I)	B,T,L
U213	Tetrachydrofuran (I)	B,T,L
U214	Acetic acid, thallium (I) salt	L
U214	Thallium (I) acetate	L
U215	Carbonic acid, dithallium (I) salt	L
U215	Thallium (I) carbonate	L
U216	Thallium (I) chloride	L
U217	Thallium (I) nitrate	L
U218	Ethanethioamide	B,T,L
U218	Thioacetamide	B,T,L
U219	Carbamide, thio-	B,T,L
U219	Thiourea	B,T,L
U220	Benzene, methyl-	B,T,L
U220	Toluene	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY[**] (continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U221	Diaminotoluene	B,T,L
U221	Toluenediamine	B,T,L
U222	Benzenamine, 2-methyl-, hydrochloride	B,T,L
U222	O-Toluidine hydrochloride	B,T,L
U223	Benzene, 1,3-diisocyanatomethyl- (R,T)	T,L
U223	Toluene diisocyanate (R,T)	B,T,L
U225	Bromoform	B,T,L
U225	Methane, tribromo-	B,T,L
U226	1,1,1-Trichloroethane	B,T,L
U226	Methylchloroform	B,T,L
U227	Ethane, 1,1,2-trichloro-	B,T,L
U227	1,1,2-Trichloroetane	B,T,L
U228	Trichloroethene	B,T,L
U228	Trichloroethylene	B,T,L
U234	Benzene, 1,3,5-trinitro- (R,T)	T,L (not handled if shock sensitive)
U234	sym-Trinitrobenzene (R,T)	T,L(not handled if shock sensi-tive)
U235	Tris(2,3-dibromopropyl)phosphate	B,T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)	B,T,L
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-di-methyl-(1,1'-biphenyl)-4,4'diyl)]-bis (azo) bis(5-amino-4-hydroxy)-,tetra-sodium salt	B,T,L
U236	Trypan blue	B,T,L
U237	Uracil, 5(bis(2-chloromethyl) amino)-	B,T,L
U237	Uracil mustard	B,T,L
U238	Carbamic acid, ethyl ester	B,T,L
U238	Ethyl carbamate (urethan)	B,T,L
U239	Benzene, dimethyl-(I,T)	B,T,L
U239	Xylene (I)	B,T,L
U240	2,4-Dichlorophenoxyacetic acid, salts and esters	B,T,L
U243	Hexachloropropene	B,T,L
U243	1-Propene, 1,1,2,3,3,3-hexachloro-	B,T,L
U244	Bis(dimethylthiocarbamoyl) disulfide	B,T,L
U244	Thiram	B,T,L
U246	Cyanogen bromide	T,L
U246	Bromine cyanide	T,L

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY**
(continued)

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U247	Ethane, 1,1,1-trichloro-2,2-bis (p-methoxyphenyl)	B,T,L
U247	Methoxychlor	B,T,L
U248	3-(alpha-Acetonylbenzyl)-4-hydroxycovmarin and salts, when present at concentrations of 0.3% or less	T,L
U248	Warfann, when present at concentrations of 0.3% or less	T,L
U249	Zinc phosphide, when present at concentrations of 10% or less	T,L (if non-reactive)
U271	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester (Benomyl)	AT,B,L,T
U278	1,3-Benzodioxol-4-ol,2,2-dimethyl-, methyl carbamate (Bendiocarb)	AT,B,L,T
U279	1-Naphthalenol, methylcarbamate (Carbaryl)	AT,B,L,T
U280	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester (Barban)	AT,B,L,T
U328	o-Toluidine	B,T,L,AT
U353	p-Toluidine	B,T,L,AT
U359	2-ethoxyethanol	B,T,L,AT
U364	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol)	B,T,L,AT

TABLE C-2

HAZARDOUS MATERIALS MANAGED AT MODEL CITY FACILITY** **(continued)**

EPA Hazardous Waste No.	Substance	TSD(1)(2)(3)
U367	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, (Carbofuran phenol)	B,T,L,AT
U372	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim)	B,T,L,AT
U373	Carbamic acid, phenyl-, 1-methylethyl ester (Propham)	B,T,L,AT
U387	Carbamothioic acid, dipropyl-, S-(phenylmethyl)ester (Prosulfocarb)	B,T,L,AT
U389	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate)	B,T,L,AT
U394	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester (A2213)	B,T,L,AT
U395	Ethanol, 2,2'-oxybis-, discarbamate (Diethylene glycol, dicarbamate)	B,T,L,AT
U404	Ethanamine, N,N-diethyl-, (Triethylamine)	B,T,L,AT
U408	2,4,6-Tribromophenol	B,T,L,AT
U409	Carbamic acid, [1,2-phenylanabis(iminocarbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl)	B,T,L,AT
U410	Ethanimidothioc acid, N,N'-[thiobis[(methylimimo)carbonyloxy]]bis-, dimethyl ester (Thiodicarb)	B,T,L,AT
U411	Phenol, 2-(1-methylethoxy)-, methylcarbamate (Propoxur)	B,T,L,AT

FOOTNOTES-

(1) The concentration and/or quantity of many of the cited waste constituents which may be accepted for treatment and/or disposal are limited by permit conditions and regulatory framework. The TSD Options selected for the cited materials are an estimate. Actual TSD Options will be driven by current permit conditions and current regulations, both State and Federal. Please refer to the introduction to this table for details (see pages C-1 through C-4).

(2) Disposal and/or Treatment Codes:
T-Transfer. (Transfer is always an option.)
L-Landfill.
B-Blend/Burn.
AT-Aqueous Treatment.

(3) The generator of Non-Bulk and Bulk containers must conform to the packaging requirements of:

49 CFR Subpart B - Table of Hazardous Materials and Special Provisions; specifically Part 172.101(i) Packaging Authorizations.

49 CFR Part 173 - Shippers - General Requirements for Shipments and Packagings.

49 CFR Part 178 - Specifications for Packagings.

Containers that arrive at the facility which do not meet the stated USDOT specifications shall not be shipped out of the facility unless the contents of the container are placed into a container which meets USDOT specifications. Containers that arrive at the facility which appear to have obvious signs of structural damage or deterioration, or which are found to be leaking shall either be overpacked into containers meeting RCRA container standards or Or otherwise addressed in accordance with the container module of the the facility's permit.

(4) These waste codes refer only to waste that may be classified as derived from F020-F023 and F026-F028 (i.e. leachate). No current production waste or out-dated products with these codes will be accepted.

(5) Due to the hazards posed by concentrated forms of these substances, only treatment residues and contaminated media such as soil, water, debris, etc. will be managed.

* Depends on DOT classification.

ARCADIS

Appendix C

2010 Final New York State Hazardous Waste Facility Siting Plan

New York State
Department of Environmental Conservation

Division of Environmental Remediation

Adopted

New York State
Hazardous Waste Facility Siting Plan

October 2010

40 years of stewardship 1970-2010

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New York State Hazardous Waste Facility Siting Plan

Adoption Date: OCT 1 8 2010

Commissioner Alexander P. Grannis

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New York State
Hazardous Waste Facility Siting Plan

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EXECUTIVE SUMMARY

Chapter 618 of the New York Laws of 1987 established Environmental Conservation Law (ECL) 27-1102 which mandates the development of this Hazardous Waste Facility Siting Plan (Plan) by the New York State Department of Environmental Conservation (Department). The purpose of the Plan is to "provide a framework to guide State agencies and authorities and the facility siting board established pursuant to section 27-1105 ... in the discharge of their responsibilities and to assure the availability of industrial hazardous waste treatment, storage, and disposal facilities..."as may be required in the future.

In 2005, the New York State legislature added ECL Section 27-1109.6 which provides that no new or pending application for a disposal facility subject to review by a Siting Board can be deemed complete until the Department has determined that the application is consistent with the Hazardous Waste Facility Siting Plan adopted pursuant to ECL 27-1102. As a result, no new or pending application subject to these requirements can be deemed complete until the Siting Plan is adopted.

Chapters 1 through 8 of the Plan address the specific issues required by ECL 27-1102.2. Chapter 9 then considers the information presented in the previous chapters to provide guidance for State Agencies and Authorities and facility Siting Boards, as required by ECL 27-1102.1.

Chapter 1: Chapter 1 is a discussion of the current status of hazardous waste management in New York State. The table below provides 2008 information by county on the 13 commercial treatment, storage or disposal (TSD) facilities located in New York State.

COMMERICAL TREATMENT, STORAGE AND DISPOSAL FACILITIES – 2008

EPA ID Number	Name/Address	County/ DEC Region	Handling Method	Quantity received from Off-Site (tons)
NYD080469935	Norlite Corporation Cohoes, NY	Albany/4	I	24,062
NYD986872869	Safety-Kleen Systems, Inc. Cohoes, NY	Albany/4	S	148
NYD049253719	Ashland Distribution Co. Binghamton, NY	Broome/7	S	4,229
NYR000129015	American Lamp Recycling LLC [1] Fishkill, NY	Dutchess/3	R	1
NYD981556541	Safety-Kleen Systems, Inc. Lackawanna, NY	Erie/9	S	150

COMMERICAL TREATMENT, STORAGE AND DISPOSAL FACILITIES – 2008				
NYD980753784	Safety-Kleen Systems, Inc. Avon, NY	Livingston/8	S	170
NYD049836679	CWM Chemical Services Model City, NY	Niagara/9	ww L S	677 198,699 924
NYD002113736	Tulip Corporation [1] Niagara Falls, NY	Niagara/9	R	2,587
NYD982743312	Safety-Kleen Systems, Inc. Syracuse, NY	Onondaga/7	S	167
NYD013277454	Solvents & Petroleum Service Syracuse, NY	Onondaga/7	S	397
NYD030485288	Revere Smelting & Refining Middletown, NY	Orange/3	R	107,718
NYD077444263	Triumvirate Environmental NYC LLC (formerly CWD) Astoria, NY	Queens/2	S	736
NYD082785429	Chemical Pollution Control Bayshore, NY	Suffolk/1	S	1,955
1 - Exempt from 6 NYCRR Part 373 permitting.				

R: Reclamation/Recovery
I: Incineration
L: Landfill
S: Storage, bulking, and/or transfer off-site
ww: Wastewater (which is treated)

Chapter 2: Chapter 2 discusses the programs underway across the State to reduce the use of toxics, along with the status of the State's hazardous waste reduction and pollution prevention programs, which were enacted consistent with the State hierarchy for preferred hazardous waste management practices. Through these programs, and as a result of the hazardous waste reduction planning and pollution prevention activities implemented by generators in recent years, the generation of millions of tons of hazardous waste has been prevented.

Chapter 3: For the purpose of projecting long range hazardous waste generation trends, Chapter 3 presents an analysis of historic hazardous waste generation. Generation of primary hazardous waste shows a steady slow decline over time, leading to a prediction that it will remain static or in decline. Remedial waste generation, however, is much more unpredictable. While it is projected that there will continue to be 12 to 15 large hazardous waste cleanup actions each year, the quantity of hazardous waste generated will depend on the remedial plans developed for the individual sites, and, therefore, cannot be predicted.

Chapter 4: The Siting Law specifically requires that the status of hazardous waste land disposal be considered. The land disposal of hazardous waste has been severely restricted in compliance with ECL Sections 27-0105, 27-0900 and 27-0912 and federal regulatory requirements (referred to as the Land Disposal Restrictions or LDRs). The Department will, at least annually, review the status of USEPA LDR rulemaking efforts, including actions with regard to macroencapsulation of debris, and initiate amendments to its LDR regulations as appropriate.

Chapter 5: Chapter 5 discusses the potential for development of hazardous waste management and disposal capacity for specific regions of the State based on need. With present day hazardous waste management practices, there are no opportunities to address particular waste streams for discrete areas of the State for management on a regional basis. However, the overall goal embodied in this requirement of the Siting Plan statute, to identify like wastes to be managed at centrally located facilities, is being met in a larger national context by the generators, transporters and TSD facilities. Because the State is relying on the private sector to build and operate hazardous waste management facilities, economics argue against anticipating building of small, like facilities in numerous locations across the State.

Chapter 6: Chapter 6 discusses facility need, environmental justice considerations, and geographic distribution of facilities. Based on the national availability of facilities, there are sufficient TSD facilities for management of hazardous waste generated in New York, and will be for the foreseeable future. Periodically, USEPA will revisit the issue of national capacity and need through analysis of available data, and regulators at both a state and federal level will have years of lead time to address potential capacity shortfalls. Still, the issues of need, environmental justice and geographic distribution will be relevant in the review of individual TSD applications for the management of hazardous waste.

Chapter 7: Chapter 7 discusses hazardous waste transportation issues. Approximately 64,000 manifested shipments of hazardous waste either originate from the State or are received by a facility located in the State in recent years. Every year, approximately 6,000 to 8,000 locations from all areas of the State originate shipments of hazardous waste which is transported from generating facilities to in-state and out-of-state hazardous waste TSD facilities, using primarily public roadways, or railroad routes. Shipments by rail tend to involve large quantities.

The cost to transport varies as the cost of fuel fluctuates. Handling costs associated with transportation also varies and can be significant. One estimating tool using 2009 data shows the cost of transporting hazardous wastes within New York State to be $6.06 per mile per truck. One truckload can generally transport 20 cubic yards, 6250 gallons or 80 drums of waste.

In 2008, 0.028% of the total tracked shipments of hazardous waste in the state were involved in a reportable hazardous waste incident during active transport, indicating that the risk of a release of hazardous waste to the environment during transportation in New York State is low. Nor are the risks associated with the released wastes significant, as discussed in Chapter 7.

Chapter 8: Chapter 8 discusses cooperative approaches to hazardous waste management and procedures for updating the Siting Plan in the future. The Department will continue to encourage cooperative hazardous waste management through state, national, governmental and private avenues. As part of an annual Plan review, the Department will determine if an update to the Plan is necessary.

Chapter 9: This Chapter presents guidance for State Agencies and Authorities and Facility Siting Boards. In accordance with Statute, in making a decision on an application for a certificate of environmental safety and public necessity, a facility Siting Board may deny an application if:

- it is not consistent with the Hazardous Waste Facility Siting Plan, or

- the need for such facility is not identified in such Plan and the board finds that the facility is not otherwise necessary or in the public interest.

In determining if there is a need for a facility, the Plan concludes that, based on the data and analysis, there is sufficient capacity within and beyond New York's borders for the management of the hazardous waste presently generated within New York State.

Further specific guidance is provided to assist a Siting Board in determining:

- if an application is or is not consistent with the Plan;
- if a facility is or is not otherwise necessary; and
- if a facility is or is not in the public interest.

INTRODUCTION

Organization of the Plan

Environmental Conservation Law (ECL) 27-1102 requires the development of the Hazardous Waste Facility Siting Plan (Plan) and provides detailed guidance on what must be included in the Plan.

Plan Chapters 1 through 8 address specific Plan content requirements found in ECL 27-1102.2. Each specific statutory requirement is in italics at the beginning of the Chapter addressing that requirement.

In accordance with ECL 27-1102.1, the overall purpose of the Plan is to "*establish a framework to guide state agencies and authorities and the facility siting board established pursuant to section 27-1105 of the ECL in the discharge of their responsibilities and to assure the availability of industrial hazardous waste treatment, storage and disposal facilities which meet certain criteria.*" Chapters 1 through 8 present the details and analysis that form the basis of the framework to guide state agencies, authorities, and a facility siting board. Chapter 9 presents summary guidance derived from the detailed analyses presented in the earlier chapters.

Process to Develop the Plan with Public Input

As required by law, the draft Plan, along with a draft Generic Environmental Impact Statement (DGEIS), was subject to two rounds of public comment, with hearings held in each of the Department's nine regions.

The first draft Plan and DGEIS was released for public review and comment on the Department's web site on July 28, 2008. Electronic copies were available by mail and paper copies were made available at all nine Department regional offices. The notice of public hearing was published on September 3, 2008 in the Environmental Notice Bulletin and on September 10, 2008 in the Niagara Gazette and the State Register. Hearings were held in all nine Department regions with two hearings held in Region 9. The comment period closed on November 26, 2008.

Taking comments into consideration, the documents updated and a Response to Comment prepared, and the revised draft Plan and DGEIS along with the Response to Public Comment was released for public review on September 29, 2009, available on the Department website. Notice of 10 public hearings, one in each Department region with two in Region 9, was published in the State Register and the Environmental Notice Bulletin on September 30, 2009 and in the Niagara Gazette on October 6, 2009 with public comment to be received by December 14, 2009, which was later extended to January 14, 2010. Copies of documents were also available electronically by mail, and paper copies were available at all nine Department regional offices.

This final Plan and associated Generic Impact Statement take comments received into consideration along with updated data. A second Response to Public Comment has been prepared.

Information to Assist Reading of the Plan

In many of the analyses in the Plan, data is used to describe and assess intrastate activity, with DEC regions used to subdivide the State into distinct areas. Table Intro-1 provides the names of the counties in each DEC region, designated 1 through 9, and Figure Intro-1 shows the locations of the DEC regions on a State map.

New York State Map with NYSDEC Regions 1 - 9

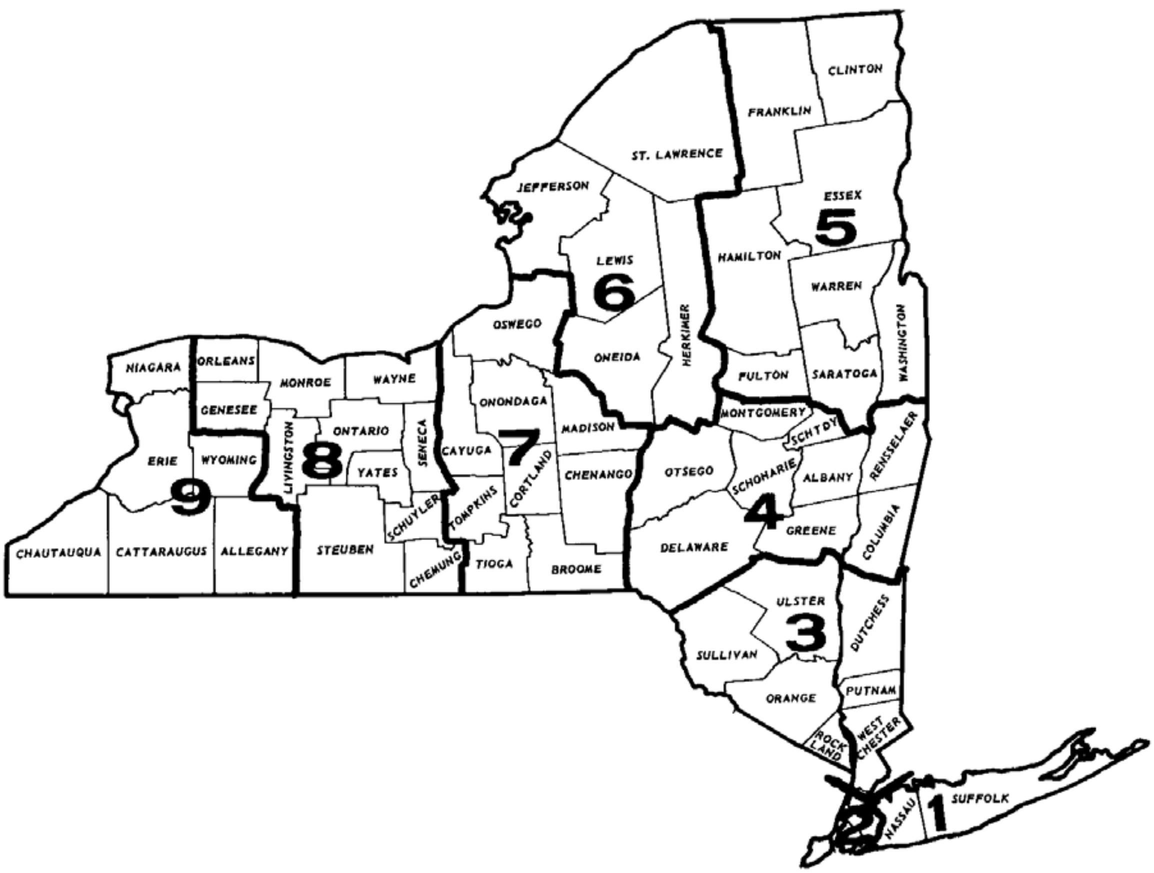

Figure Intro-1

Table Intro - 1
New York Counties in DEC Regions

Region Number	New York Counties
1	Suffolk and Nassau
2	New York, Bronx, Queens, Richmond and Kings
3	Sullivan, Ulster, Orange, Dutchess, Putnam, Rockland and Westchester
4	Montgomery, Otsego, Delaware, Schoharie, Schenectady, Albany, Greene, Rensselaer and Columbia
5	Franklin, Clinton, Essex, Hamilton, Warren, Fulton, Saratoga and Washington
6	Jefferson, St. Lawrence, Lewis, Oneida and Herkimer
7	Oswego, Cayuga, Onondaga, Madison, Tompkins, Cortland, Chenango, Tioga and Broome
8	Orleans, Monroe, Wayne, Genesee, Livingston, Ontario, Yates, Seneca, Steuben, Schuyler and Chemung
9	Niagara, Erie, Wyoming, Chautauqua, Cattaraugus and Allegany

Purpose of the Plan

In requiring a Hazardous Waste Management Siting Plan, Chapter 618 of the New York Laws of 1987 declared that, to better protect human health and the environment, the State must develop policies to assure sound management of hazardous waste. While other provisions of New York State law address the safe management of hazardous waste, including the sustainability of specific locations for the placement of facilities, the stated purpose of the Plan is to guide State agencies and authorities, and any facility Siting Board, on more general siting issues and to assure the availability of facilities for the management of hazardous waste.

While much has changed over the last two decades in the hazardous waste management industry, including USEPA's determination in 1995, and most recent confirmation in 2009, that there is sufficient national capacity, the law requiring a Plan remains in place, and, while not as relevant or urgent as it appeared to be in 1987, the Plan is still useful in that it demonstrates:

1. long-term availability of all types of hazardous waste management facilities, either within or outside of the State, for waste generated in New York State;

2. compliance with all federal and State requirements and legal determinations governing such facilities;

3. compliance with the preferred hazardous waste management practices hierarchy established pursuant to ECL Section 27-0105; and

4. equitable geographic distribution of new or expanded hazardous waste management facilities across the State.

Historic Background of the Siting Plan

The mission of the Department since it was created in 1970 is stated at ECL 1-0101 (Declaration of Policy), which provides, in part "...the policy of the State of New York to conserve, improve and protect its natural resources and environment and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well being. It shall further be the policy of the state to improve and coordinate the environmental plans, functions, and powers and programs of the state..." This mission provides the context for New York State's regulation of hazardous waste management under many subsequent laws passed by the legislature, most particularly, the 1978 Hazardous Waste Management Act.

A number of key events related to hazardous waste management in New York State have happened since the passage of 1978 Hazardous Waste Management Act:

- New York State attempted to site and build a full service hazardous waste management facility through the Environmental Facilities Corporation (EFC) in the early 1980's. For a number of reasons, this project was abandoned and New York State continued to rely on the private sector to build and operate hazardous waste management facilities in the State.

- In September 1985, the New York State Hazardous Waste Treatment Facilities Task Force issued and held hearings on its Final Report. This report presented various hazardous waste treatment methods for consideration, including recommendations that were then incorporated into the 1987 Siting Plan law.

- In 1987, through Chapter 618, the hazardous waste management hierarchy and the Siting Plan law were enacted. The legislature, while establishing preferences for certain management practices, did not preclude the use of any specific management practice. The legislature clearly intended to build upon the State's evolving hazardous waste management program.

- Also, in 1987, the State became concerned about the need for new or expanded hazardous waste management facilities, partly because of the federal hazardous waste capacity assurance requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 104(c)(9) which was added in 1986 by the Superfund Amendments and Reauthorization Act (SARA). This section states "The Administrator of the EPA is prohibited from entering into a contract or cooperative agreement with a State in which a remedial action is to be taken after October 17, 1989, until and unless that State provides assurances of the availability of hazardous waste treatment or disposal facilities that have adequate capacity to manage the hazardous waste expected to be generated in that State over the next 20 years."

- In June 1988, the Department released the initial draft of the Hazardous Waste Facility Siting Plan for public comment and in August 1989 released a revised draft. In

September 1991 the final draft Hazardous Waste Facility Siting Plan was released and another round of public hearings held.

- DEC initially evaluated dividing the state into three areas and five areas based on hazardous waste generation and concluded, after public hearings, that the resulting management facility sizes were too small to be viable for the private sector to operate economically.

- In 2005, the Legislature enacted ECL Section 27-1109.6, stating that no new or pending application for a disposal facility subject to review by a Siting Board can be deemed complete until the Department has determined that the application is consistent with the Hazardous Waste Facility Siting Plan adopted pursuant to ECL 27-1102. As a result, no new or pending application subject to these requirements can be deemed complete until the Siting Plan is adopted.

- In 2008, hazardous waste was produced by generators throughout the State in all 9 Department regions and all 62 counties. Toxic Release Inventory (TRI) data shows statewide emissions to air and water as well as disposal on land. Large cleanups of past environmental contamination across the state resulted in unanticipated need for management and disposal of hazardous waste. Even so, the number of commercial TSD facilities in the State have declined over time with 30 commercial TSD facilities in 1988 (reported in the 1988 Siting Plan) and 13 commercial TSD facilities in 2008 (reported in Table 1-2 in Chapter 1 of this Plan).

- In 1995, USEPA made a determination that sufficient national capacity for hazardous waste TSD facilities existed for years to come and no longer required states to make individual State capacity assurances. USEPA has assumed responsibility for the capacity assurance program on behalf of States, dropping the need for interstate agreements referenced in 27-1102. National capacity has continued to be available since that time to meet hazardous waste management needs across the country. USEPA re-confirmed in July 2009 that adequate national capacity exists through December 31, 2034.

This Plan takes into account the current nature of the hazardous waste management industry, as discussed below under “National Perspective.”

<u>National Perspective</u>

In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA), recognizing that improper hazardous waste management can result in harm to public health and the environment. RCRA takes a unique “cradle to grave” approach, placing stringent controls on hazardous waste generators, transporters and treatment, storage and disposal facilities. Congress also provided for states to adopt hazardous waste regulations and develop hazardous waste management programs through authorization by USEPA.

Using the national regulations as a baseline, states can be authorized to act on behalf of the federal government in implementing a hazardous waste management program in their state. All states but Iowa are so authorized to some extent. For those areas of the program for which a state is not authorized, the federal government implements the program just for those areas. The federal government implements its laws jointly with a state if the state has adopted the federal regulation but is not yet authorized to implement the federal program on its own.

New York State is authorized to implement most of the federal hazardous waste management (RCRA-C) program. By meeting New York State regulatory and permitting requirements, New York facilities also meet federal regulatory and permitting requirements for hazardous waste management. Facilities located in other states are similarly regulated by a combination of state and federal regulatory requirements. As a result, interstate agreements or multi-state regional authorities, referenced in the law establishing the basis for the development of this Plan, are not necessary to assure proper management of hazardous waste. Pursuant to federal and state regulation, generators are generally required to ship waste only to a TSD facility authorized by RCRA-C or an equivalent state program.

To obtain approval by USEPA for its hazardous waste management program, a state program must be consistent with the federal program. Federal regulation states at 40 CFR271.4(a) : “Any aspect of the State program which unreasonably restricts, impedes, or operates as a ban on the free movement across the State border of hazardous wastes from or to other States for treatment, storage, or disposal at facilities authorized to operate under the federal or an approved State program shall be deemed inconsistent.” Because no state can inhibit the interstate transport of hazardous waste, all generators are allowed access to TSD facilities across the country.

The federal regulation goes on to state at 40CFR271.4(b): “Any aspect of State law or of the State program which has no basis in human health or environmental protection and which acts as a prohibition on the treatment, storage or disposal of hazardous waste in the State may be deemed inconsistent.” To continue to be an authorized State, New York must meet the requirements of these federal regulations. This Plan is written to be consistent with these federal mandates.

Since the Siting Plan law was passed in 1987, the solid and hazardous waste management industries have significantly evolved. Even as State’s adopt their own regulations based on RCRA provisions, a national perspective on the hazardous waste management industry is a necessary result of the Supreme Court holdings that solid waste is a commodity and interstate transport cannot be inhibited under the Commerce Clause of the U.S. Constitution: *Philadelphia v. New Jersey*, 437 U.S. 617, 98 S.Ct. 2531, 57 L.Ed.2d 475 (1988); *Fort Gratiot Sanitary Landfill, Inc. v. Michigan Dept. of Natural Resources*, 504 U.S. 353, 112 S.Ct. 2019, 119 L.Ed.2d 139 (1992). Reflecting economic necessity, these industries have developed business models that cross state and international boundaries. In recent times, the trend for hazardous waste management facilities is to construct facilities with larger customer bases located across a broad geographic area. Smaller, regional facilities have been closed.

This Plan looks at the management of hazardous waste generated in New York State from the perspective of present industry practices, recognizing that state borders are not a major factor in the business or regulatory approach to hazardous waste management. The Plan also takes into account the impact of national hazardous waste management capacity and hazardous waste importation and exportation. A commercial TSD facility managing hazardous wastes, be it by storage, recycling, treatment, incineration, or landfilling, looks well beyond state borders for prospective clients. By the same token, a New York State hazardous waste generator evaluates options both inside and outside of New York to find the most effective and economical method for managing its hazardous waste. This includes consideration of availability of the required management option, transportation and handling costs, and other factors. With the proximity of Canada to our State, hazardous waste management takes on an international dimension, with waste crossing the border in both directions for proper management.

Through this evaluation process, recognizing the current realities of the hazardous waste industry, the Plan's findings, recommendations and guidance reflect a national perspective in determining the hazardous waste management needs of New York State.

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CHAPTER 1

Current Status of Hazardous Waste Management in New York State: *an inventory and appraisal including the identification, location and life expectancy of all industrial hazardous waste treatment, storage and disposal facilities located within the state (ECL 27-1102.2(a)).*

For the purposes of this analysis, hazardous waste treatment, storage and disposal (TSD) facilities are those facilities which receive regulated hazardous waste from off-site for management or treat regulated hazardous waste at the site of generation and are required to report annually on hazardous waste receipts. Ten-day transfer stations, generators who store for less than 90 days, facilities or locations for collecting household hazardous wastes, facilities for collecting non-manifested waste such as universal waste, sanitary landfills, and trucks are not included as TSD facilities in the detailed analyses included in the Plan. Facilities that reuse hazardous wastes that they generate are also not considered treatment, storage or disposal facilities.

TSD facilities are located throughout the State, and are regulated pursuant to 6 NYCRR Part 370 et seq. which set forth regulatory provisions for the management of hazardous waste, including Part 373 which applies specifically to hazardous waste management facilities. Because New York State is authorized to implement the federal hazardous waste management program on behalf of the federal government (the RCRA-C program), by meeting New York State regulatory and permitting requirements, New York facilities also meet federal regulatory and permitting requirements for hazardous waste management.

Types of Hazardous Waste TSD Facilities

Hazardous waste management facilities considered in this chapter (and this Plan) are divided into three groups:

- **“on-site” facilities** that manage their hazardous waste at the generating facility;
- **“captive” facilities** that receive manifested hazardous waste for management that is generated by another facility owned by the same company - this includes facilities that receive remedial waste from off-site related to their facility operations; and
- **“commercial” facilities** that receive hazardous waste for management from businesses owned by different companies and hazardous waste from environmental cleanups by both private and governmental parties, and are required to submit a hazardous waste annual report including hazardous wastes received.

Appendix C provides a complete listing by county of these TSD facilities, including location, hazardous waste management methods, and quantity of hazardous waste managed. Facility listings for 1991, 2001, 2005, 2007 and 2008 are provided, to show the changes over a 17 year period. Data from 1991 is the earliest data available electronically. In 2001, the United States Environmental Protection Agency (USEPA) changed the format for reporting data. The earliest data available in the new format (2001) is provided.

Table 1-1 shows the number of various types of facilities in each Department Region in the State in 2007 and 2008. A map of the Department Regions and a listing of the counties in each region can be found in the Introduction (Figure Intro-1 and Table Intro-1). Facilities in this table include:

- Facilities that receive manifested hazardous waste from off-site. The total number is provided for each region. These are either commercial or captive, as shown in parentheses.

- On-site facilities. This category includes those facilities which reported on-site treatment activity in the hazardous waste annual report, and did not receive any waste from off-site for management. These treatment facilities generate hazardous wastewater which they treat, or they manage their hazardous waste in other ways, such as solvent recovery (where waste solvent is treated to remove contaminants to allow the facility to reuse the solvent in their industrial processes.) Facilities that only treat hazardous wastewater are shown in parentheses. On-site facilities do not include facilities that are considered storage facilities under RCRA only because they store their own hazardous wastes for greater than 90 days.

- The total number of facilities is provided, along with, in parentheses, the number of facilities excluding those that only treat hazardous wastewater.

Table 1-1

Treatment, Storage or Disposal Facilities 2007

	Receive waste from Off-Site (Commercial/Captive)	**On-Site Activity Only* (ww only)**	**Total Facilities (Excluding ww only facilities)**
Region 1	2 (1/1)	27 (4)	29 (25)
Region 2	2 (1/1)	15 (1)	17 (16)
Region 3	3 (2/1)	14 (5)	17 (12)
Region 4	2 (2/0)	11 (4)	13 (9)
Region 5	0	7 (2)	7 (5)
Region 6	0	4 (3)	4 (1)
Region 7	3 (3/0)	22 (10)	25 (15)
Region 8	5 (1/4)	24 (12)	29 (17)
Region 9	5 (3/2)	31 (13)	36 (23)
TOTAL	22 (13/9)	155 (54)	177 (123)

* Includes manholes where treatment occurred to water and sludges at that immediate location. Region 1 has 7 manholes and Region 2 has 5 manholes included.

Treatment, Storage or Disposal Facilities 2008

	Receive waste from Off-Site (Commercial/Captive)	On-Site Activity Only* (ww only)	Total Facilities (Excluding ww only facilities)
Region 1	2 (1/1)	16 (2)	18 (16)
Region 2	2 (1/1)	30 (1)	32 (31)
Region 3	3 (2/1)	13 (3)	16 (13)
Region 4	2 (2/0)	10 (6)	12 (6)
Region 5	0	6 (2)	6 (4)
Region 6	0	7 (5)	7 (2)
Region 7	3 (3/0)	21 (8)	24 (16)
Region 8	4 (1/3)	29 (15)	34 (19)
Region 9	4 (3/1)	35 (16)	40 (24)
TOTAL	20 (13/7)	167 (58)	189 (131)

* Includes manholes where treatment occurred to water and sludges at that immediate location. Region 2 has 23 manholes included.

The first column of Table 1-1 presents information on the number of TSD facilities which receive manifested hazardous waste from off-site**;** that is, hazardous waste that is transported (accompanied by a hazardous waste manifest shipping document) from other locations to these facilities for proper management. In 2007 there were 22 such facilities across the State. Of these 22 facilities, 13 were commercial and 9 were captive. In 2008, the number of captive facilities decreased to 7. Facilities that receive manifested hazardous waste from off-site total 10 to 12% of all TSD facilities in the State. Commercial facilities constitute 7% of all TSD facilities in the State.

Column 2 of Table 1-1 presents information on the number of TSD facilities which manage only hazardous waste generated at that site. A number of facilities use significant amounts of water in their process, which becomes contaminated in such a way as to make it a hazardous waste. Other facilities pump and treat contaminated groundwater. In either case, this hazardous wastewater is then treated to remove the contamination before being discharged into a municipal sewer system or into the environment. Wastewater discharges are regulated under the State's SPDES (State Pollutant Discharge Elimination System) program. Statewide, there were 155 facilities that treat hazardous waste on-site in 2007 and 167 such facilities in 2008, including those facilities which treat hazardous wastewater. This represents 87% to 88% of all TSD facilities in the State. In 2008, of those that treated on-site, 35% treated only hazardous wastewater. As discussed elsewhere in this Plan, most of the facilities that treat hazardous waste on-site are exempt from needing hazardous waste facility permits.

Column 3 of Table 1-1 presents the number of total TSD facilities, including both facilities that receive manifested hazardous waste from off-site and those who manage only hazardous waste generated on-site. First presented is the number of TSD facilities including those who only treat hazardous wastewater, totaling 180 facilities Statewide in 2008 (compared to 177 in 2007 and 226 in 2005). The number of TSD facilities not including those that only treat hazardous wastewater on-site is provided in parentheses (131 facilities Statewide in 2008- compared to 123 in 2007 and 167 in 2005). The variances in the number of facilities from 2005 to 2008 is partially due to the management of waste at manholes.

Further discussion on the distribution of these TSD facilities across the State, including graphic presentations, can be found in Chapter 6.

Trends in Numbers and Types of Hazardous Waste TSD Facilities

Table 1-2 shows the number of commercial, captive and on-site facilities operating in the State in 1991, 2001, 2005, 2007 and 2008. A downward trend in the number of TSD facilities in all categories over the last 17-year period is apparent. Overall, there has been a drop by almost 50% in the number of TSD facilities in the State. The yearly variations in the data can be seen by comparing 2007 to 2008. The number of manholes being accessed in any particular year impacts the total number of facilities from year to year.

Table 1-2
TSD Facilities Breakdown

Types of TSD facilities	1991	2001	2005	2007	Decrease 91 - 07	2008	Decrease 91-08
On-Site Treatment Facilities	297	280	202	155	48%	167	44%
(wastewater only) (manholes)	-* (0)	(53) (102)	(59) (51)	(54) (12)		(58) (23)	
Captive Facilities	23	11	8	9	61%	7	70%
Commercial Facilities	29	19	16	13	55%	13	55%
TOTAL	349	310	226	177	49%	189	46%
* Due to reporting methods, this number cannot be determined accurately.							

On-Site facilities manage their hazardous waste at the generating facility.

The universe of New York State facilities that treat hazardous waste at the site of generation ("on-site facilities") is significantly larger than facilities that receive off-site manifested hazardous waste. In 2007 and 2008, on-site facilities represented 87% to 88% of the TSD facilities in the State. This is similar to the values of 90% in 2001 and 89% in 2005. The decrease in the number of on-site TSD facilities in the State over time is slightly lower (48% in 2007 and 44% in 2008) but still significant compared with the captive and commercial facilities (61 to 70% and 55% respectively).

The number of on-site facilities is impacted by changing management and reporting practices for manholes over time and the number of manholes being accessed in any particular year. Discounting locations where contaminated water and sludge was pumped from manholes, the number of on-site treatment facilities went from 297 in 1991 to 151 facilities in 2005, a decrease of 49%. In 2007 the total was 143 facilities and in 2008 the total was 144 facilities, slightly lower than the 2005 number.

Waste reduction efforts over the past decade, which are covered in greater detail in the waste reduction/waste recycling discussion in Chapter 2, may be one of the reasons for the overall decline in the number of facilities involved in on-site management. Increasing fees for hazardous waste generation may have played a role as facilities aimed to decrease their generation rates in order to lower their costs. With less hazardous waste generated, on-site treatment may no longer be economical or even necessary. Some of the generators with on-site facilities have simply gone out of business.

The vast majority of facilities that treat waste on-site are exempt from permitting. As of 2009, for those that do require a permit, only one facility has not yet received a permit but operates under interim status as it progresses through the permitting process. While in the past it was anticipated that these permitted facilities would continue on-site waste management in the future, this can no longer be assumed. Significant increases in hazardous waste regulatory fees in 2003 are causing facilities to reexamine their hazardous waste generation activities. If generation is reduced significantly, on-site treatment will be impacted as well.

On-site treatment of hazardous wastewater (which typically does not require a state Part 373 hazardous waste management permit and is discussed in more detail in the hazardous waste generation section in Chapter 3) is a major component of hazardous waste management in New York State. When manholes are taken out of the equation, in 2005, 2007 and 2008, over one-third of the on-site treatment facilities only treated hazardous wastewater. Interestingly, for the State, over 60% of the hazardous wastewater treated on-site is generated and treated by Eastman Kodak Company in Rochester, NY.

Captive Facilities receive manifested hazardous waste for management that is generated by another facility that is owned by the same company. This includes facilities that receive off-site hazardous remedial waste related to their facility operations.

Captive facilities saw a drastic reduction in numbers, with 52% fewer facilities in 2001 than in 1991. In 2005, only 8 captive facilities remained in the State, though this number bumped up to 9 facilities in 2007 then changed to 7 facilities in 2008. This decrease reflects modifications in industrial and waste management practices over time. Three of the nine captive facilities in 2007 and two of the seven captive facilities in 2008 received only hazardous remedial waste related to their facility. One of the captive facilities receives only CESQG waste from it's own satellite areas. Receiving hazardous waste from another facility, even if that facility is owned by the same company, has become an undesirable management method for most companies. While many forms of on-site treatment are exempt from permitting, hazardous waste received from off-site for the same treatment often requires a permit. In addition, the facility takes on added liability for hazardous waste that is not generated at that site. The fees assessed to facilities which accept hazardous waste from off-site may also be a factor.

Interestingly, some captive facilities are large companies which have downsized and are now leasing parts of their property. In several cases, as part of the lease agreement, the property owner retains the responsibility for managing all the hazardous waste generated on the property, and so manages the hazardous waste generated by tenants. This is particularly true for hazardous wastewater which continues to be discharged to common sewer and wastewater treatment systems. The result is a “win-win” situation: the tenant has a simplified method of managing its hazardous waste and the property owner is assured proper management of hazardous waste generated at the site. This type of operation is considered a captive facility.

Commercial Facilities receive manifested hazardous waste for management from businesses owned by unaffiliated companies.

The number of commercial facilities decreased by 45% from 1991 to 2005. By 2007, three additional commercial facilities either closed or changed operation to no longer require permitting, bringing the percentage decrease in number from 1991 to 2007 to 55%. While there were 29 commercial facilities in the State in 1991, the number dropped to 13 in 2007 and in 2008, with 9 facilities closing or changing operation between 1991 and 2001, 4 facilities closing or changing operation between 2001 and 2005, and an additional 3 facilities closing or changing operation between 2005 and 2007. There was no change in the status of the commercial facilities in the State through 2009.

A number of factors have affected the closing or change in operation of commercial facilities since 1991. Some facilities were no longer economically viable; one facility closed after a fire; and some owner/operators faced with enforcement actions or new regulatory standards, chose to close their facilities rather than upgrade their operations to comply with regulatory standards. A number of storage facilities have changed from being a permitted storage facility to being a 10-day transfer facility are are therefore no longer considered part of a TSD facility.

Commercial Facilities in Operation in 2009

The following is a brief description of each of the 13 commercial hazardous waste management facilities as they existed in 2009. Additional information on these facilities can be found at http://www.epa.gov/enviro/ . Compliance histories can be found at http://www.epa-echo.gov/echo/ .

American Lamp Recycling, LLC
Location: 26 Industrial Way, Wappingers Falls, NY 12590 (DEC Region 3)
RCRA ID#NYR000129015 (Recycling Facility)

American Lamp Recycling, LLC is currently located in Wappingers Falls, Dutchess County, having moved there from Fishkill, NY in mid 2005. It has no restrictions on who it can accept lamps from and, based on the amount of hazardous waste it generates, is usually considered a small quantity generator of hazardous waste. It is not required to obtain a permit from the RCRA or Solid Waste programs. However, it is required to have solid waste and air registrations. While this can vary, the facility ships hazardous waste at an average rate of 250-700 lbs per month. Its registration allows it to receive 2,000 fluorescent lamps and 300 HID (high intensity discharge) lamps per hour and allows 20 tons of glass and 3 tons of metal to be stored on site.

This facility is included in the listing of hazardous waste TSD facilities because it receives a small amount of crushed lamps for reclamation without prior storage, under the recycling exemption 6NYCRR 373-1.1 (d)(1)(viii). Because the lamps are crushed, they are not considered a universal waste, but rather, fully regulated hazardous wastes which must be manifested to the facility. When the facility receives this waste it directly enters the reclamation process without prior storage at the facility. By operating in this fashion, the facility is exempt from Part 373 permitting.

Ashland Distribution Co.
Location: 3 Broad Street, Binghamton, NY 13902 (DEC Region 7)
RCRA ID#ND049253719 (Storage Facility)

Ashland Distribution Company specializes in the collection, transportation and transfer of wastes to final authorized treatment and disposal facilities. It functions as a storage facility for off-site generated hazardous wastes, operating under a Part 373 hazardous waste management permit. It also stores hazardous wastes for less than 10 days incidental to transportation in a building not contiguous with the DEC permitted storage areas. This incidental storage is exempt from hazardous waste permitting and is primarily regulated under the federal transportation regulations for hazardous materials.

Ashland collects wastes from chemical industries, typically from printing, adhesives, metal working, general manufacturing, education and government customers. No treatment or disposal of hazardous waste is permitted at the facility. Off-site generated wastes are transported to the facility in containers which meet U.S. Department of Transportation specifications. Incoming wastes in containers are placed on pallets and stored in six designated storage areas segregated according to waste compatibility.

The facility, which is approximately 2.7 acres in size, commenced operation on February 28, 1969. The facility is currently permitted by DEC to store 42,900 gallons of off-site generated hazardous wastes.

Chemical Pollution Control, Bayshore, NY
Location: 120 South Fourth Street, Bay Shore, NY 11706 (DEC Region 1)
RCRA ID#NYD082785429 (Storage Facility)

Chemical Pollution Control (CPC) is a commercial hazardous waste storage facility, operating under a state Part 373 hazardous waste management permit. CPC receives or picks up hazardous waste and non-hazardous waste in drum lots or as bulk loads, primarily by CPC's own transport vehicles and trained drivers. CPC has 12 container storage areas and six storage tanks. All wastes are shipped by CPC to authorized off-site treatment and disposal facilities.

CPC accepts and handles a variety of wastes, including: acids, alkalis, flammables, cyanides/sulfides, oxidizers, toxic wastes, non-hazardous and oily wastes, photochemical wastes, lab packs, universal wastes, and PCBs. Wastes are received from large and small quantity and exempt generators, and households. CPC serves laboratories, research and development organizations, colleges/universities, hospitals, doctors, dentists, drug stores, photo labs and printers, and a range of industries, including metal plating, anodizing, fabrication and finishing, and other cleaning operations, textiles, painting, coating, chemical manufacturing, and pickling industries. CPC also treats photochemical waste fixer (spent silver bearing solution) on-site using stand-alone automated electrolysis units and passive filter units to recover metallic silver.

The facility commenced operation in 1976 and is approximately 47,475 square feet in size. The facility is permitted by a state Part 373 hazardous waste management permit to store hazardous and non-hazardous wastes as follows: 24,530 gallons of hazardous waste in six aboveground tanks; 55,144 gallons of hazardous and non-hazardous wastes in containers in 12 container storage areas; and non-hazardous wastes in five 30-cubic-yard roll-offs.

CWM Chemical Services
Location: 1550 Balmer Road, Model City (Porter), New York 14107 (DEC Region 9)
RCRA ID#NYD049836679 (Storage, Treatment, and Land Disposal Facility)

CWM Chemical Services, L.L.C. (CWM), a subsidiary of Waste Management, Inc. (WM), owns and operates a hazardous waste treatment, storage and disposal facility on a 710 acre site in the Towns of Porter and Lewiston (all hazardous waste management operations are within the Town of Porter). Waste management activities on this site began in 1971 by a company called Chem-Trol Pollution Services, Inc., which became SCA Chemical Services, Inc. and was acquired by WM in 1984 and then reorganized it into CWM. There are six (6) hazardous/industrial landfills at this facility of various sizes, five (5) of which are closed and one (1) which is receiving waste.

Presently, CWM operations at this site primarily center around the land disposal of solid, commercial hazardous waste and non-hazardous industrial waste, with some treatment and storage of on-site and off-site liquid waste. Commercial wastes processed and disposed of at this facility come mainly from states in the northeast and midwest, with some waste imported from Canada. CWM's currently operating landfill (known as Residual Management Unit One, or RMU-1), originally permitted in 1994, occupies approximately 47 acres and has a permitted capacity of approximately 3.5 million cubic yards. It is permitted to accept up to 425,000 tons per year, with an exemption for certain waste types which are not counted against this annual limit, but has no daily limit.

Norlite Corporation, Inc., Cohoes, NY,
Location: 628 South Saratoga Street, Cohoes, NY, 12047 (DEC Region 4)
RCRA ID#NYD080469935 (Incineration Facility)

Norlite Corporation is the only commercial hazardous waste combustion facility in New York State. It has been in existence since the 1950s and began burning hazardous waste in the late 1970s, under a state Part 373 hazardous waste management permit. Norlite burns hazardous wastes, considered "liquid low grade fuel," and used oil, in two lightweight aggregate kilns (kilns) as fuel to heat and expand mined raw shale to produce lightweight aggregate.

Norlite accepts, stores and burns hazardous wastes and waste oil, as approved in its Part 373 permit, from various industrial sources. Hazardous waste that does not meet its specifications is shipped to other hazardous waste management facilities. Norlite burns approximately 9 million gallons of acceptable hazardous waste and used oil annually to process shale into lightweight aggregate.

The processing facility occupies about 12 of the 221 acres owned by the facility. The two kilns are about 180' long and about 10' in diameter. Fifteen hazardous waste storage tanks are used to store and blend hazardous waste prior to burning it in the kiln. Norlite also operates one container storage area to store hazardous wastes in drums. Both the tank and container storage areas have secondary containment systems.

Shale is quarried on-site and used as a raw material in the production of lightweight aggregate. The shale is fed from the back end of the kiln and superheated to remove all moisture from the stone, producing a lightweight aggregate. Material collected by the air pollution control devices from the kiln operations is used in producing various building materials.

Revere Smelting and Refining, Middletown, NY
Location: 65 Ballard Road, Middletown, Orange Co., New York 10941 (DEC Region 3)
RCRA ID#NYD030485288 (Recycling Facility)

The Revere Smelting and Refining (RSR) facility recycles lead acid batteries by processing the lead in a secondary smelter, reselling the plastic housing and processing the battery acid into sodium sulfate. The batteries come primarily from battery collection facilities located out-of-state which collect batteries from a wide area, including New York State and the rest of the northeast. It can process/manage 108,864 gallons per day of liquid waste and can store up to 11,625 cubic yards of solid battery parts in the containment building. The amount of waste batteries that is processed varies greatly with the price of lead.

Since the early 1970's, RSR has operated a secondary lead smelter in Middletown NY. The facility occupies a 55 acre parcel in a primarily rural area of southeastern New York. Approximately one-third of the property is used for plant operations, with the remainder consisting mainly of undeveloped property containing overgrown fields, mature woodlands, and a small pond.

The hazardous waste storage component of this facility has as Part 373 hazardous waste management permit.

Safety-Kleen Systems, Inc.
Location: 17 Green Mountain Drive, Cohoes, New York 12047 (DEC Region 4)
RCRA ID#NYD986872869 (Storage Facility)

The Cohoes Safety-Kleen storage facility is part of Safety Kleen Systems, Inc., which is a solvent distributor and recycler (reclaimer). The Cohoes facility collects and stores spent solvent which is then shipped to another out-of-state Safety-Kleen facility or to contract reclaimers for reclamation. The recovered solvents are returned to customers as usable product. The Cohoes storage facility operates under a state Part 373 hazardous waste management permit and is located in a business/industrial park zoned for commercial use.

Safety Kleen also acts as a transporter, collecting the waste solvents from its clients and bringing the waste to the facility. Safety Kleen's Cohoes facility services approximately 4,000 businesses, the majority of which are small businesses and small quantity generators. These businesses are primarily engaged in automotive repair, industrial maintenance, manufacturing, photo processing and dry cleaning. The only regulated wastes accepted at the facility for storage are hydrocarbon-based parts-washer solvents and aqueous-based parts-washer solvents which may be mixed with other non-hazardous wastes.

The facility, which is approximately 2.4 acres in size, commenced operation in 1986. Bulk waste storage is in a 12,000 gallon aboveground tank and containerized wastes are managed in two container storage areas permitted by DEC to store 2,400 gallons of spent solvents.

The facility also acts as a 10-day transfer facility, storing containerized wastes for a maximum of 10 days as part of the transportation process. This activity must meet certain standards, but does not require a permit from DEC and is primarily regulated under federal transportation regulations for hazardous materials. These wastes are generated from a variety of processes and vary from customer to customer. The DEC permit prohibits storage of high hazard wastes including explosive waste, radioactive waste, pyrophoric waste, reactive waste and infectious waste as transfer wastes at this facility.

Safety-Kleen Systems, Inc
Location: Syracuse Service Center, 6741 VIP Parkway, Syracuse, New York 13211 (DEC Region 7)
RCRA ID#NYD982743312 (Storage Facility)

The Syracuse Safety-Kleen storage facility is part of Safety Kleen Systems, Inc., which is a solvent distributor and recycler (reclaimer). The facility operates under a state Part 373 hazardous waste management permit and is located in an industrial park in the Town of Dewitt, Onondaga County zoned for industrial use. The facility collects and stores spent solvent which is then shipped to another out-of-state Safety-Kleen facility or to contract reclaimers for reclamation. The recovered solvents are returned to customers as usable product.

Safety Kleen also acts as a transporter, collecting the waste solvents from its clients and bringing the waste to the facility. Safety Kleen's Syracuse facility services approximately 4,000 businesses, the majority of which are small businesses and small quantity generators. These businesses are primarily engaged in automotive repair, industrial maintenance, manufacturing, photo processing and dry cleaning. The only regulated wastes accepted at the facility for storage are hydrocarbon-based parts-washer solvents and aqueous-based parts-washer solvents which may be mixed with other non-hazardous wastes.

The facility is approximately 2.4 acres in size and commenced operation in 1993. Bulk waste storage is in a 20,000 gallon aboveground tank and containerized waste is managed in a container storage area permitted to store 2,400 gallons of spent solvents.

The facility also acts as a 10-day transfer facility, storing containerized wastes for a maximum of 10 days as part of the transportation process. This activity must meet certain standards, but does not require a permit from DEC and is primarily regulated under federal transportation regulations for hazardous materials. These wastes are generated from a variety of processes and vary from customer to customer. The DEC permit prohibits storage of high hazard wastes including explosive waste, radioactive waste, pyrophoric waste, reactive waste and infectious waste as transfer wastes at this facility.

Safety-Kleen Systems, Inc
Location: 1525 West Henrietta Road, Avon, New York 14414 (DEC Region 8)
RCRA ID#NYD980753784 (Storage Facility)

The Avon Safety-Kleen storage facility is part of Safety Kleen Systems, Inc., which is a solvent distributor and recycler (reclaimer). The Avon facility collects and stores spent solvent which is then shipped to another out-of-state Safety-Kleen facility or to contract reclaimers for reclamation. The recovered solvents are returned to customers as usable product. The Avon storage facility operates under a state Part 373 hazardous waste management permit and is located in a business/industrial park zoned for commercial use.

Safety Kleen also acts as a transporter, collecting the waste solvents from its clients and bringing the waste to the facility. Safety Kleen's Avon facility services approximately 4,000 businesses, the majority of which are small businesses and small quantity generators. These businesses are primarily engaged in automotive repair, industrial maintenance, manufacturing, photo processing and dry cleaning. The only regulated wastes accepted at the facility for storage are hydrocarbon-based parts-washer solvents and aqueous-based parts-washer solvents which may be mixed with other non-hazardous wastes.

The facility, approximately 4 acres in size, commenced operation in 1982. It provides storage of waste hydrocarbon and aqueous-based parts-washer solvents in a 12,000 gallon aboveground tank and 2,160 gallons in a container storage area.

The facility also acts as a 10-day transfer facility, storing containerized wastes for a maximum of 10 days as part of the transportation process. This activity must meet certain standards, but does not require a permit from DEC and is primarily regulated under federal transportation regulations for hazardous materials. These wastes, generated from a variety of processes, vary from customer to customer and account for the majority of the wastes handled at the facility. The DEC permit prohibits storage of high hazard wastes including explosive waste, radioactive waste, pyrophoric waste, reactive waste and infectious waste as transfer wastes at this facility.

Safety-Kleen Systems, Inc.
Location: 41 North Gates Road, Lackawanna, New York 14218 (DEC Region 9)
RCRA ID#NYD981556541 (Storage Facility)

The Lackawanna Safety-Kleen storage facility is part of Safety Kleen Systems, Inc., which is a solvent distributor and recycler (reclaimer). The Lackawanna facility collects and stores spent solvent which is then shipped to another out-of-state Safety-Kleen facility or to contract reclaimers for reclamation. The recovered solvents are returned to customers as usable product. The Lackawanna storage facility operates under a state Part 373 hazardous waste management permit and is located in a business/industrial park zoned for commercial use.

Safety Kleen also acts as a transporter, collecting the waste solvents from its clients and bringing the waste to the facility. Safety Kleen's Lackawanna facility services approximately 4,000 businesses, the majority of which are small businesses and small quantity generators. These businesses are primarily engaged in automotive repair, industrial maintenance, manufacturing, photo processing and dry cleaning. The only regulated wastes accepted at the facility for storage are hydrocarbon-based parts-washer solvents and aqueous-based parts-washer solvents which may be mixed with other non-hazardous wastes.

The facility, approximately 2 acres in size, commenced operation in 1985. It provides waste storage in a 15,000 gallon aboveground tank with containerized wastes managed in two container storage areas permitted to store 2,400 gallons of spent solvents.

The facility also acts as a 10-day transfer facility, storing containerized wastes for a maximum of 10 days as part of the transportation process. This activity must meet certain standards, but does not require a permit from DEC and is primarily regulated under federal transportation regulations for hazardous materials. These wastes are generated from a variety of processes and vary from customer to customer. The DEC permit prohibits storage of high hazard wastes including explosive waste, radioactive waste, pyrophoric waste, reactive waste and infectious waste as transfer wastes at this facility.

Solvents & Petroleum Services
Location: 1405 Brewerton Road, Salina, New York 13208 (DEC Region 7)
RCRA ID#NYD013277454 (Storage Facility)

Solvents and Petroleum Services (SPS), Inc. is a commercial hazardous waste storage facility which commenced operation in 1977 and is approximately 6 acres in size. The facility is currently permitted by DEC to store 14,300 gallons of off-site generated hazardous wastes. It is also a distributer of hydrocarbon solvents which it supplies to industries in central New York. The spent solvents accepted by SPS are generated from the solvents originally supplied by SPS. It also consolidates wastes received from conditionally exempt small quantity generators and partially filled drums of the same waste from the same generators for transportation efficiency. Occasionally, SPS receives drummed wastes for direct shipments through the facility.

No on-site processing or disposal of hazardous wastes occurs at this facility. The facility operates under a state Part 373 hazardous waste management permit to store hazardous wastes. The following wastes are managed by SPS: solvents & petroleum wastes collected from semi-conductor manufacturers, dry cleaners, auto repair shops, paint shops, print shops and machine shops. These off-site generated wastes are transported to the facility in containers which meet the U.S. Department of Transportation specifications.

Triumvirate Environmental NYC LLC
Location: 42-14, 19th Avenue, Astoria, NY 11105, Queens County (DEC Region 2)
RCRA ID#NYD077444263 (Storage Facility)

Triumvirate Environmental (NYC), LLC is a commercial hazardous waste storage facility located in Astoria, Queens County, New York, which collects hazardous and non-hazardous waste generated by schools, research laboratories, hospitals, auto repair shops, auto body paint shops, dry cleaners, electro plating facilities, power plants and industries, for storage and transportation to permitted treatment/disposal facilities for proper disposal. Triumvirate also consolidates specific waste streams from smaller containers into larger containers for transportation efficiency. Triumvirate stores the following wastes: oxidizers, Zone A poison gas cylinders, PCBs, cyanides, acids, and alkalis, as well as a wide variety of additional characteristic and listed wastes.

The facility has been in continuous operation as a waste storage facility since 1964 and is approximately 16, 500 square feet in size. It is permitted under a state Part 373 hazardous waste management permit to store up to 33,659 gallons of hazardous or non-hazardous waste at any one time.

Tulip Corporation
Location: 3123 Highland, Niagara Falls, NY, 14305 (DEC Region 9)
RCRA ID#NYD002113736 (Recycling Facility)

Tulip Corporation is a commercial plastics recycling facility and a manufacturer of molded plastics products. The manufacturing operations produce a variety of recycling containers for municipal collection programs and large wheeled totes for municipal solid waste collection programs. They also manufacture plastic and rubber battery casings in various sizes for the automotive industry.

Tulip is a large quantity generator of hazardous waste and generates between 300 to 500 tons of D008 lead bearing sludge per year. Tulip accepts chipped battery plastics containing lead from battery cracking facilities, but does so under the recycling exemption 6NYCRR 373-1.1 (d)(1)(viii). The exemption allows Tulip to accept lead contaminated hazardous waste battery plastic chips at their facility for recycling without a state Part 373 hazardous waste management facility permit. The Department granted Tulip the state Part 373 permit exemption in 1994 with a condition that there be no storage at the facility prior to recycling of the material and that the facility continuously process the material that is placed in the hopper that feeds the process.

Tulip manages approximately 25 tons per month of spent battery plastics from two main sources, Tonolli, Ontario-Canada, and Revere Smelting and Refining in Region 4. All of the material coming to Tulip is either D008 hazardous waste (hazardous due to lead content), or non-hazardous waste because suppliers pre-wash the material, thereby removing the lead contamination.

The Tulip process conveys chips from a receiving hopper into a wash tank where the polypropylene floats and the lead contamination sinks to the bottom of the tank as solids. The solids are screw conveyed out of the tank and become D008 hazardous waste sludge. The floating chips are conveyed to a shredder, then a dryer, and finally to a melter/extruder where they are formed into small pellets. The pellets are transferred to storage silos for use in manufacturing or for transfer to Tulip's other corporate facilities in the midwest.

Commercial Facility Data

Commercial facilities handle manifested hazardous waste from a large number of generators, the exact number of which cannot be readily determined. This is because intermediary TSD facilities consolidate hazardous waste from smaller generators, sometimes treating or processing the hazardous waste, and then ship larger quantities to the TSD facilities. For these shipments, only the intermediate TSD facility is shown as the generator, making the number of initial generators difficult to determine.

New York State Commercial TSD facilities employ a variety of hazardous waste management methods. The list of 28 management method codes used in hazardous waste annual reporting can be grouped into 6 handling methods: reclamation/recovery; incineration; fuel blending for incineration off-site; treatment; land disposal; and storage, bulking, and/or transfer off-site.

In 1991, there were 29 commercial TSD facilities; 15 were temporary storage-only facilities and the remaining 14 employed one or more of the other handling methods. In 2001, there were 19 commercial TSD facilities; 11 were temporary storage-only facilities and the remaining 8 employed one or more of the other handling methods. By 2007 and through 2009, there were 13 commercial TSD facilities; with 8 temporary storage-only facilities and the remaining 5 employing one or more other handling methods.

From 1991 to 2001, the number of temporary storage-only facilities dropped by only 4. From 2001 to 2007, the number decreased by another 3. Several of the temporary storage-only facilities have converted to 10 day transfer stations which do not require permitting.

The number of facilities which recycle, incinerate, treat or landfill has dropped by almost two-thirds from 14 facilities in 1991 to 5 facilities in 2007 through 2009. Data on hazardous waste managed at these facilities is available through 2008.

Table 1-3

Hazardous Waste Handling Methods

Handling Method	Number of New York State Commercial TSD facilities				
	1991	2001	2005	2007	2008
Reclamation/Recovery	6	4	3	3	3
Incineration	3	3	1	1	1
Fuel blending for incineration off-site	3	1	1	1	0
Treatment	7	5	2	1	0
Land disposal	1	1	1	1	1
Storage, bulking, and/or transfer off-site	22	15	11	9	9

Notes: 1) A facility may employ more than one handling method.
2) Burning for energy recovery is considered a form of disposal in New York State and is included in incineration.
3) Some types of reclamation/recovery facilities are exempt from TSD facility permitting requirements, but are still included in this table.

Table 1-3 above illustrates the spectrum of handling methods and the number of facilities that employ each handling method. The number of facilities receiving manifested hazardous waste that reclaim/recover or treat have declined significantly since 1991. Very limited options exist within the State for recycling of manifested hazardous waste, and no options exist in-state for treatment.

The following Table 1-4 illustrates the quantity of hazardous waste managed by New York State commercial TSD facilities in 1991, 2001, 2005, 2007 and 2008 by handling method.

Table 1-4
Hazardous Waste Quantities by Handling Method

Handling Method	New York Commercial TSD facilities Quantity Managed (Tons)				
	1991	2001	2005	2007	2008
Reclamation/Recovery	- * -	157,769	160,495	111,872	110,305
Treatment	165,088**	5,412	970	718	677***
Incineration	16,680	28,771	24,335	23,911	24,062
Land disposal	197,612	250,514	145,762	163,768	198,699
Storage, bulking, and/or transfer off-site	37,773	16,754	10,750	8,117	8,876

Note: Burning for energy recovery is considered a form of disposal in New York State and is included in incineration.

* Value not available due to major facility claiming "confidential business information" for data. Subsequently, this facility stopped invoking this claim.
** Value is higher by 150,000 tons compared to subsequent years due to changes in hazardous wastewater reporting requirements and reporting only the ultimate handling method of a waste at a facility.
*** Wastewater only.

The reclamation/recovery category reflects the hazardous waste managed primarily by one facility, Revere Smelting and Refining of Middletown, NY, which receives lead waste (batteries) primarily generated by conditionally exempt small quantity generators (CESQGs). Certain waste types that are recycled are not included in the data as the regulations do not require manifesting or annual reporting. These include lamps, electronics (E-waste), and scrap metal.

There has been limited treatment of hazardous waste in-state. The 1991 number is artificially high due to the inclusion of hazardous wastewater quantities. The number of facilities that treat hazardous waste has steadily decreased, as can be seen in Table 1-3. As of 2008, no commercial facilities in New York State reported the treatment of hazardous waste other than:

- wastewater, and
- certain wastes that were treated so as to no longer be hazardous, but, nonetheless, were landfilled at a hazardous waste land disposal facility.

Incineration has remained at a relatively consistent level and the quantity reflects one facility's activities.

Land disposal, likewise, reflects waste managed at one facility in the State. Land disposal is discussed in greater detail in Chapter 4.

The change in management status of several storage facilities can be seen in the continued drop in the quantity reported as stored through 2007, at which point the quantity remained static through 2008.

To illustrate possible trends over time, the following analysis was done of the four New York State commercial facilities receiving the largest quantities of hazardous waste from 1991 through 2008. These four facilities also represent four different handling methodologies: reclamation/recovery, temporary storage, land disposal and incineration (burning for fuel).

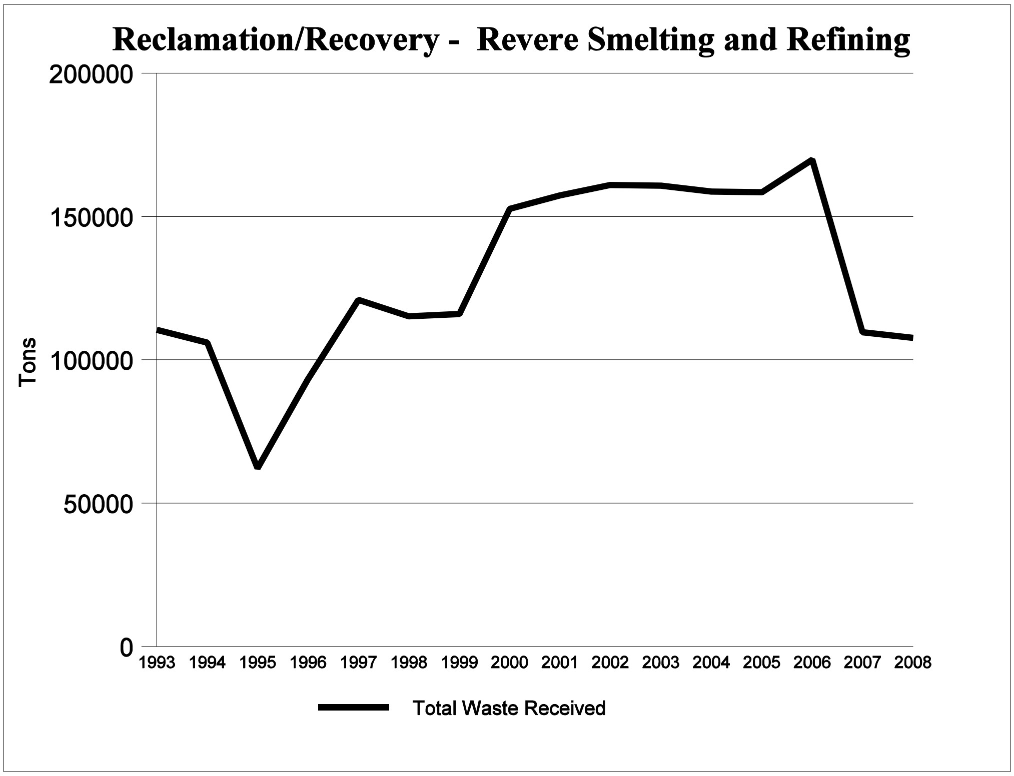


Figure 1-1

<u>Reclamation/recovery:</u> Revere Smelting and Refining, located in Middletown, New York (Region 3), is the largest hazardous waste recycling facility in the State.

This facility (Figure 1-1) shows an overall increase in hazardous waste quantity managed from 1993 to 2000, where it stabilized until 2007 and 2008 when the quantity received dropped to pre-2000 levels. This change was simply due to fluctuation in material availability. Interestingly, almost all of the hazardous waste this facility manages is from CESQGs which has been gathered at battery collection facilities, presently located out-of-state, and then shipped to the facility for recycling. The facility has researched the state of origin of these wastes since 2005. In 2005, over 90% of the material came from out-of-state battery collection facilities. Since that time, practically all of the material comes from out-of-state battery collection facilities. Thus, although the in-state/out-of-state breakdown is not available for prior to 2005, the bulk of the waste processed is considered out-of-state receipts. However, how much of the material collected by the out-of-state battery collection facilities came from New York is unknown.

<u>Temporary storage:</u> Ashland Distribution Company, located in Binghamton, New York (Region 7), is the largest hazardous waste storage facility in the state. Quantities of out-of-state wastes received at this facility (figure 1-2) vary significantly from year to year with a slight upward trend. This facility is located near the State border and has a substantial number of out-of-state customers. In 2007, 205 out-of-state handlers and 60 in-state handlers shipped waste to Ashland. In 2008, 218 out-of-state handlers and 62 in-state handlers shipped waste to Ashland. The quantity of waste received from in-state generators has remained relatively constant. Fluctuations over the years in total quantity received is clearly due to variations in the amount of waste received from out-of-state.

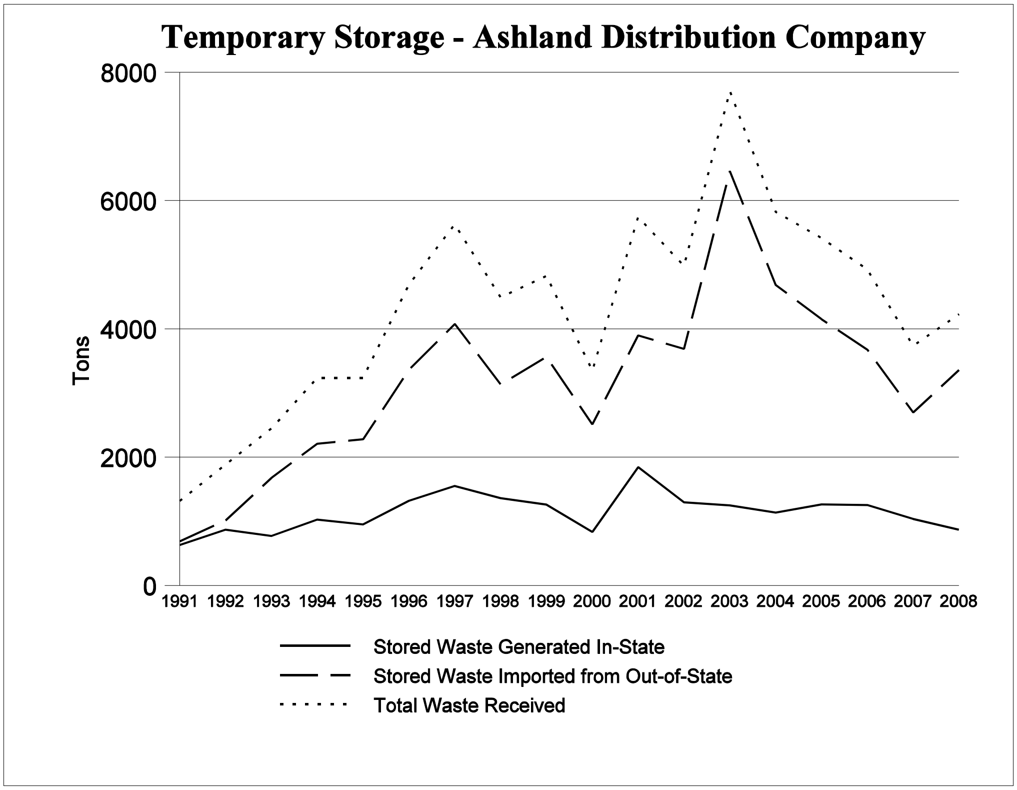


Figure 1-2

Ashland stores wastes from smaller generators for shipment in larger quantities to other TSD facilities. Much of its business is from reverse distribution, which occurs when a facility delivers a product and at the same time picks up the client's waste generated from using the product. In 2007, 99.4% of the waste shipped from this facility went to out-of-state facilities. Only 0.6% of the waste went to in-state facilities. This held true in 2008, when 99.6% of the waste shipped from this facility went to out-of-state facilities. This facility also has an exempt 10 day transfer operation at the site. Because the wastes managed in this exempt unit are not manifested to this facility, but to a different receiving facility, and this 10 day unit is not subject to state Part 373 hazardous waste facility permitting, the Department has no information about the waste shipped through the 10 day transfer operation portion of the facility.

Combustion: Norlite Corporation, located in Cohoes, New York (Region 4), is the only commercial hazardous waste combustion facility in the state.

This facility (figure 1-3), which burns hazardous waste for energy recovery, except for a two year hiatus in 1994 and 1995, has maintained a relatively constant presence in the management of hazardous waste over time. Waste from out-of-state represents a significant component of the waste managed at Norlite; however, over the past eight to nine years, in-state business has generally increased while there has been a notable decrease in waste received from out-of-state.

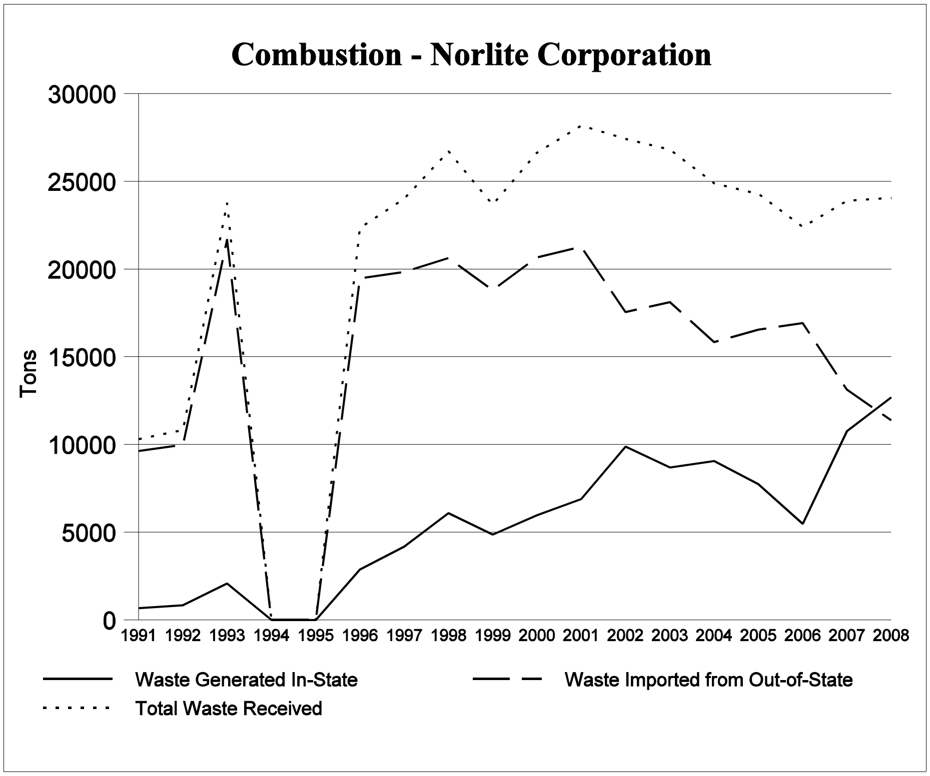


Figure 1-3

In 2007, hazardous wastes from 63 out-of-state and 46 in-state handlers were shipped to this facility. In 2008, 66 out-of-state and 59 in-state handlers shipped hazardous waste to Norlite. This facility also receives waste from numerous CESQGs and bulked wastes from other TSD facilities, including a sister facility in Connecticut.

Landfill: CWM Chemical Services, located in Model City, New York (Region 9) is the only permitted commercial hazardous waste land disposal facility in the State. CWM landfills hazardous waste which meets the criteria of the land disposal restrictions (LDRs), as well as non-hazardous industrial waste. Figure 1-4 illustrates total hazardous waste received and landfilled at this facility each year. The quantities of hazardous waste landfilled at CWM have fluctuated over the years, with a general downward trend from 1999 through 2006 and an increase in 2007 and 2008. While previously CWM had a larger out-of-state client base than in-state, in 2007, waste from 420 in-state large and small quantity generators and 402 out-of-state large and small quantity generators was sent to this facility for waste management. So, for 2007, 51% of its client base was from in-state and 49% from out-of-state. This proportion remained the same for 2008, with 450 New York generators (51%) and 427 out-of-state generators (49%) shipping hazardous waste to CWM to be landfilled. In 2007, the amount of hazardous waste received and landfilled from in-state (84,723 tons) was just over half of the total hazardous waste landfilled.

Almost 70% of this in-state waste came from two large remedial projects. In 2008, 63% of the hazardous waste landfilled came from in-state facilities. In 2008, six large in-state remedial projects shipped 105,000 tons to CWM for landfilling, representing over half of the hazardous waste landfilled at CWM that year. Hazardous waste received and landfilled from out-of-state totaled 79,045 tons, just under half of the hazardous waste landfilled in 2007, and 74,113 tons were received in 2008 for landfilling

Following federal reporting requirements, the hazardous waste it reports as landfilled, as shown in Figure 1-4, includes hazardous waste that was treated, and as a result, was no longer a hazardous waste when landfilled. From manifest data, it can be calculated that approximately 13% of the hazardous waste shipped to this facility in 2005 was treated and was no longer a hazardous waste prior to landfilling. In 2007, approximately 6% of the hazardous waste shipped to this facility met that criteria. In 2008, it is estimated that 3% of the hazardous waste shipped to CWM met that criteria. From the State's perspective, particularly for calculating generator taxes (discussed in Chapter 2), the ultimate disposal method for this portion of the waste would be treatment, because at the point it was landfilled, it was no longer a hazardous waste.

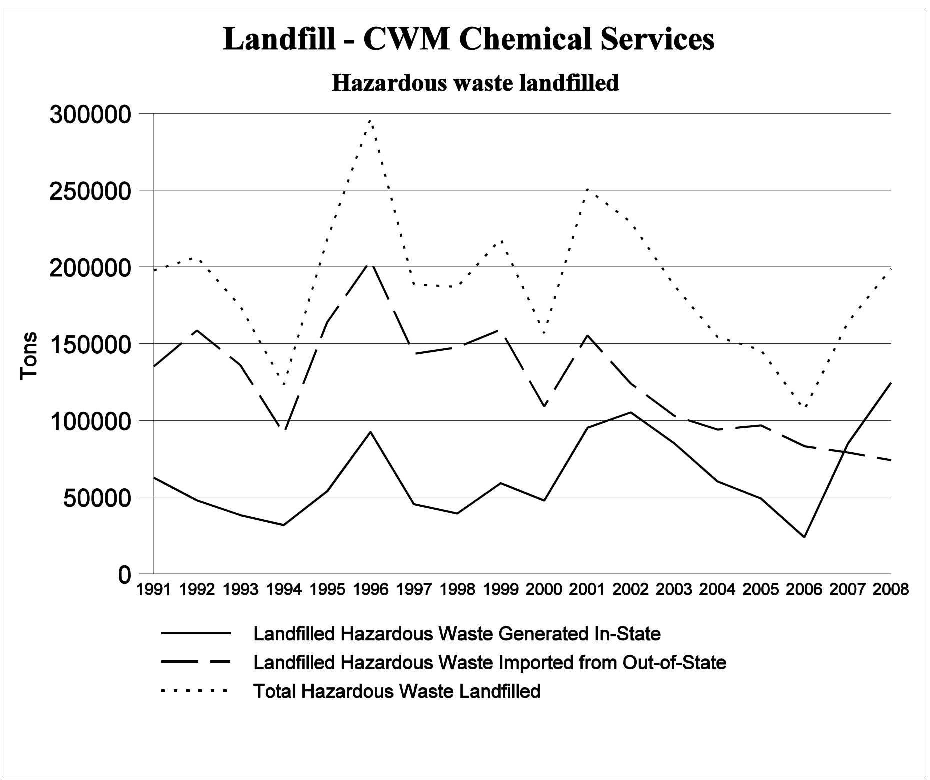


Figure 1-4

New York State TSD Facility Life Expectancy

An assessment of the management of hazardous waste in New York State necessarily includes facility life expectancy.

Facilities that treat, store, incinerate, reclaim or recycle hazardous waste can operate indefinitely with appropriate maintenance and equipment upgrades/replacement, and will have no projected end life.

Land disposal facilities, on the other hand, have a finite volumetric capacity which can be calculated based on permitted designs and, therefore, have an estimated life expectancy. The one commercial hazardous waste land disposal facility located in the State is CWM Chemical Services (CWM) in Model City (Niagara County). CWM landfills hazardous waste which meets the criteria of the land disposal restrictions (LDRs), as well as non-hazardous industrial waste. In 2008, 150,077 cubic yards of material was landfilled. As of December 31, 2009, including the additional capacity that resulted from the approved cap re-design, the remaining permitted capacity was 496,088 cubic yards (approximately 744,132 tons, using a conversion factor of 1.5). Using the 2009 annual fill volume and remaining capacity, there is approximately 4 to 5 years of remaining capacity. Using this number, it is estimated that CWM will reach capacity in 2014 to 2015 for its currently permitted disposal unit. This estimate is highly dependent on annual fill rates for the landfill.

CHAPTER 2

Pollution Prevention, Waste Reduction, and Hazardous Waste Generator Data:
a compilation and analysis of existing inventories, reports and studies of the sources, composition and quantity of industrial hazardous waste generated within the state and of existing programs for waste reduction, recycling and reuse.

Preventing and reducing hazardous waste generation is a top priority for the Department and the State, as mandated by the preferred hazardous waste management hierarchy (ECL 27-0105.) This approach, with a heightened focus on source reduction, will continue to be used to guide all hazardous waste policies and decisions of the Department, including permitting and other regulatory activities.

Department waste reduction programs focus on current primary and secondary hazardous waste generation (see Chapter 3 for definition of terms). Remedial hazardous waste has not been part of the focus for waste reduction or recycling programs, but rather consideration is given to treatment and other alternatives for the management of remedial hazardous waste as better options per the hierarchy compared to landfilling. As discussed further in Chapter 3, the hierarchy of management methods, in conjunction with sustainability and cost effectiveness, are considered when evaluating alternatives for remedial actions. Also taken into consideration is the life of the remedy and the prevention, minimization, or mitigation of pollution and ecological impacts from site cleanup activities.

Toxic Use Reduction

Toxic use reduction is an area of continued concern. A broad range of activities are under way to promote clean and safe manufacture of products to enhance environmental protection while, ideally, improving the economic vitality of New York State businesses. At the same time, New York is working with other states to help promote a nationwide approach.

Interstate Approach

A core group of states, including California, Connecticut, Maine, Massachusetts, Michigan, Minnesota, New York, New Jersey, Oregon, Vermont and Washington, have been working together on the formation of an Interstate Chemicals Clearinghouse (IC2) that would actively collect and share chemical data and information to promote safer chemical alternatives. The vision of the IC2 is to create a partnership among the states that promotes a clean environment, healthy communities, and a sustainable and vital economy through the development and use of safer chemicals and products.

The purpose of the IC2 is to:

- avoid duplication of states' efforts and use our increasingly limited state resources most effectively;

- build states' capacities to answer policy-makers' questions on safer chemical alternatives; and

- provide ready access to and sharing of high quality chemicals information.

Examples of International Pollution Prevention Programs

- REACH - Registration, Evaluation, Authorization and restrictions of Chemicals (REACH) is a regulation of the European Union (EU) which was formally initiated in 2006. REACH addresses the production and use of certain chemicals and their potential impact on human health and the environment. Among other things, it requires all companies that manufacture or import chemicals into the EU, greater than 1 ton per year, to register these chemicals.

- WEEE - The Waste Electrical and Electronic Equipment directive (WEEE) is another EU pollution prevention initiative. This imposes the responsibility for managing the collection, recycling, recovery and disposal of waste electrical and electronic equipment on those companies that manufacture this equipment. Households are allowed to return their equipment without cost and the manufacturers must manage the returned equipment through reuse, recycling, or disposal, in an ecologically friendly manner.

- RoHS - Restriction of Hazardous Substances is an EU directive which has been in existence since 2006. It restricts the use of six hazardous materials in the manufacture of a variety of electrical and electronic components. The six substances of concern are: lead; mercury; cadmium; hexavalent chromium; polybrominated biphenyls; and polybrominated diphenyl ether. RoHS does not require any specific product labeling. Several Asian nations have also taken regulatory actions on electrical and electronic equipment including: South Korea; China; Japan; and Turkey. Also, in the United States, California has a law that prohibits the sale of electronic devices that are prohibited from being sold under RoHS.

State approach

The State is actively implementing a number of non-regulatory programs to reduce or eliminate the use and generation of hazardous substances. Agencies involved include DEC, Empire State Development, Environmental Facilities Corporation, New York State Energy and Research and Development Authority (NYSERDA), NYSTAR (New York State Foundation for

Science, Technology and Inovation), New York State Pollution Prevention Institute, Regional Technology Development Centers, and Office of General Services, among others. Some of the specific activities related to mercury management, green schools, green buildings, green cleaning products, the environmental excellence program, and pharmaceuticals, all of which are discussed later in this chapter and can be found in the "Pollution Prevention Program Evaluation 36 Month Report" created as part of the Article 28 implementation. (http://www.dec.ny.gov/docs/permits_ej_operations_pdf/art28rpt42809.pdf)

A key component missing from the State's pollution prevention and waste reduction programs is a structured regulatory toxic use reduction law that would place together the myriad of existing programs under one framework. Toxic use reduction legislation would emphasize the importance of decreasing the use of toxic chemicals in products in the first instance, and might adapt existing European, Asian and other State initiatives that have proven successful in reducing toxics use while incorporating the multiple pollution prevention, waste reduction and various multi media initiatives already in existence in New York State.

Pollution Prevention Program

The New York State Department of Environmental Conservation Pollution Prevention Unit (P2 Unit) is located in the Division of Environmental Permits. The Unit was established in the early 1990's to coordinate the Department's pollution prevention efforts throughout New York State.

Article 28 of the ECL, established September 16, 2005, provides a statutory framework and reinforces the mission of the pollution prevention program...

> "... to promote affordable and cost effective methods to reduce energy and resource consumption and reduce or eliminate the use of hazardous substances and the generation of such substances, pollution or waste at the source in order to conserve, improve and protect New York's environment and natural resources; enhance the health, safety and welfare of its citizens; and increase the economic competitiveness of New York businesses" (ECL 28-0101).

The program works with all types and sizes of businesses, facilities and organizations to encourage pollution prevention by providing education and assistance in realizing the benefits of avoiding the generation of pollution and the handling and management of pollution. Eliminating the use of hazardous materials or using less hazardous materials in manufacturing, taking measures to prevent spills, and maintaining equipment in top condition, are some of the strategies that minimize the generation of waste and also typically result in cost savings and reduction in regulatory requirements.

Article 28 provides a statutory mandate for the Small Business Pollution Prevention and Environmental Assistance Program (ECL 28-0109), and the Pollution Prevention and Environmental Compliance Coordinating Council (ECL 28-0111). The law was amended in 2007 to add section 28-0112, which establishes the Pollution Prevention Institute whose mission is to promote pollution prevention through research, development, technology demonstration,

technology transfer, education, outreach, and recognition and training programs, including green chemistry and reuse and remanufacturing.

The P2 Unit participates in a wide variety of activities to promote waste reduction activities throughout New York State. In addition to the activities and programs described below, the P2 Unit also produces and distributes a number of publications which promote waste reduction efforts. Information on program activities and copies of publications are available from the Department website at http://www.dec.ny.gov/pubs/4811.html. Hard copies of publications are also available by contacting the P2 Unit at (518) 402-9469.

Pollution Prevention Activities

Small Business Pollution Prevention and Environmental Compliance Assistance

The Department's P2 Unit promotes multi-media pollution prevention awareness and provides compliance assistance to regulated communities, including targeted business sectors. Historically, this has included workshops and guidance materials for such manufacturing businesses as printers, metal finishers, pulp and paper mills, food processors, electronics manufacturers and others. The Department operates a small quantity generator (SQG) hotline to provide compliance assistance to small businesses generating hazardous waste; and contracts with EFC to operate its Small Business Environmental Assistance Program (SBEAP) which provides free technical assistance to small businesses in New York State to help them comply with federal and state regulatory requirements.

Part of this effort also includes an ombudsman program (28-0109.2(f)) to make small businesses aware of pollution prevention opportunities and compliance requirements. This ombudsman program is operated by the Empire State Development Corporation pursuant to the Economic Development Law.

Pollution Prevention Institute

The Rochester Institute of Technology (RIT) hosts the New York’s Pollution Prevention Institute, a cutting-edge research and development center for the design and testing of "green" manufacturing methods and the promotion of cost effective pollution prevention techniques. The Institute also provides technical support to businesses in the implementation of pollution reduction measures by reducing energy costs, water usage, and waste generation.

A key part of the Pollution Prevention Institute includes the availability of 16 research and development "test beds," or technological laboratories, across the State, through partnerships with Clarkson University, Rensselaer Polytechnic Institute (RPI) and the State University of New York at Buffalo. These test beds are being used for environmental engineering of nanotechnology materials and printing applications at RIT, green processing and biofuels testing at Clarkson, polymer processing and testing at RPI and sustainable chemical processing at Buffalo.

Additional information on the Pollution Prevention Institute can be found on the Department's web site at: http://www.dec.ny.gov/public/37277.html .

New York State Environmental Excellence Awards

The Environmental Excellence Awards program recognizes "innovation, sustainability, and/or partnerships" by organizations or individuals in New York State in achieving improved environmental performance. This awards program provides the opportunity for businesses and communities to obtain recognition for the work that they are doing to improve their regulatory performance and to protect the environment. A major consideration in the granting of awards is the waste reductions that an applicant has made and the transferability of the lessons learned to other similar facilities. The examples set by past and present winners and the acknowledgment of their efforts help to demonstrate to others that they too can reduce their waste and economically benefit from their efforts. Additional information can be found on the Department's web site at: http://www.dec.ny.gov/public/945.html .

Environmental Management Systems (EMSs)

The Commissioner's Policy (CP-34) on EMSs, issued April 5, 2004, establishes EMS development and implementation as a primary mechanism for improving environmental performance and reducing a facility's impact on the environment. As part of an EMS, facilities must identify opportunities and implement programs that improve environmental performance by going beyond compliance, utilizing pollution prevention, or establishing sustainable business practices. A component of the EMS requires the development and establishment of goals and objectives, some of which may call for achievement beyond what is required by law and regulation. A primary focus of an EMS is the reduction of waste generation at participating facilities. The Commissioner's policy provides that the Department will act as an example to others and establish EMSs at pilot facilities throughout the State

Increasingly, businesses have realized that environmental problems can be better managed in a systematic way. Just as businesses develop financial management systems to promote the efficient use and management of monetary resources, they realize that EMSs developed and integrated into the organizational structure will reduce risks from pollution and will provide an opportunity for increased efficiency. An effective EMS makes good business sense; by helping a business identify the causes of environmental problems (and then eliminate them) an EMS can help a business save money. In addition, the EMS will help identify opportunities to prevent pollution, mitigate occupational hazards, and better control those operations that pose the greatest risk to the environment and the public. A thoughtfully implemented and audited EMS will reduce waste generation and also aid a facility in maintaining compliance with applicable laws and regulations. By requiring an organization to identify each of its regulatory requirements and monitor its ability to meet these obligations, the EMS positions a facility to stay in compliance. The Department's guidance to assist facilities in developing an EMS is available on the Department website at www.dec.ny.gov/chemical/936.html .

New York State Environmental Leaders Program

The final element of Commissioner's Policy (CP-34) on EMSs is the establishment of a New York Environmental Leaders (NYEL) program which acknowledges and rewards superior performance by participating facilities. NYEL provides recognition and incentives for facilities performing beyond compliance. To obtain additional information about the NYEL program visit our website at: http://www.dec.ny.gov/public/939.html.

The Department's Commissioner Policy for New York Environmental Leaders took effect on January 26, 2007 and began accepting applications in 2008 with two participation levels – entry tier and leadership tier. The Department is implementing NYEL to provide recognition and incentives for those organizations that can demonstrate the use of pollution prevention practices, beyond compliance performance or sustainable business practices as a result of their participation. NYEL rewards those organizations that are committed to making improvements in their environmental performance, providing incentives for sustaining high levels of performance and reaching higher levels.

Mercury Activities - Chemical Management in Schools - Green Chemistry

The Department continues to promote the reduction and recycling of mercury in waste. Activities include educating the public about products that contain mercury, remediating and preventing mercury spills, and assisting businesses in finding mercury-free alternatives in products and manufacturing. In addition, New York State law provides for the labeling of mercury-added products, restrictions on their disposal and a prohibition against their incineration, and requires the collection of mercury from dentist offices and the recycling of the collected mercury.

The P2 Unit continues to work with schools to limit exposure to mercury and other chemicals and reduce the release of mercury and chemicals into the environment. The Department has developed a series of 9 brochures for use by schools to inform staff and administrators about the risks of having mercury in schools. The program has included mercury workshops around the state and was expanded in 2008 to include a chemicals workshop program based on a demonstration project at four schools to educate schools on the proper management, storage and handling of chemicals in school laboratories. The demonstration resulted in the removal of 1400 pounds of chemicals. Additional information can be found on the Department's web site at: http://www.dec.ny.gov/chemical/35381.html .

In addition to the above activities, the P2 Unit is working to develop a green chemistry curriculum to help schools minimize their use/storage/disposal of hazardous materials.

Green Building Initiative and Executive Order 134

These two programs are examples of efforts being made by the State to minimize hazardous waste generation and exposure and reduce energy use in State facilities.

Through the Green Building Initiative, established by Article 1, section 19 of the New York State Tax Law, New York is providing financial incentives to encourage the design and construction of new buildings that save energy and minimize negative environmental impacts. In turn, this will help expand markets for new technologies that will provide clean, healthy places to work and live. This innovative program is a model for other states and communities and demonstrates New York's commitment to saving energy, reducing waste and protecting the environment.

Executive Order 134 requires State agencies to use environmentally friendly cleaning products that minimize potential impacts to human health and the environment.

Additional information can be found on the Department's web site at: http://www.dec.ny.gov/energy/1540.html .

Executive Order 4-a State Green Procurement and Agency Sustainability Program

This executive order, signed April 24, 2008, applies to all State agencies and authorities and has several key components including:

- establishment of an interagency committee on sustainability and green procurement;
- development of green procurement lists and specifications (requires the development of 36 green specifications annually);
- development and implementation of State agency sustainability and environmental stewardship programs;
- implementation of associated training and reporting; and
- establishment of Sustainability and Green Procurement Advisory Council.

Additional information can be found on the Department's web site at: http://www.dec.ny.gov/chemical/45591.html .

Hospitality

The P2 Unit is a member and Executive Secretary of the NYS Green Hospitality/Tourism multiagency workgroup. The objective of this group is the greening of NYS hospitality and tourism industries to reduce their impact on the environment and provide a healthy environment for visitors and travelers throughout the state.

College Intern Program

Through this program, Clarkson University graduate and doctoral interns work with businesses to implement green engineering strategies, including green manufacturing, pollution prevention and energy and water conservation. Interns apply classroom lessons within businesses that demonstrate environmental leadership and through this program undertake projects that demonstrate that environmental and financial benefits can be achieved by employing pollution prevention principles and exceeding regulatory requirements. The resulting improved environmental performance, reduced environmental risk and costs savings will clearly demonstrate that benefits exist to those who are willing to work outside the box. During the summer of 2008, six internships resulted in successful waste reduction programs. The details of this program and the intern projects can be found on the Department website at: http://www.dec.ny.gov/environmentdec/36831.html .

Pharmaceuticals

It is not safe to dispose of unwanted drugs by flushing them down the toilet. Trace amounts of chemical compounds associated with medications have been increasingly detected in our waters threatening drinking water, and health of fish and other wildlife.

The Department of Environmental Conservation during the spring of 2008 embarked on a "stop flushing" campaign to reduce the impact of pharmaceuticals on New York's drinking water and aquatic biota. Educating the public, pharmacies, hospitals and nursing homes not to flush unwanted prescription and over the counter drugs can significantly reduce the impact of unwanted pharmaceuticals on the environment.

Campaign activities include: demonstration collection programs beginning with a collection held at DEC headquarters December 2008 (79 employees participated and 100 pounds of pharmaceuticals were collected and destroyed); development of a collection program template; surveys of healthcare facilities to learn about disposal practices; and an evaluation of alternative collection programs from across the country to identify those that are technically feasible and economically practicable. Details of these program activities can be found on the Department website at: http://www.dec.ny.gov/chemical/45083.html .

P2 Unit Publications

Education is a key component of the Department's activities to encourage waste reduction, recycling and reuse. The P2 Unit maintains and updates numerous publications to assist the regulated community in understanding what they need to know to be in compliance with environmental laws and regulations, and about specific pollution prevention opportunities that are available to them to reduce impacts on the environment.

The Department Website at http://www.dec.ny.gov/pubs/4811.html provides the listing of publications developed by the P2 Unit that provide guidance to specific members of the regulated community, including small quantity generators, small businesses, local governments, automobile recyclers, campuses, electronics and computer industries, farmers, food processors, health care providers, lithographic printers, marinas, metal finishers, plumbers, pulp and paper manufacturers, vehicle maintenance shops, and wood finishers.

Hazardous Waste Reduction Program

Parallel to the effort to monitor treatment, storage and disposal capacity for the management of hazardous waste generated within New York State, is an effort to substantially reduce the amount of hazardous waste generated. Reducing the generation of hazardous waste from existing or new manufacturing processes minimizes the need for hazardous waste capacity.

New York State's hazardous waste reduction program began in 1984 when the new hazardous waste manifesting program required generators to certify, on each manifest, that they had a program in place to reduce hazardous waste generation and toxicity to the maximum extent practicable. Shortly afterward, the land disposal restrictions (more fully discussed in Chapter 4) began to be phased in, and generators were encouraged to look at waste reduction options to decrease their regulatory burdens under the new LDR requirements.

Preferred Statewide Hazardous Waste Management Hierarchy

Chapter 618 of the Laws of 1987 established a statewide hazardous waste management hierarchy. The preferred hazardous waste management practice under the hierarchy is to reduce or eliminate, to the maximum extent practicable, the generation of hazardous waste in New York State. Next in preference is to recycle or reuse to the maximum extent practicable those hazardous wastes that continue to be generated. Third is to treat or destroy those hazardous wastes generated that cannot be recycled or reused. Finally, the least desired practice is the land disposal of untreated industrial hazardous wastes. Section 4 of Chapter 618, (ECL 27-0105, see Appendix B), expresses a preference for phasing out land disposal. As discussed in Chapter 4, hazardous waste must now meet chemical specific standards or be treated by specified technologies before being disposed of in a permitted hazardous waste land disposal facility. ECL 27-0105 and the hazardous waste management hierarchy guide all hazardous waste management policies and decisions.

The Department published the New York State Waste Reduction Guidance Manual in 1989. The purpose of the manual was to promote the State's four-part waste management hierarchy, provide some measure for waste reduction efforts, and help assure that New York State has adequate hazardous waste disposal capacity as required by the Superfund Amendments and Reauthorization Act of 1986.

Regulatory changes have been enacted to encourage or require reuse or recycling for particular waste streams:

- Scrap metal when recycled is exempt from hazardous waste regulation;
- Lead-acid batteries being reclaimed are exempt from certain hazardous waste management requirements;
- Hazardous wastes that are reclaimed to recover precious metals are exempt from certain hazardous waste management requirements; and
- Universal waste rules provide a streamlined regulatory process to encourage collection of certain hazardous wastes for recycling including: batteries; certain pesticides; mercury

thermostats (expanding to include other mercury containing equipment); and lamps (including fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.)

State legislation was passed in 2010 to address waste electronics (called E-waste) to encourage collection and recycling of this broad waste stream.

Waste Reduction Impact Statements

In 1987, to implement an effective waste management program according to the hierarchy approach as set forth in law, the Commissioner of the Department issued an Organization and Delegation Memorandum directing each Division to consider utilization of Waste Reduction Impact Statements (WRIS) in its programs. The intent of a WRIS is to analyze the potential for reducing generation and/or toxicity of hazardous waste across all media. For the hazardous waste program, a condition was added to the permits issued to TSD facilities requiring the preparation of a WRIS. The WRIS requirement was later superseded by the requirement for a Hazardous Waste Reduction Plan as described below.

Hazardous Waste Reduction Planning Process

Section 6 of Chapter 831 of the Laws of 1990 (ECL 27-0908) established a hazardous waste reduction planning process. This statutory amendment created a phased program whereby generators of more than a certain annual amount of hazardous waste and generators required to have treatment, storage or disposal permits are required to submit, periodically update, and implement hazardous waste reduction plans. Generators of 1,000 tons or more of hazardous waste in calendar year 1990 were required to submit Hazardous Waste Reduction Plans (HWRPs) on or before July 1, 1991. Generators of 500 tons or more of hazardous waste in calendar year 1991 were required to submit HWRPs on or before July 1, 1992. Generators of 50 tons or more in calendar year 1992 were required to submit HWRPs on or before July 1, 1993. Generators of 25 tons or more in calendar year 1995 were required to submit HWRPs on or before July 1, 1996. All generators required to have a hazardous waste storage, treatment or disposal permit for the on-site management of hazardous waste were required to submit HWRPs on or before July 1, 1991. Subsequent to these dates, when a facility meets the criteria for the submission of a HWRP, its first report must be submitted by July 1 of the subsequent calendar year.

ECL 27-0908 does not establish any enforceable requirement for the amount or percent of hazardous waste reduction to be achieved. Instead, the Legislative Findings of Chapter 831 set forth a legislation declaration as follows:

> “ ... it is in the best interest of the people of this State to require that those who release hazardous wastes and toxic substances into the environment, reduce, to the maximum extent possible, through implementing technically feasible and economically practicable waste reduction technology, process or operation changes, the volume or quantity and toxicity of such wastes, whether emitted into the air, discharged into the waters, or treated

and disposed of in a permitted facility. The legislature further declares that implementing such measures will help the State achieve an overall reduction in the generation and release of hazardous waste of 50% over the next 10 years." (i.e., by the end of calendar year 2000).

The intent of the hazardous waste reduction planning process established by ECL 27-0908 is to target hazardous wastes related to industrial manufacturing processes. Certain wastes that do not lend themselves readily to waste reduction planning are not counted as hazardous waste generation for the purposes of determining whether the generator must submit a HWRP and, if a HWRP is required, such wastes are not subject to the planning process. Such wastes include remediation wastes, brownfield wastes, contaminated media from spill clean-ups, construction and demolition debris and other wastes from non-recurring actions. There are considerable amounts of these hazardous wastes that are not subject to the HWRP process and the quantities from year to year can vary considerably depending on the timing of remedial projects.

For those hazardous wastes that must be included in a HWRP, the plan must identify the hazardous wastes that are generated either in amounts greater than five tons per year or that account for at least 90% of all of the hazardous waste generated at the facility, whichever represents the greater amount. Pursuant to 27-0908.4(a), for each identified hazardous waste the HWRP must include :

- a description of the process or operational activity that resulted in the generation of such waste;
- a calculation of the amount of such waste generated per unit of production unit or raw material used, or any other appropriate index; and
- an estimation, and basis for such estimation, of the cost incurred for managing such waste.

For each waste identified, pursuant to 27-0908.4(b - e), there must also be an evaluation of the technical feasibility and the economic practicability of implementing waste reduction processes or technologies, or operational changes to reduce or eliminate the generation of such wastes. Such evaluation must consider the following, where applicable:

- substitution of nontoxic or less toxic inputs to the production process;
- formulation or redesign of products to eliminate production inputs or processes that result in the generation of hazardous waste;
- modification or redesign of production processes, technologies, or equipment which result in reduction in the volume or toxicity of such waste;
- changes in materials usage, handling, and storage practices, including improved inventory control, preventive maintenance, spill and leak prevention, and waste segregation which will reduce the volume or toxicity of such wastes;
- the use of closed-loop reclamation, reuse, or recycling processes or technologies which directly recycle such hazardous waste back into the production process; and

- the use of recycling technologies or processes that reduce the amount of such wastes that must be treated or disposed of.

In addition to waste minimization, which is preferred over recycling in the hazardous waste management hierarchy, generators are also mandated to examine possibilities for recycling in the development of HWRPs. Depending on the source of the material, how it was generated and how it is recycled, some hazardous wastes, when recycled, are excluded from consideration as solid or hazardous waste. Such recycling will count toward hazardous waste minimization goals. Other materials, when recycled, are not excluded from consideration as solid or hazardous wastes and, as a result, cannot be counted as contributing directly to waste minimization.

Once the initial HWRP is submitted to the State, the generator must provide update reports in subsequent years. The first year, a Status Report must be submitted that details the progress made in meeting the goals of the plan. The second year, a Biennial Update must be submitted which is a re-evaluation of waste streams and an update of the HWRP. This pattern of Status Report and Biennial Update submittals on alternating years continues for subsequent years. These updates track progress in implementing the HWRP, and provide amendments to the plan in cases where industrial operations are added, terminated or modified. The updates may include other changes as well, including recalculation of one or more of the waste generation indices, changes in production methods or changes in process chemistry.

Once a facility enters the Department's HWRP program, it remains in the system, except for those generator-only facilities that reduce the generation of hazardous wastes subject to the planning process to less than 25 tons per year. Should a generator facility fall below the 25 tons-per-year threshold, it is out of the system and is no longer required to provide annual updates of its plan.

Approximately 200 facilities are currently participating in the HWRP program. Since the inception of the program, more than 640 facilities have submitted HWRPs to the Department. All of the HWRPs submitted to date were eventually accepted. Some of the HWRPs were required to be revised in response to Department comments in order to better address hazardous waste reduction. The Department also reviews Status Reports and Biennial Updates prior to acceptance.

Information contained within the HWRP documents demonstrates that reduction programs have achieved significant reductions in the amount of hazardous waste generated. Program staff track the amount of hazardous waste generated per unit of production for the processes covered by the HWRPs. The base quantity for each waste is the amount of waste per unit of production when that waste first became subject to the HWRP program. Greater than 50% waste reduction has been achieved for some of the processes that were in existence when the first HWRPs were submitted in 1991, as comprehensive waste reduction technologies were applied to those processes. Also included in the database are new processes started up since 1991 which were designed with state-of-the-art waste reduction technologies. The new wastes are included in the database (and show up as having zero percent waste reduction) even though they result from highly effective processes where no further waste reduction is possible. This tends to bring the calculated average waste reduction percentage down. In addition, reduction data from hazardous waste generators who generate less than 25 tons are not included in the data base, nor are waste reductions for facilities that implemented waste reduction techniques and are now inactive. Furthermore, for facilities that were subject to waste reduction that went below the regulated reporting requirement of 25 tons, information on further reductions is not collected.

Overall, for the original and new processes, approximately 33% less hazardous waste was generated in 2008 for those wastes subject to the HWRP program per unit of production, as compared to the base year the wastes entered the program. It is reasonable to believe that 50% waste reduction was achieved for many of the wastes that were in existence at the start of the program. In recent years, the generation of more than 7 million tons of hazardous waste has been prevented each year as a result of the reduction planning and pollution prevention activities implemented by generators. These numbers include hazardous wastewater.

Compared to quantity of waste generated for each waste stream when it entered the program, the overall percentage reduction in the amount of hazardous waste generated including wastewater has remained approximately the same for a number of years. It was 36% in 1998, 36% in 2000, 33% in 2002, 36% in 2004, 38% in 2006, and, as noted above, 33% in 2008.

The hazardous wastewater generation rates vary significantly from year to year and represent a significant portion of the hazardous waste generation in the State. Typically, the quantity of wastewater generated is not directly related to the quantity of product produced. However, changes in the quantity of wastewater can have significant impact on the calculation of waste reduction per unit of production. If the quantity of wastewater used goes up, and the quantity of product stays the same, “waste per unit of production” will increase. Similarly, if the quantity of wastewater stays the same, and the production rate drops, “waste per unit of production” will increase.

Since the beginning of the HWRP program, both hazardous waste and hazardous wastewater generation have been included together in the HWRP data and have not been separately delineated. Recently, the data was revised so that the reduction of hazardous waste other than wastewater could be calculated. That data shows that for hazardous waste other than wastewater, 68% waste reduction was achieved for 2008.

For a number of reasons, it is not possible to correlate the percentage reductions presented above with the overall quantities of hazardous waste generated in the State as presented elsewhere in this document. For example, remediation wastes and other non-recurring wastes are not included in the HWRP program and thus are not considered in the calculated percentages.

Because the law did not prescribe how to measure success under the waste reduction program it is not possible to know for certain whether legislative goals are being met. Still, the Department has chosen to track progress using *per unit of production*, which relates only to active waste generation subject to the law’s requirements. If production increases significantly, the amount of total waste generated may go up, even though the amount of waste per unit of production may go down or stay the same.

If a facility or a production process with a high rate of hazardous waste reduction closes, that operation is no longer included in the calculations, which reduces the overall percentage. Also, the production indices used to determine the expected amount of hazardous waste are based on the assumption of a direct proportional relationship between the amount of production and the amount of waste generated. Often, if the quantity of production goes down, the amount of waste generated does not go down by the same percentage, which lowers the calculated waste reduction percentage.

The above illustrates that, while measuring the amount of waste reduction is problematic, overall, the hazardous waste reduction law has been effective in reducing the amount of hazardous waste produced in New York State.

In addition to the factors described above, programs on both state and federal levels, such as the pollution prevention/multi media programs described further in this chapter, best practices reduction programs for air and water permits, and the Toxic Release Information reporting requirements, all contributed to a substantial decrease in hazardous waste generation and toxicity in New York State.

Environmental Remediation

The Department has a number of programs for the cleanup of contaminated sites within New York State including the State Superfund, brownfield, oil spill and RCRA corrective action programs. Decisions on the type and extent of cleanup are determined on a case-by-case basis for each site in accordance with the laws, regulations and guidance for the various remediation programs. The use of the hierarchy of management methods is employed in conjunction with cost effectiveness and other factors, such as sustainability, in developing each site's remedial plan. The concept of sustainability includes consideration of impacts over the life of the remedy and preventing, minimizing, or mitigating pollution and ecological impacts from site cleanup activities. As noted above, HWRPs are not required for nonrecurring wastes, such as those from site remediation.

USEPA Waste Minimization Program

As in many areas in the hazardous waste arena, there is also a national program promoting waste minimization. The USEPA Waste Minimization Program complements the Department’s waste reduction efforts, and the Department provides guidance and assistance to USEPA Region 2 in its implementation of the national program. A link for the USEPA program can be found at: http://www.epa.gov/epawaste/hazard/wastemin/index.htm.

USEPA's program seeks to reduce or eliminate waste in manufacturing in the United States by promoting the concept of sustainability, meeting economic development needs of the present without compromising the ability of future generations to meet their own needs. USEPA believes that a successful manufacturing future must be dedicated to the sustainable use of resources. A sustainable manufacturing culture focuses on minimizing waste. Program efforts will be directed at showing that waste is not an inevitable outcome of production and consumption. Rather, waste is a lost resource and an avoidable manufacturing cost.

The Waste Minimization Program places great emphasis on reduced use of chemicals that can be harmful to human health and the environment. Although regulatory programs have been very effective tools in controlling "end of the pipe" industrial and municipal sources of these chemicals, data from the Toxics Release Inventory shows that millions of pounds of persistent, bioaccumulative, and toxic chemicals continue to be released into the environment every year through air emissions, wastewater discharges, or disposal of industrial wastes on the land. USEPA has identified 31 chemicals that, because of these negative properties, are considered priority chemicals for reduced use and should be the focus of waste minimization programs.

Less obvious releases occur from the disposal of consumer products containing harmful chemicals, such as electronic devices that have small amounts of lead solder, switches that contain mercury and cleaning products that contain toxic solvents. An estimated 90% of total quantity of the 31 identified chemicals used in industry are leaving factories in consumer and industrial products. Thus, the Waste Minimization Program addresses not only materials that are traditionally considered "wastes" (such as industrial residues or trash) but also products and product intermediates that contain priority chemicals and could represent a potential vector for release.

USEPA's overall program goals include:

1. Completely eliminating, or finding substitutes for, priority chemicals, wherever possible;

2. Minimizing the amount of priority chemicals used whenever elimination or substitution is not possible;

3. Maximizing recycling whenever elimination, substitution, or minimization is not possible, and creating closed loop materials management systems that eliminate or constrict release pathways;

4. Promoting cradle-to-cradle waste management instead of cradle-to-grave waste management; and

5. Increasing cooperative efforts between USEPA, states, and the regulated community through partnership programs.

Hazardous Waste Generator Data Sources

Hazardous Waste Databases and Analyses

New York State Hazardous Waste Generation and Management Data. The Department has compiled a database of information collected from the annual reports of generators and managers of hazardous waste from 1991 through 2008. Reports from earlier years are available on microfiche and data on waste generation and management has also been summarized in the Annual Hazardous Waste Report to the Governor and the Legislature from 1983 through 2000. Unlike the federal Biennial Reporting database, the State database includes information on PCB hazardous waste and exports to foreign countries. The annual reporting database is the primary source of data for the Siting Plan.

New York State Manifest Data. The Department also maintains a database containing information on all hazardous waste generated or disposed in the State that requires manifested transportation. Pursuant to 6 NYCRR 372.2(b), generators provide the State with a copy of a manifest at the initiation of a hazardous waste shipment, and pursuant to 6 NYCRR 373-2.5(b), hazardous waste treatment, storage and disposal (TSD) facilities provide the State with a copy of the same manifest once signed to indicate receipt of the shipment. Manifest data since 1980 is stored electronically and compiled in an active database.

A quality assurance/quality control check is performed on the annual report data prior to finalization by comparing it with the manifest data. Through the cross-check of these two sources of information, New York State has gathered the best data available on hazardous waste management in the State.

RCRAInfo. The USEPA maintains a federal database on hazardous waste management across the nation, providing a national perspective on the shipment of hazardous wastes, waste management methods, and waste management capacity. Every other year, the USEPA collects New York's and all other states' annual reporting data, and enters it into a database, named RCRAInfo. RCRAInfo also contains information about permitted and interim status TSD facilities.

One of the gaps in the federal data is that it generally does not include hazardous waste exported to Canada and other countries. This can have major impacts on the ability to interpret the data, particularly for border states such as New York and Michigan. Waste is not counted at all (as generated or shipped) if it is all shipped to a foreign country. If part of a particular generated waste stream is shipped to a foreign country and part is shipped to a US facility, then all the waste is counted as generated, and the waste shipped to a US facility is counted as shipped. Waste imported from foreign countries is accounted for.

Every other year when the federal data is updated, it is summarized in a National RCRA Biennial Hazardous Waste Report. USEPA's biennial reports can be found on the USEPA web site at: http://www.epa.gov/epaoswer/hazwaste/data/biennialreport/index.htm.

Generation and Management of Hazardous Waste in New York State Report

Generation and Management of Hazardous Waste in New York State Report. From 1983 through 2000, this report was prepared pursuant to the New York State Industrial Hazardous Waste Management Act of 1978. It summarizes annual hazardous waste generation and management data for the Governor and the State Legislature. Data from these reports was not used for this analysis as the methodology for generating the data has changed.

New York State Hazardous Waste Taxes and Fees

Taxes and fees on hazardous waste create an economic incentive for hazardous waste reduction. Two types of charges are levied by New York State on the management of hazardous waste - special assessment taxes and regulatory program fees. The taxes and fees are based on the amounts of hazardous waste generated.

Special Assessment Taxes

Established in 1982 and amended several times, most recently in 2010, special assessment taxes are currently levied on all facilities in New York State that generate hazardous waste. The amount of the tax is based on the amount of waste generated and the method of waste disposal.

The preferred hazardous waste management practices hierarchy is the basis for the scaling of taxes, with the highest tax of $27 per ton for landfilling and the lowest tax of $2 per ton for incineration at the site of generation. Special assessments are not imposed on the resource recovery of any hazardous waste; however, hazardous waste remaining after the resource recovery process is subject to taxes. One hundred percent of the revenue collected goes to the Hazardous Waste Remedial Fund's Industry Fee Transfer Account which is used to pay 50 percent of the debt service associated with bonds that fund the cleanup of State Superfund hazardous waste remedial sites.

Regulatory Program Fees

Annual regulatory program fees were established in 1983 through Article 72 of the Environmental Conservation Law. The hazardous waste regulatory fees were amended in 2003, 2004 and 2010. The fees must be paid by generators of hazardous waste or hazardous wastewater, and all hazardous waste TSD facilities.

Generator fees are based on the amount of hazardous waste and hazardous wastewater generated. TSD facility fees are based on facility type and the amount of hazardous waste managed.

Of the revenue collected, 15% is transferred to the environmental protection fund not to exceed $2.1 million, 71% is transferred to the Hazardous Waste Remedial Fund's Industry Fee Transfer Account, and the balance is used to fund other environmental quality program needs.

Table 2-1 more fully describes the hazardous waste regulatory fees.

TABLE 2-1

Hazardous Waste Regulatory Fees
ECL Article 72, Title 4

GENERATOR FEES

For 2011 forward, the annual generator fees shall be the following:

- **Hazardous Waste (Non-Wastewater) Fee**

> 15 to < 4,000 tons/year	$130 per ton not to exceed $300,000
> 4,000 to < 10,000 tons/year	$400,000
> 10,000 tons/year	$800,000

- **Hazardous Wastewater Fee**

>15 to < 15,000 tons/year	$3,000
>15,000 tons/year	$9,000

Bills for each calendar year will be based on the actual quantity of hazardous waste and hazardous wastewater generated in the prior calendar year.

There are exemptions in ECL 72-0402 for certain remedial wastes and universal wastes, and for certain recycled waste if greater than 90% of the total is recycled.

TREATMENT, STORAGE & DISPOSAL (TSD) FACILITY FEES

- **Base Facility Fee**

≤ 1,000 tons/year	$12,000 per facility
> 1,000 tons/year	$30,000 per facility

- **Add-on Fees**

Landfill - Onsite	$100,000 per facility
Landfill - Commercial	$100,000, $200,000, or $300,000 per facility
Incinerator/Energy Recovery	$10,000 each unit
Surface Impoundment	$24,000 per facility
Post-Closure	$3,000 per facility

The Post-Closure fee applies only to fully closed TSD facilities requiring post-closure care of one or more land disposal units (such as a landfill or surface impoundment).

CHAPTER 3

Future Generation of Hazardous Waste: *long-range projections of at least twenty years of the amounts and composition of hazardous waste which will be generated within the State and, to the extent feasible, in neighboring states.*

Development of long range projections of future amounts and composition of hazardous waste to be generated requires an analysis of past generation rates and trends.

This chapter first presents a statewide analysis of hazardous waste generation, including:

- the number of generators;
- the quantity of hazardous waste generated and whether it was managed on-site or off-site;
- for waste shipped off-site, a breakdown by primary, secondary and remedial waste; and
- hazardous waste types.

This is followed by a regional analysis and discussion of hazardous waste generation on a national level, with a focus on surrounding states, and closes with projecting New York State hazardous waste generation rates into the future.

I. Statewide Analysis

Number of Generators

Conditionally exempt small quantity generators (CESQGs) are those that generate less than 100 kilograms of non-acute hazardous waste in a month. CESQGs do not need to manifest their waste and are not required to submit an annual report.

Small quantity generators (SQGs) are those that generate between 100 and 1,000 kilograms of non-acute hazardous waste in a month and store less than 6,000 kilograms. These generators must manifest their waste, but do not have to submit an annual report to the State on their waste generation and management practices.

Large quantity generators (LQG) are those that meet any of the following criteria:

(a) in any single month 1,000 kg (2,200 lbs) or more of hazardous waste is generated; or

(b) in any single month, or accumulated at any time, 1 kg (2.2 lbs) of acute hazardous waste is generated; or

(c) at any time more than 100 kg (220 lbs) of spill cleanup material contaminated with acute hazardous waste is generated or accumulated.

SQGs and CESQGs have certain management and disposal requirements that must be met for the hazardous waste they generate. However, while there are a large number of SQGs (approximately 6,400 in 2007 which decreased to 5,100 in 2008 based on manifest records) and far more CESQGs in the State, the total amount of waste they generate is only a small percentage of the total hazardous waste generated in the State. LQGs generate the vast majority of the waste in the State and they submit annual reports relating to the management of that waste. The detailed analyses in this chapter use annual reporting data and focus on the LQG universe of generators.

For those analyses based on hazardous waste manifesting data, wastes from both LQGs and SQGs are included. If manifest data is used, its use is noted.

The evaluation of the quantity and composition of hazardous waste generation in the State begins with the number of facilities generating hazardous waste.

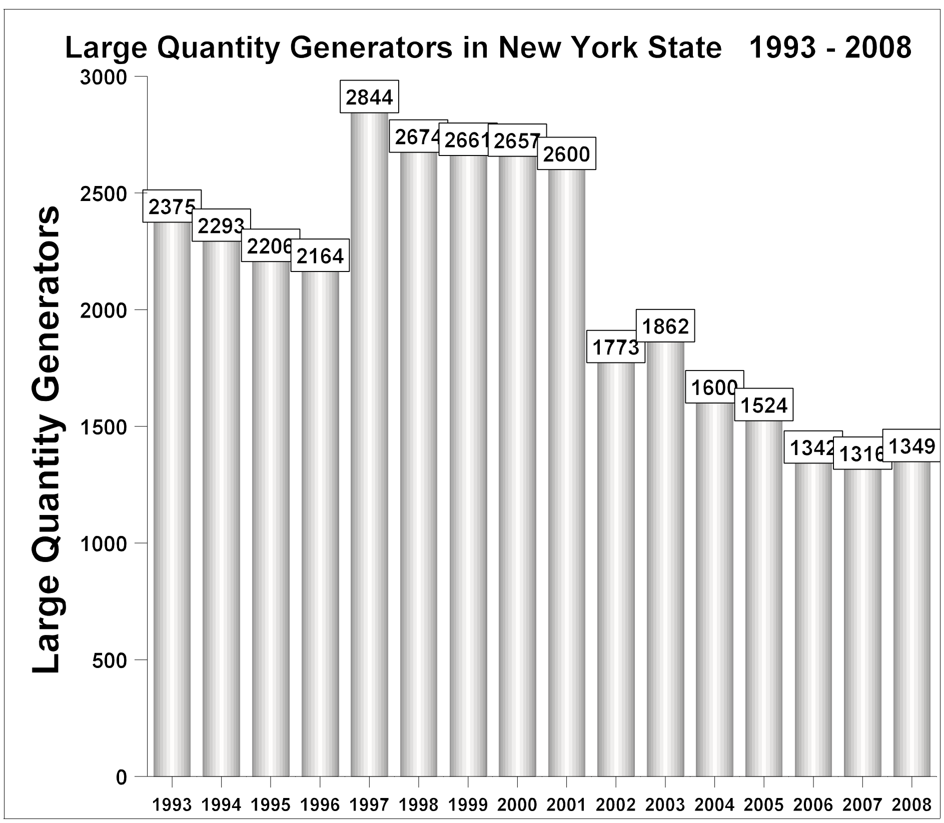


Figure 3-1

In 2008, there were 1,349 LQGs in New York State. The number of LQGs in the State, from 1993 through 2008, is presented in Figure 3-1.

Most LQGs are companies that generate hazardous waste as part of their normal business operation. A location or facility can also become a LQG in any particular year due to one-time generation events and remedial projects. Approximately one third of the LQGs every year meet the definition of a LQG solely due to one-time events or remedial projects.

As seen in figure 3-1, the number of LQGs within the State has been generally declining over a 15 year time span. There have also been reporting changes for manhole locations, which is the reason for a number of variations shown in this graph. The sharp increase in LQGs for 1997 resulted from the first time reporting of numerous manhole locations when characteristic lead waste (D008) was generated from their cleanout. In previous years, this waste was reported (in error) as generated by the off-site facilities where the hazardous waste from various manholes was collected. This correction resulted in a significant increase in LQGs, with no associated increase in the amount of hazardous waste generated. Manholes continued to be reported in subsequent years. In 2002, changes in waste management from manholes, including an in-situ treatment method for waste generated in many manholes, resulted in a significant number of these locations to no longer be considered LQGs. This accounts for 743, or 90%, of the decrease of 827 LQGs between 2001 and 2002.

Figure 3-2 shows trends without the complicating factor of including manholes as LQGs. While Figure 3-1 shows an overall continuing downward trend in numbers of LQGs in the State, Figure 3-2 shows a stabilizing of the number of LQGs over the last 5 years.

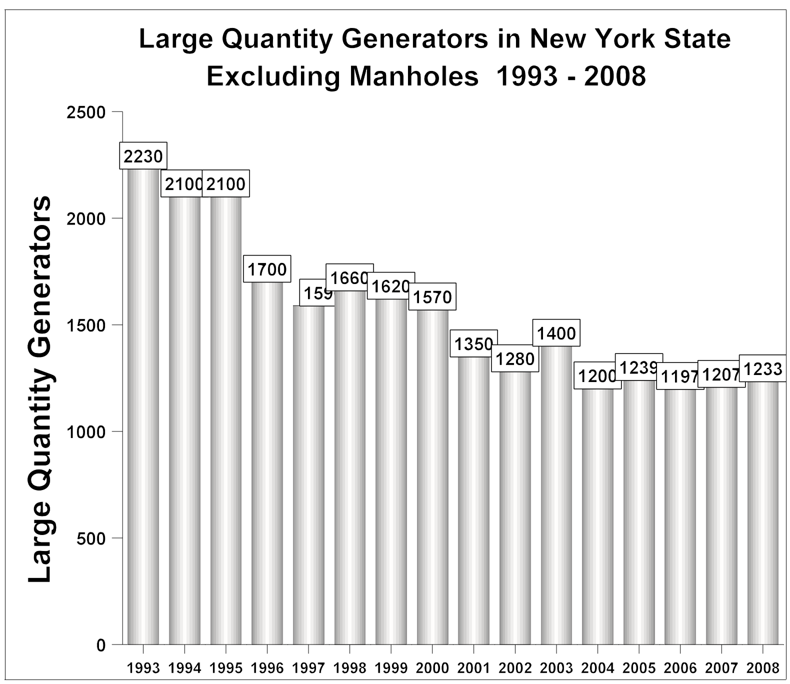


Figure 3-2

Table 3-1

Hazardous Waste Statewide Summary (In Thousands of Tons) 1996 - 2008

(numbers in parentheses do not include wastewater)

		1996	**1997**	**1998**	**1999[3]**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
1	Total Hazardous Waste Generated In-State[5]	96,540	75,280	71,588[2]	73,348	73,197	67,334	63,022	60,127	57,371	58,348	55,715	52,260	45,906
2	Total Hazardous Waste Generated In-State, managed on-site	95,889 (61,508)	74,645 (12,153)	72,855[2] (12,366)	72,723 (15,042)	72,800 (14,696)	66,936 (8,780)	63,139 (8,456)	59,972 (1,276)	57,380 (8,115)	58,200 (7,755)	55,479 (9,245)	50,313 (1,010)	45,604 (983)
3	Total Hazardous Waste Generated In-State, shipped off-site for management	690 **(344)**	575 **(290)**	475 **(262)**	568 **(361)**	418 **(256)**	408 **(224)**	271[1] **(264)**	279 **(244)**	241 **(234)**	225 **(215)**	234 **(226)**	339 **(332)**	304 (299)
4	Total Hazardous Waste Generated In-State and shipped to NYS facilities	491 **(153)**	367 **(87)**	280 **(74)**	331 **(132)**	234 **(78)**	298 **(118)**	141[1] **(137)**	131 **(99)**	79 **(76)**	56 **(54)**	34 **(32)**	102 **(100)**	144 (143)
5	Total Hazardous Waste Generated In-State and shipped to Out-of-State facilities (Exports)	199 **(191)**	208 **(203)**	195 **(188)**	238 **(229)**	185 **(177)**	110 **(106)**	130 **(127)**	148 **(145)**	162 **(158)**	169 **(161)**	200 **(194)**	237 **(232)**	160 (156)
6	Total Hazardous Waste Generated Out-of-State and shipped to NYS facilities (Imports)[4]	288 **(288)**	257 **(252)**	276 **(275)**	296 **(289)**	233 **(232)**	189 **(187)**	150 **(149)**	131 **(130)**	119 **(118)**	265 **(265)**	275 **(275)**	207 **(207)**	199 (199)
7	Total Hazardous Waste shipped to NYS facilities[6]	890 **(517)**	1,537 **(461)**	1,375 **(486)**	1,543 **(527)**	808 **(505)**	850 **(459)**	568 **(438)**	509 **(394)**	438 **(434)**	346 **(343)**	315 **(312)**	310 **(308)**	344 (342)

[1] One facility changed its reporting of piped wastewater to on-site treatment , which was previously reported as waste shipped off-site.

[2] For this reporting year, EPA required groundwater pump and treat operations to report the pumped groundwater as on-site treatment, but not as waste generation. By the next year, New York diverged from EPA and required pumped groundwater to be reported as generation.

[3] A number of large remedial projects were implemented in 1999 generating a significant quantity of hazardous waste that was managed in-state.

Continued footnote to Table 3-1:

[4]One receiving facility receives large quantities of CESQG waste which is separated by state of origin from 2005 onward. This is reflected by the larger numbers from 2005 onward for row 6. It is not known how much of this waste was originally from New York and was shipped to out-of-state intermediary collection facilities before shipment to the New York receiving facility.

[5] Some waste reported as generated in one year may not be managed until the next year. Some waste managed in one year may have been generated in the prior year. As a result, adding lines 2 and 3 together may not total the quantity in line 1.

[6] These numbers come from receiving facility annual reports. It includes wastes exempt from generator reporting such as waste from small quantity generators, conditionally exempt small quantity generators, and lead-acid batteries. There has also been confusion over reporting of wastewater received by pipe. In some cases, receiving facilities have reported this as received from off-site, while the generators have reported it treated on-site.

Hazardous Waste Quantity

Table 3-1 shows some clear trends in hazardous waste generation and management over a thirteen year period. This data is also shown graphically in Figures 3-3, 3-4 and 3-5 to assist in demonstrating the trends. Total New York State hazardous waste generation, seen in line 1 of Table 3-1, shows a dramatic reduction from 96 million tons in 1996 to 46 million tons in 2008, a 52% reduction. Most of this decrease was waste that was managed on-site (line 2 of Table 3-1). This can also be seen in Figure 3-3.

Figure 3-3

Figure 3-3 is a dramatic representation of the very small percentage of New York generated hazardous waste that is shipped off-site for management. The vast majority of hazardous waste generated in the State is wastewater that is treated on-site to remove contaminants to acceptable levels and then discharged pursuant to a SPDES permit or to a Publicly Owned Treatment Works (POTW) which has a SPDES permit.

Hazardous Waste Managed On-Site

Table 3-2 provides detail regarding hazardous waste managed on-site in 2008. Of the total waste managed on-site in 2008, 2% was non-wastewater. In both 2007 and in 2008, the bulk of this non-wastewater was primary waste that was treated on-site.

Table 3-2

Hazardous Waste Managed On-Site in New York in 2008
(tons)

Handling Method	wastewater				non-wastewater				Total by Handling Method
	Primary	Secondary	Remedial	Sub Total	Primary	Secondary	Remedial	Sub Total	
Recycling	0	0	0	0	1,079	18	3	1,100	1,100
Burn	0	0	0	0	16,508	45	8	16,561	16,561
Treat	1,497,850	38,601,784	4,521,230	44,620,865	964,652	492	48	965,192	45,586,057
Landfill	0	0	0	0	17	19	9	45	45
Storage	0	0	0	0	3	0	0	3	3
Sub Total	1,497,850	38,601,784	4,521,230		982,258	574	68		
Total	44,620,865				982,900				
Grand Total	45,603,765								

Of the primary non-wastewater treated on-site, over 90% (884,000 tons) was generated at one facility which generates characteristic corrosive hazardous wastes (acids and bases) that are first neutralized and then managed through its wastewater treatment plant. The facility, IBM/ East Fishkill, also generates solvents which are treated on-site.

Hazardous Waste Managed Off-Site

For this Siting Plan, hazardous waste that is shipped off-site is of primary concern, as it is this waste that is most directly relevant to questions of commercial hazardous waste management capacity.

As can be seen from the data in line 3 of Table 3-1, and also in Figure 3-4, the amount of

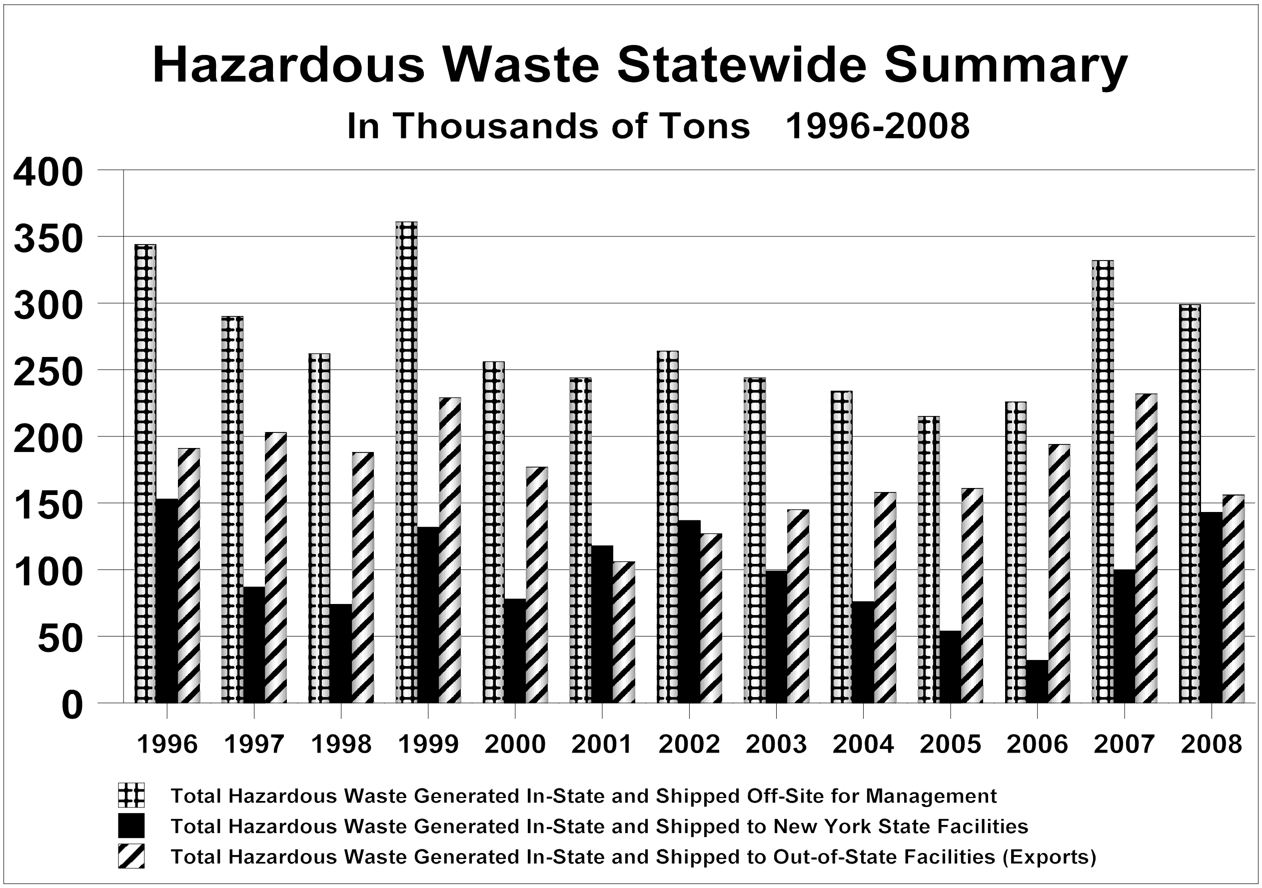


Figure 3-4

hazardous waste generated in New York that is shipped off-site for management fluctuates over time. In 2007 and again in 2008, this number was higher than previous years mostly due to remedial hazardous wastes from a few sites. In general, much of the variation in the quantity of hazardous waste shipped off-site for management over time can be attributed to remedial hazardous wastes, which will be discussed in detail later in this chapter (see Figure 3-5). Hazardous wastewater is not included in these numbers because, in the earlier years, there were reporting discrepancies regarding hazardous wastewater piped to neighboring facilities for treatment that skews the data.

Interestingly, while the quantity of waste New York generators shipped out-of-state for management from 2001 through 2007 showed a consistent increasing trend, in 2008 this number decreased (line 5 of table 3-1 and the striped bars in Figure 3-4). This is due to the hazardous waste management decisions for remedial hazardous waste.

While in general there had been an increase in the exportation of New York generated waste, remedial waste can have significant impact on the data, as can be seen from the percent of total New York waste generation that is shipped out-of-state for management. As can be seen in Table 3-3, while from 2001 through 2006 an increase in this percentage is clearly evident, the percentage drops in 2007 and again in 2008 when there was a large quantity of remedial waste sent to an in-state facility for management.

Table 3-3
Percent of New York Generated Hazardous Waste Shipped Out of State for Management

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Percent sent out of state	55.5%	70.0%	71.8%	63.3%	69.1%	47.3%	48.1%	59.4%	67.5%	77.9%	85.8%	69.9%	52.2%

Primary, Secondary, and Remedial Generation

Hazardous waste can be generated in a number of ways. It can originate from industrial processes, but can also be generated from treating hazardous waste and from cleaning up improperly managed waste or spills. These remedial wastes may be generated from cleanup under state and federal environmental programs such as the State's Superfund, brownfield, spill cleanup, and RCRA corrective action programs, along with the Federal Comprehensive Environmental Response Compensation Liability Act (CERCLA) program, also known as federal Superfund. While there is a goal to decrease the amount of hazardous waste generated from industrial processes, particularly per unit of production, remedial waste increases can be viewed as a positive trend since it reflects increased environmental clean up actions.

Hazardous waste can be tracked by categories based on the means by which the waste is generated, as follows:

1. **Primary** hazardous waste is generated directly by a production, manufacturing or service activity, or as a result of the treatment of a previously existing non-hazardous waste.

2. **Secondary** hazardous waste is generated as a result of the treatment of a previously existing hazardous waste. Two examples are:

   1) hazardous waste treatment processes resulting in the generation of hazardous sludges; and

   2) a materials recovery operation generating a hazardous residual from the non-recoverable contents of the original hazardous waste.

3. **Remedial** hazardous waste is generated as a result of remediation of current spills and accidental releases, the implementation of corrective action under RCRA, and

remediation of historic contamination under the federal superfund program, state superfund program (SSF), brownfield cleanup program (BCP), voluntary cleanup program (VCP), or Environmental Restoration Program (ERP).

Trends in Primary, Secondary and Remedial Hazardous Waste Shipped Off-site

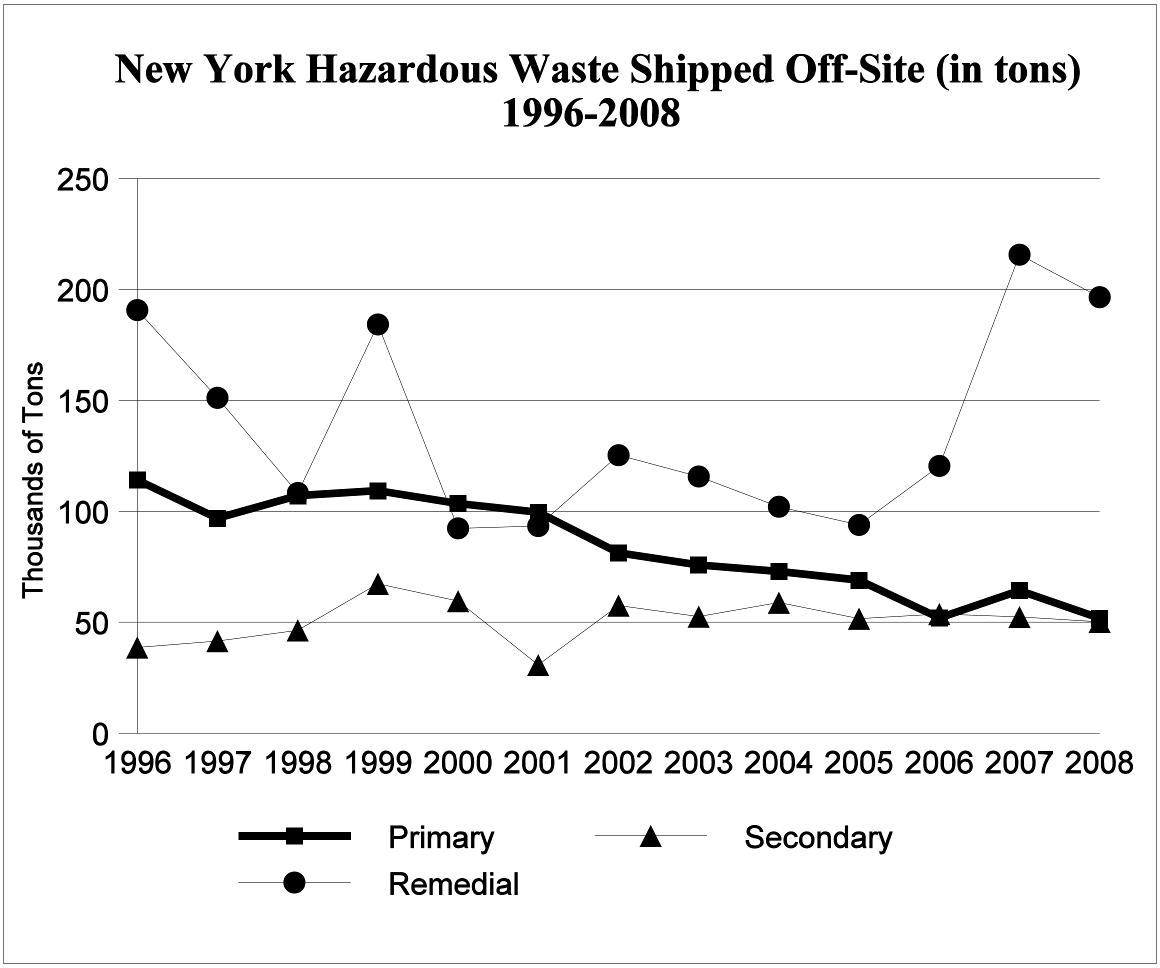


Figure 3-5 ***(Excludes wastewater and transfer waste from a storage facility)***

Figure 3-5, New York Hazardous Waste Shipped Off-Site, illustrates the trends in primary, secondary and remedial hazardous waste generation shipped off-site for management from 1996 to 2008.

Primary hazardous waste generation fluctuated during the late 1990's but has shown an overall decline and then a leveling off since that time. From this data the projection is that the quantity of primary hazardous waste generated and shipped off-site for management will stabilize or slowly decrease in the years to come. This is consistent with the decreasing trend in the number of LQGs as shown in Figure 3-1. Future process waste generation from new industries should be considered, but improved technology and increased sensitivity to the costs and liabilities associated with hazardous materials along with pollution prevention and waste reduction state initiatives offer reason to believe that new industries are not likely to significantly increase the amount of hazardous wastes generated. Interestingly, nanotechnology, which offers a promising industrial direction for New York, is not anticipated to create substantial additional quantities of hazardous waste for off-site management, as determined by current hazardous waste regulations.

Secondary hazardous waste generation is the result of treatment of previously accounted for hazardous waste. When a hazardous waste is first generated, it is counted as primary waste. When that waste is then treated and continues to meet the definition of a hazardous waste, it is a scondary waste. In some cases, this is the result of treatment to meet the land disposal restriction standards for landfilling. In this way, waste originally generated in New York State and then treated in New York State, is “double counted”; that is, it is counted when it is first generated, then counted again when a new waste is generated as a result of treatment. Figure 3-5 shows a relatively stable trend over time in the quantity of secondary waste being shipped off-site for management.

Remedial hazardous waste quantities shipped off-site each year fluctuates with the status and nature of remedial actions in the State. While the quantity of remedial hazardous waste being shipped off-site had been decreasing in recent years, a significant increase occurred in 2007 and continued into 2008. It can be anticipated that remedial hazardous wastes will continue to represent a significant portion of the total wastes generated and shipped off-site in the State.

Love Canal brought national attention to the issue of improper management of hazardous wastes in the late 1970's. In 1979, the State enacted the State Superfund Program to provide a legal mechanism to clean up inactive hazardous waste sites across the State. In 1980, Congress passed the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), establishing a national program for cleaning up contaminated sites. New York’s program evolved and, in 1986, New York voters passed the Environmental Quality Bond Act, providing $1.2 billion in funding for the State Superfund program. The State remediation program expanded over time with the addition of the Voluntary Cleanup Program in 1994 and the Environmental Restoration Program in 1996. In 2003, the State legislature enacted significant changes to the State Superfund program with substantial new funding. It also created the Brownfield Cleanup Program, which offers generous refundable tax credits as an incentive for land owners and developers to clean up sites where the presence of contamination has discouraged reuse and redevelopment. The tax credit structure of the Brownfield Cleanup Program was amended by the State legislature in June 2008, capping tax credits but still offering millions of dollars per site as an incentive for remediating and developing brownfields.

The Division of Environmental Remediation's approach to remedial action decision making has not changed over time and remains similar to the National Contingency Plan which lays out a national approach for remedial projects. Remedial engineers employ the statutory hierarchy of management methods and also look at cost effectiveness in selecting each site's remediation plan. This process has been expanded to consider sustainability when evaluating remedial alternatives, taking into account impacts over the life of the remedy and preventing, minimizing, or mitigating pollution and ecological impacts from site cleanup activities.

Many cleanups of past contamination include on-site treatment of groundwater. Remediation increasingly includes on-site treatment of soil, though a number of cleanups still involve excavation and removal of contaminated soils without treatment. Though many cleanups generate remedial hazardous wastes that are shipped off-site for management, a significant quantity of the material removed during site cleanups under the various remedial programs does not meet the definition of hazardous waste and can be disposed of at a non-hazardous waste landfill.

Methods used to clean up contaminated sites include onsite treatment (both insitu and exsitu), disposal off-site in landfills, and, occasionally, recycling. Onsite treatment includes thermal methods (thermal desorption), physical methods (air stripping or vacuum extraction), chemical methods (chemical oxidation), and biological methods. In cases where treatment is employed, treatment residuals may need to be disposed of in a landfill. Many times, excavation and off-site disposal is the most feasible remedy for the remediation of a contaminated site. Details on remedial hazardous waste shipped off-site for management from 1996 - 2008 are provided in Table 3-4. The majority of the remedial hazardous waste that is disposed of in hazardous waste landfills comes from a limited number of cleanups. According to the Division of Environmental Remediation, these "large volume" cleanups (which typically generate well over 10,000 tons of remedial hazardous waste) only occur occasionally, typically one per year or less (out of the 100 plus sites that are cleaned up every year). Examples of "large volume" sites that have occurred in the last few years are described below.

Freeman's Bridge Road - Glenville, New York. This was the site of a former cooperage where wastes were disposed of behind the industrial operation: the industrial waste dumpsite then became an illegal disposal site for construction debris and hazardous waste. While the site was contaminated with a number of volatile organic compounds, the predominant contaminant of concern was PCB waste. The Record of Decision specified onsite thermal treatment of all of the contaminated soil. Due to the manner in which PCBs are regulated, different types of thermal treatment are used for soil with less than 50 ppm PCBs and for soil greater than 50 ppm PCB. Over 63,000 tons of soil contaminated with less than 50 ppm PCBs were successfully treated on-site and the clean soil reused on the site. While a treatment unit for the soil greater than 50 ppm was deployed to and set up at the site, the unit was unable to treat the material in a cost effective and timely manner because of the construction debris that was comingled with the contaminated soil. Approximately 34,000 tons of soil and debris contaminated with greater than 50 ppm PCBs was disposed of as hazardous waste in an off-site landfill.

Luzerne Road - Queensbury, New York: This was the final remediation of a temporary containment cell constructed by NYSDEC in 1978 to hold PCB contaminated soil removed from nearby residents' yards. The Record of Decision specified on-site treatment of all contaminated soil. The remedial design specified two treatment units, one for soil with less than 50 ppm and another for soil with greater than 50 ppm (see the discussion above for the Freeman's Bridge Road site). Only one contractor submitted a bid for this project and it was significantly above the engineers estimate. In order to increase the number of bidders the remedy was modified to require on-site treatment of the PCBs less than 50 ppm and gave an option of on-site treatment or off-site disposal for the soil greater than 50 ppm. Only two bids were received in response to the revised remedy, both selecting the off-site disposal option for material greater than 50 ppm PCBs. Approximately 62,000 tons on non-hazardous soil was treated on-site. Approximately 2,000 tons of non-hazardous debris were disposed of off-site. Approximately 78,000 tons of hazardous soil was disposed of in a hazardous waste landfill within New York and 1,000 tons of PCB contaminated capacitors were sent for incineration at an out-of-state disposal facility.

Former Bouchard Junkyard - New Lebanon, New York - This was a junkyard where PCB laden oil was used for dust control. A Record of Decision was issued in 2004, with soil washing as the remedy for the contaminated soil and on-site thermal treatment as a backup technology. By the time the remedial design was completed, most of the soil washing vendors available when alternatives were evaluated were no longer in business, and the cost of on-site thermal treatment had risen to significantly more than the cost of off-site disposal. The remedy was therefore amended in 2006 to allow for excavation and off-site disposal which occurred in 2008. Approximately 26,000 tons of contaminated soil were excavated and disposed of as hazardous waste at a hazardous waste landfill in New York (in addition to approximately 60,000 tons of non-hazardous waste that went to a non-hazardous landfill).

Table 3-4
Total Remedial Hazardous Waste Generated in New York State and Shipped Off-Site for Management
(tons)

Year	NY Remedial Hazardous Waste Total			NY Remedial Hazardous Waste Shipped to In-State Facility			NY Remedial Hazardous Waste Shipped to Out-of-State Facility		
	Total	Treat	Landfill	Total	Treat	Landfill	Total	Treat	Landfill
1996	190,691	19,977	121,722	121,999	5,775	92,674	68,691	14,202	29,048
1997	151,204	65,512	61,250	65,504	14,566	46,291	85,699	50,945	14,958
1998	108,291	19,742	60,893	50,442	10,100	34,660	57,849	9,641	26,232
1999	184,280	40,637	122,718	107,248	29,217	67,576	77,032	11,421	55,142
2000	94,398	31,665	43,867	54,900	12,856	32,268	37,498	18,808	11,599
2001	93,376	7,600	72,017	69,827	2,230	60,102	23,549	5,370	11,915
2002	125,368	14,464	103,767	105,062	8,889	93,941	20,306	5,575	9,826
2003	115,721	10,230	97,073	72,180	4,310	65,961	43,541	5,920	31,113
2004	102,085	29,858	60,692	49,332	2,352	44,627	52,753	27,506	16,065
2005	93,890	30,067	44,287	38,883	381	28,662	55,006	29,686	15,625
2006	120,431	38,185	66,712	16,140	557	13,215	104,291	37,628	53,496
2007	215,662	70,925	141,390	79,400	101	78,659	136,262	69,406	64,151
2008	196,492	62,631	126,534	118,622	35	118,032	77,870	62,596	8,502

Notes for Table 3-4:

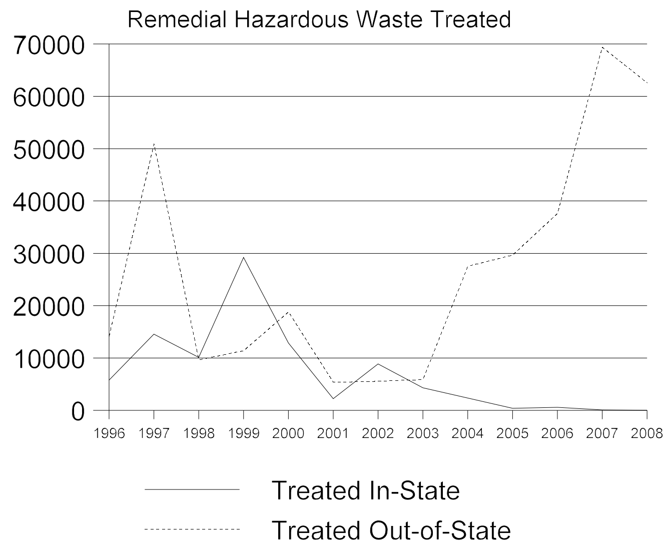
- *Wastewater is not included.*
- *Management methods "burn" and "store" are not shown, so the quantity treated plus the quantity landfilled will NOT equal the total.*

Table 3-4 shows a dramatic increase in remedial hazardous waste shipped off-site in 2007 which continued into 2008. Among the dozens of projects undertaken in 2007, just three account for 104,735 tons of remedial hazardous waste shipped off-site, 104,496 tons of which were landfilled, accounting for approximately 75% of the remedial hazardous wastes landfilled in 2007. These generators shipped 58,801 tons (56%) to an in-state facility and 45,695 tons (44%) to out-of-state facilities. If these numbers are subtracted from the totals for 2007, 110,927 tons of remedial hazardous waste was shipped off-site, with 36,894 tons landfilled.

In 2008, six remedial projects each generated over 10,000 tons of remedial hazardous waste for a total of 146,045 tons, which is just under 75% of the total remedial hazardous waste shipped off-site for management. Of this total, 105,235 tons from four projects were landfilled in-state which accounts for 83% of all remedial hazardous waste landfilled in 2008 and almost 90% of the total remedial hazardous waste which was landfilled in-state. Without the few, large hazardous waste remedial projects, remedial hazardous waste is a moderate component of hazardous waste generation.

Year 2007 also saw an increase in treatment of remedial hazardous waste managed out-of-state. One remedial site accounts for 24,472 tons of this waste. In 2008, the quantity of remedial hazardous waste treated out-of-state remained high, with the bulk of this waste generated by three sites.

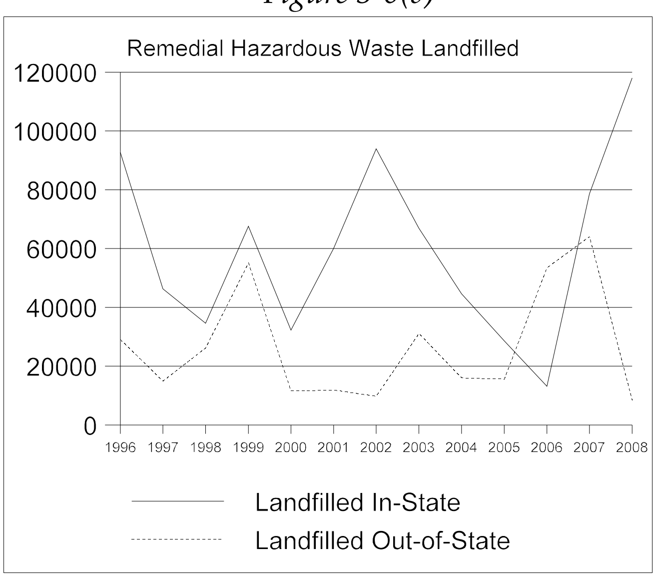
Figure 3-6(a)



Overall, from 2001 forward, the quantity of remedial hazardous waste shipped off-site for treatment climbed (see Figure 3-6(a)). This treated hazardous waste was typically lead contaminated soil or debris which was stabilized and then landfilled as non-hazardous waste.

Disposal decisions for individual, large cleanups of contaminaged sites have a significant impact on in-state versus out-of-state remedial hazardous waste quantities shipped for landfilling on a year by year basis as shown in Figure 3-6(b). For example, three cleanup projects in 2007 accounted for 104,500 tons, or approximately three-fourths of the remedial hazardous waste landfilled in 2007. Of this total, 56% was landfilled in-state and 44% was landfilled out-of-state, so both in-state and out-of-state graph lines peak.

Figure 3-6(b)



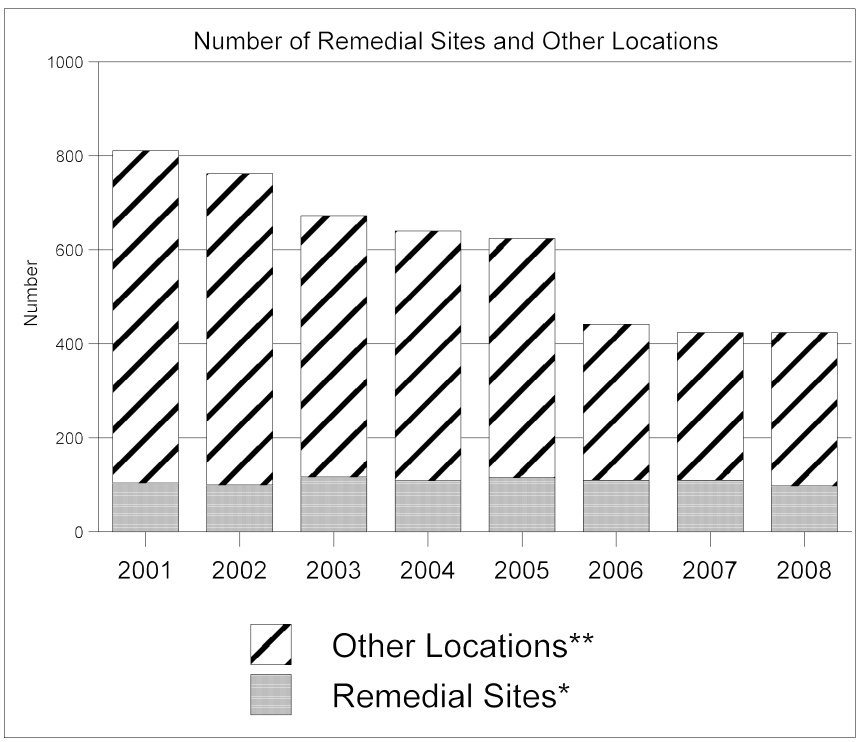
In 2008, landfilled remedial hazardous waste primarily went to the in-state facility, with four of the largest projects in the State accounting for 105,000 tons of the total. That leaves only 13,000 tons of remedial hazardous waste landfilled in-state from other sources. Use of out-of-state facilities for hazardous waste landfill disposal dropped significantly in 2008.

Similarly, other spikes seen in Figure 3-6(b) reflect a few cleanup efforts with the excavation of large amounts of contaminated soil. In 1999, one location shipped 35,588 tons of PCB remedial hazardous waste to an in-state facility for landfilling and a second site shipped 20,860 tons of PCB remedial hazardous waste to a facility in Utah. Both in-state and out-of-state landfill lines peak in that year. In 2002, three remedial projects account for 53,737 tons of remedial hazardous waste shipped to an in-state facility for landfilling. In 2003, one facility shipped just over 12,000 tons for landfilling in Canada accounting for the smaller out-of-state spike that year.

"Remedial sites" as a subset of all locations generating remedial hazardous wastes

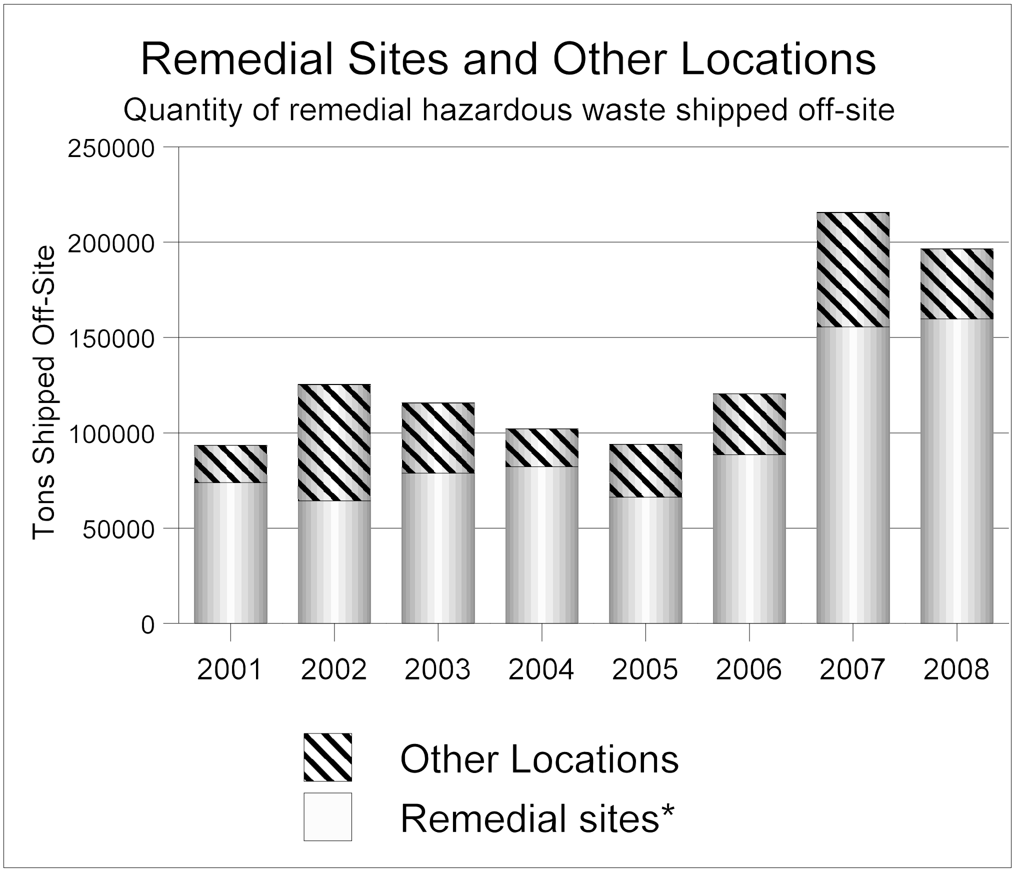
Hazardous waste from the remediation of contaminated sites, whether a Superfund, brownfield or voluntary cleanup (hereinafter referred to generally as "remedial sites"), is identified in the hazardous waste annual reporting data as source codes G43, "remedial action or emergency response under Superfund", and G44, "State program or voluntary cleanup". Figure 3-7 shows the total number of locations generating remedial hazardous wastes, which include remedial sites and "other locations", and highlights that portion of those locations representing just remedial sites. "Other locations" include remediation of current spills and accidental releases, closure of hazardous waste management units under RCRA, corrective action at solid waste management units under RCRA, and underground storage tank cleanups.

Figure 3-7



* Remedial Sites: G43 - hazardous waste from a remedial action or emergency response under Superfund; and G44 - hazardous waste from a state program or voluntary cleanup.
** Other locations: G31 - G39, G41, G42, and G45 - G49.

Figure 3-8



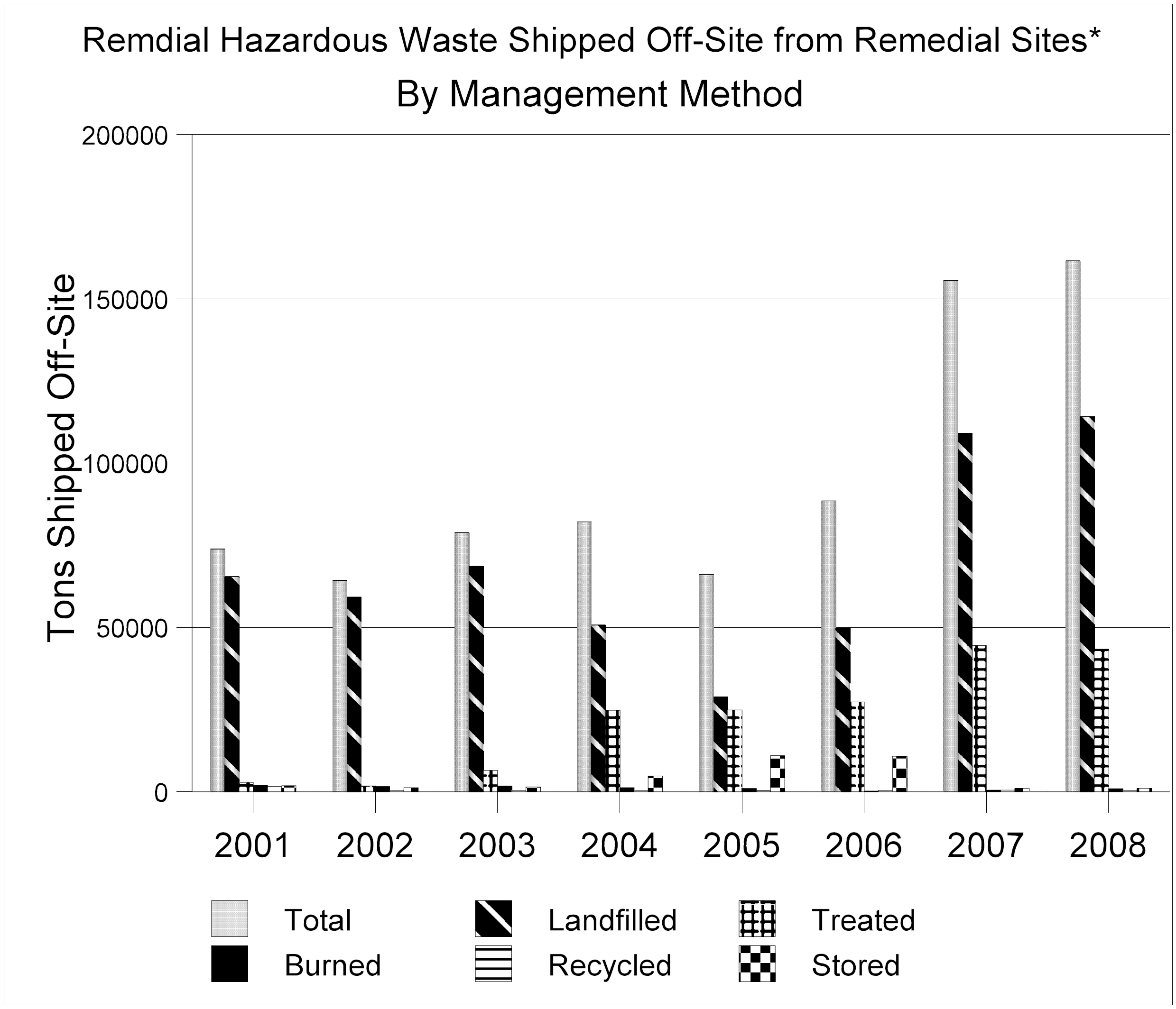
* Remedial sites: G43 - hazardous waste from a remedial action or emergency response under Superfund; and G44 - hazardous waste from a state program or voluntary clean-up.

With the number of contaminated sites throughout the state in need of remediation estimated to be well into the thousands, activity at remedial sites will certainly continue for decades to come. In the last few years, during which time the Brownfield Cleanup Program was initiated and has matured, the number of remedial sites from year to year has been remarkably constant, ranging from 98 to 117 sites per year between 2001 and 2008, with an average of 107 remedial sites per year generating hazardous waste for off-site disposal. Figure 3-7 shows the year to year data for the number of remedial sites where remedial hazardous waste was shipped off-site compared to all locations which shipped remedial hazardous waste.

While the number of remedial sites is a small percentage of the number of total locations where remedial hazardous waste is generated each year, Figure 3-8 shows that these remedial sites account for the bulk of the remedial hazardous waste shipped off-site for management. For this reason, remedial sites are of particular interest for purposes of evaluating generation of remedial hazardous waste.

Figure 3-9 looks at the management methods for the remedial hazardous waste shipped off-site for management from remedial sites from 2001 through 2008. While most of this material is landfilled, the amount that is treated has been increasing in recent years. The amount of remedial hazardous waste from remedial sites that is shipped for off-site incineration or recycling is negligible.

Figure 3-9



* Remedial Sites: G43 - hazardous waste from an action or emergency response under Superfund; and G44 - hazardous waste from a state program or voluntary clean-up.

Table 3-5 takes information on remedial hazardous waste shipped from remedial sites to the next level of detail, showing the total quantity and the quantity managed in-state for each management method. Figure 3-10 looks at one piece of this data, specifically, the total quantity of remedial hazardous waste from remedial sites landfilled compared with the quantity landfilled in-state. Typically, over half of landfilled remedial hazardous waste from remedial sites generated in any particular year is managed in-state. In 2008, almost all of the remedial hazardous waste that was landfilled was managed in-state.

Table 3-5

Off-site Remedial Hazardous Waste Management by Management Method from Remedial Sites Only Total and Managed In-State (tons)								
Management Method	2001	2002	2003	2004	2005	2006	2007	2008
All: Total	73,851	64,304	78,851	82,144	66,152	88,519	155,614	161,595
In-State	57,119	59,091	47,842	37,533	29,481	10,090	71,742	110,685
Recyling: Total	1,569	439	405	459	367	411	490	407
In-State	999	4	3	0	0	0	0	0
Burn: Total	1,967	1,586	1,808	1271	988	247	539	890
In-State	230	111	41	88	93	4	76	9
Treat: Total	2,905	1,776	6,515	24,761	24,889	27,340	44,493	43,393
In-State	806	965	3,883	1,739	0	401	0	5
Landfill: Total	65,547	59,231	68,659	50,803	28,869	49,683	109,076	114,142
In-State	54,537	57,507	43,863	34,791	21,116	7,867	71,294	109,581
Storage: Total	1,864	1,272	1,465	4,851	11,038	10,838	1,016	974
In-State	548	505	51	914	8,272	1,818	372	56

Table 3-6

Remedial Sites - number and quantity of remedial hazardous waste shipped off-site							
Year	# Remedial sites	Remedial hw sent off-site (tons)	# remedial sites over 1,000 Tons	Remedial hw sent off-site (tons)	# remedial sites less than 1,000 tons	Remedial hw sent off-site (tons)	Tons/site
2001	103	73,851	14 (14%)	66,957	89 (86%)	6,894	78
2002	99	64,304	8 (8%)	56,317	91 (92%)	7,987	88
2003	116	78,851	15 (13%)	62,737	101 (87%)	16,114	160
2004	108	82,144	13 (12%)	65,682	95 (88%)	16,462	173
2005	114	66,152	12 (11%)	43,517	102 (89%)	22,635	222
2006	109	88,519	15 (14%)	83,292	94 (86%)	5,227	56
2007	109	155,614	12 (11%)	141,737	97 (89%)	13,877	143
2008	98	159,805	13 (13%)	150,899	85 (87%)	8,906	105
Average	107	96,155	13 (12%)	83,892	94 (88%)	12,263	130

Figure 3-10

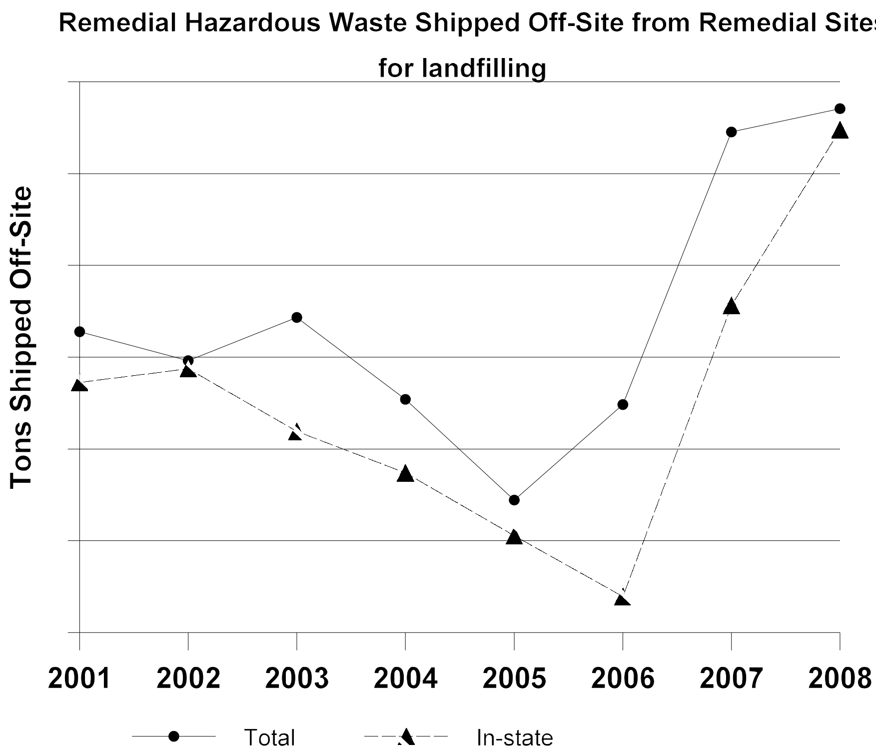


Table 3-6 looks at the number of clean-up actions each year, and breaks these out by the amount of remedial hazardous waste shipped off-site - those sites from which over 1,000 tons of remedial hazardous waste were shipped and those shipping less than 1,000 tons of remedial hazardous waste off-site.

From 2001 to 2008 there was a remarkable steady number of remedial sites. The total number of remedial sites averaged 107 per year over a seven year time frame with very little variability. The number that shipped over 1,000 tons of remedial hazardous waste off-site averages 13 sites a year. As discussed previously, the Division of Environmental Remediation estimates that "large volume" remedial sites (typically generating well over 10,000 tons of remedial hazardous waste) only occur occasionally, estimated at one per year or less.

In recent years, typically 12% of the total number of clean-up actions accounts for 87% of the remedial hazardous waste shipped off-site. The remaining 88% of the remedial sites accounts for only 13% of the off-site shipments, with the average amount shipped averaging about 130 tons.

Brownfield sites, in many cases, generate both hazardous and non-hazardous waste as part of the cleanup. Brownfield sites which generated remedial hazardous wastes are included in the remedial sites presented above. While the number of Brownfield sites entering the Brownfield Cleanup Program may increase in the coming years, consistent with the information presented above, these sites may generate significant quantities of non-hazardous waste with only a small number of these sites involving large volumes of hazardous waste generation. It is anticipated that the other trends will continue, with a small number of the sites generating the bulk of the hazardous waste requiring off-site management, and the vast majority of the remedial sites generating relatively small amounts of waste and having only a modest impact on the total volume of remedial hazardous waste managed off-site.

A unique remedial project expected to generate significant remedial hazardous waste for disposal is the Federal Superfund Hudson River PCB Site. The Record of Decision for the Hudson River PCB Site states that the selected remedy will require the dredging of an estimated 2.65 million cubic yards of PCB-contaminated sediment from the Upper Hudson River which will be dewatered and transported by railcar to a Toxic Substances Control Act (TSCA)-authorized landfill located in Texas. USEPA is the lead regulatory agency for this project which is being implemented in two phases by the General Electric Company. During the Phase 1 dredging work in 2009, 285,000 cubic yards (360,000 tons) of sediment was generated. Approximately 100,000 tons have already been shipped to the disposal facility in Texas; the balance of the Phase 1 dredged material will be disposed in Texas in 2010. No dredging is planned in 2010. Phase 2 is currently scheduled by EPA to begin in 2011. The Phase 2 design, which accounts for the remaining portion of the project, includes the removal of 1,531,000 cubic yards of sediment, for a designed total removal of 1,795,000 cubic yards.

The Onondaga Lake Superfund Site cleanup is another major remedial effort within the State. In January 2007, the federal court approved a consent decree requiring the cleanup of contaminated sediments in Onondaga Lake in accordance with the Record of Decision that was issued by USEPA and the Department on July 1, 2005. The selected remedy includes the dredging of up to an estimated 2.65 million cubic yards of sediment, along with the use of isolation capping over a large sector of the lake bed. The actual dredge volume will be determined during remedial design based on additional sampling data. The project is anticipated to take five years to design. Therefore, the actual cleanup activities, including dredging, will not begin until 2012. At this time, it is anticipated that the vast majority of the generated waste will be managed on-site in a Sediment Consolidation Area which will be constructed on Waste Bed 13 (one of Honeywell's Solvay waste beds, which historically received process wastes from Honeywell's former operations).

These two remedial projects are easily the largest sediment remedial projects in New York State and may be larger than any other sediment remediation in the nation. Other remedial projects that may include off-site disposal of moderate to large quantities of hazardous waste in the next few years include:

- Site: Alsy (State Registry ID number 1- 30-027)
  Quantity estimate: 700 tons
  Time Frame: Spring 2010

- FUMEX Sanitation, Inc. (1-30-041)
  Quantity estimate: 300 tons
  Time Frame: Spring 2010

- Site: Empire Electric (2-24-015)
  Type Waste: TSCA PCBs (bricks/concrete)
  Quantity estimate: 9000 tons (current estimate..building currently going under additional characterization..up to ~18,000 tons may have to be disposed as TSCA PCBs)

Time Frame: Summer 2010

- Site: Spaulding Composites (9-15-050)
  Type Waste: soils/debris (TSCA PCBs/Benzene (D018))
  Quantity estimate: 3000 tons (TSCA PCB) / 4500 tons (D018)
  Time Frame: 2010

- Site: BBS Lumber (1-52-123)
  Type waste: F035 Soils (CCA)
  Quantity estimate: ~9000 cubic yards
  Time Frame: late Spring 2010

- Site: 93 Main St (7-04-027)
  Type Waste :pesticide contaminated soil
  Quantity estimate: 4100 tons
  Time Frame: Spring 2010

- Site: Stauffer - Skaneatles Falls (7-34-010)
  Type Waste: VOC contaminated soil
  Quantity estimate: 50,000 tons hazardous waste (300,000 tons total)
  Time Frame: Summer 2010

- Site: Stauffer - Sweden 3 Chapman (8-28-040)
  Type Waste: VOC contaminated soil
  Quantity estimate: 1,000 tons hazardous waste (2,500 tons total)
  Time Frame: Summer 2010

The potential addition of new waste streams as RCRA-C hazardous waste is highly uncertain. If new waste streams were to be added to the universe of hazardous wastes by USEPA, it could impact the amount of hazardous waste generated in the future. The management of such waste could involve a number of management methods which cannot be pre-determined. The Department will continue to stay abreast of USEPA actions regarding this topic and consider the impact of any changes as the Siting Plan is reviewed in the future.

Hazardous Waste Types

Further insights into the nature of hazardous waste shipped off-site in New York State are gained by reviewing hazardous waste by specific types (e.g., characteristic, halogenated solvents, non-halogenated solvents, PCB waste, etc.). Table 3-7 displays the amounts of New York State-generated hazardous waste shipped off-site by waste type (excluding wastewater) from 1996 to 2008. Many of the waste types show great variability over the years. Some of this is due to changes in methods of reporting and the impact of remedial projects. In addition, it must be taken into account that many hazardous wastes have multiple codes assigned to them, and in Table 3-7, these waste streams had to be designated to only one category to avoid double counting.

Discerning the cause for these variations is a complicated matter. For example, remedial projects that generate hazardous waste for off-site shipment are typically of short duration, causing fluctuations from year to year. Different remedial projects can produce markedly different waste types. Facility processes change, affecting their hazardous waste generation, both in terms of rate of generation and components of the waste. To evaluate one particular spike or drop requires a site by site analysis of the data, as changes at one facility or one remedial project is typically the cause for the variations found.

Table 3-7 Analysis

The major categories for hazardous waste shipped off-site from New York generators include ignitable, characteristic for toxicity, listed non-acute waste from non-specific sources, and PCB waste.

The “Non-Specific Sources - Acute” waste are six “F” code wastes listed as acute due to the presence of dioxin. These wastes are typically generated in small quantities by laboratories and are shipped as part of lab packs. However, in 2007, a small amount of material was found at a site and properly shipped off-site for management.

Production of acute commercial product waste, known as “P” waste, has seen an overall decline since 2000, with less than 300 tons a year being generated in any particular year since that time. “P wastes” can also be found in lab packs. The increase in 2008 reflects generation of remedial “P” coded hazardous waste at one location.

A general decreasing trend in reactive waste can be seen, with the quantity shipped off-site in 2007 the lowest in the past 13 years.

Through the late 1990's, utilities pushed to take PCB transformers out of service across the State and the cleanup of PCB spills and remedial sites increased. In more recent years, PCB waste generation has been primarily contaminated soils from remedial sites. The quantity increase in 2008 is due to remedial cleanups.

Waste generation in 1999 was higher than 1998 and 2000. A close analysis of reports shows that remedial clean-ups in four locations accounts for approximately 66,000 tons of additional hazardous waste in 1999. The spike in remedial projects can also be seen in Figure 3-5. As a result, a number of waste categories show an increase in quantity generated for that year. Again in 2007 and 2008, remedial projects account for increased tons of hazardous waste shipped off-site. Changes in the quantities of specific categories are typically due to remedial projects. For example, the decrease in corrosive waste and “K” waste (hazardous waste from specific generation sources as listed in 6 NYCRR Part 371) in 2008 from 2007 levels reflect the completion of remedial projects that involved these waste types.

Table 3-7

Hazardous Waste Shipped Off-Site by Waste Type
(Amount in Tons)

Report Year 1996 to 2007, shipped to: all

Year	Characteristic Waste				Listed Waste							Total
	Ignitable (D001)	Corrosive (D002)	Reactive (D003)	Toxic Characteristic (D004-D043)	Non-Specific Sources-Acute*	Non-Specific Sources-Non-Acute**	Specific Sources (K codes)	Commercial Products-Acute(P codes)	Commercial Products-Non-Acute(U codes)	PCB Waste (B codes)	Lab Packs	
2008	26,109	6,490	411	90,244	0	51,112	12,992	282	265	116,326	168	304,399
2007	27,884	13,360	380	113,145	1	44,525	63,731	190	7,793	67,539	123	338,672
2006	27,960	9,783	616	79,772	0	48,099	26,765	156	5,411	35,533	50	234,144
2005	18,736	9,412	858	99,180	0	48,627	13,540	120	5,398	29,003	22	224,897
2004	27,244	10,049	918	97,048	0	53,600	13,243	154	3,532	34,939	88	240,816
2003	27,410	8,497	1,613	88,425	0	67,153	14,950	182	3,326	67,748	68	279,372
2002	24,495	11,522	635	87,608	0	60,935	12,959	265	16,409	56,225	73	271,126
2001	22,599	9,621	800	243,223	0	67,558	11,077	230	1,415	51,681	78	408,283
2000	39,275	16,825	925	242,142	1	48,813	13,949	464	5,030	50,604	69	418,096
1999	38,504	21,606	1,192	273,250	51	122,162	16,190	305	3,232	91,930	22	568,444
1998	42,926	18,934	3,286	281,380	0	44,144	12,128	1,097	5,515	65,938	65	475,413
1997	45,948	21,459	1,001	388,632	1	32,567	12,836	385	19,292	53,082	74	575,277
1996	52,433	23,510	1,650	304,935	158	141,958	15,650	929	16,348	132,545	109	690,226

* Non-specific acute codes are F020, F021, F022, F023, F026, and F027

** Non-specific non-acute codes are all other F codes

II. State Regional Analysis

Figure 3-11 shows, for 1996, 2001, 2005, 2007, and 2008 the number of large quantity generators (LQGs) in each DEC region in the State (regional map can be found in the Introduction). As can be seen, large quantity generators are distributed throughout the State.

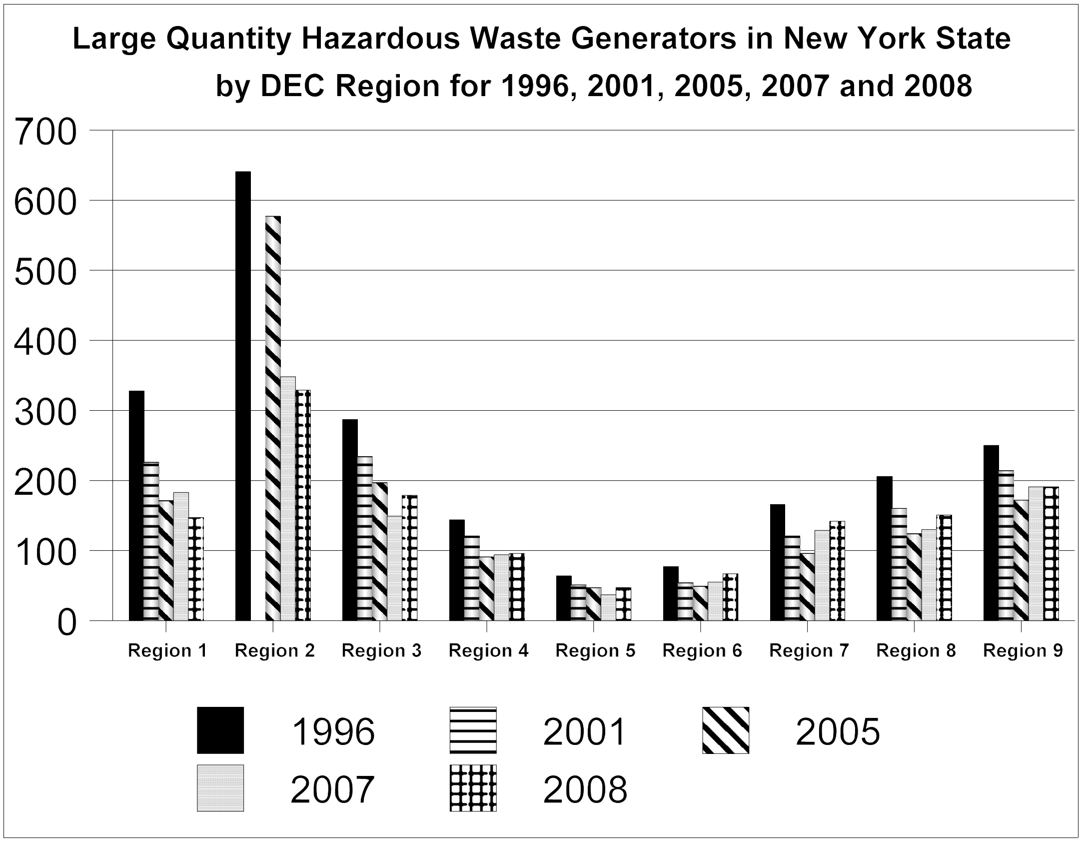


Figure 3-11

The industrial character of the various areas of the State is reflected in the number of LQGs in each DEC region. Region 2 (the New York City area), not only has a large number of LQG facilities, but also has a large number of manholes that are reported as generation sites due to the contamination found in the sediment collected when they are cleaned. Region 2 fluctuation is directly related to variations in the number of manhole locations cleaned each year. The data for 2001 for region 2 is not included as the number is out of range for this graph. In general, in 2008 most regions had 100 to 200 large quantity generators. The low number of generators in Regions 5 and 6 reflect less industrial development and, thus, lower levels of hazardous waste generation, in the Adirondack Park.

III. Hazardous Waste Generation on a National Level

The national hazardous waste generation figures in Table 3-8 were taken from USEPA's National Biennial RCRA C Hazardous Waste Report. It is important to note that these figures do not include hazardous wastewater and PCB-only waste, but do include hazardous waste treated on-site that is not wastewater.

One of the difficulties with the federal data is that they generally do not include hazardous waste exported to Canada and other countries. This waste is not counted at all (as generated or shipped) if the waste is all shipped to a foreign country. If part of a particular generated waste stream is shipped to a foreign country and part is shipped to a U.S. facility, then all the waste is counted as generated, with the portion of waste shipped to a U.S. facility counted as shipped. For waste received, waste imported from foreign countries is counted. These anomalies can have major impacts on the ability to interpret the data, particularly for border states such as New York.

A review of national hazardous waste generation figures from 1993 through 2007 (see Table 3-8) shows that from 1997 on, the waste generation numbers drop significantly. As of 1997, USEPA no longer collected data on wastewater generation. From 1993 to 1995 hazardous waste generation dropped nationally, however, it is unknown if this is related to the reporting of wastewater over these years or not. National generation remained relatively static from 1997 through 2001 with a drop in the 2003 reporting year. However, EPA cautions against comparisons of the 2003 data with past data due to changes in reporting, so no conclusions on waste generation at the national level can be made based on the drop in 2003. The year 2005 saw an increase in hazardous waste generation which was more in line with generation levels from 1997 through 2001. A significant increase is noted in 2007. This may be explained, in part, by waste generation in Louisiana, which jumped from 5.4 million tons in 2005 to 15.9 million tons in 2007. Subtracting this 10 million ton delta from the nation's total would yield 36 million tons. This value is more in line with the decreasing trend since 2001.

Table 3-8

National Hazardous Waste Generation (tons)*

Year	1993	1995	1997	1999	2001	2003	2005	2007
Tons Generated	258,449,001	214,092,505	40,676,075	40,026,050	40,821,841	30,176,118	38,347,011	46,693,284

* USEPA stopped collection of data on wastewater generation in 1997. Numbers from prior years included wastewater.

New York State ranks 3rd in the nation for the number of LQGs (896) in 2007. It ranks 6th nationally in the amount of hazardous waste generated (Table 3-9). Interestingly, the top 10 hazardous waste generators in the U.S. account for 87% of the hazardous waste generated nationwide in 2007.

Table 3-9
Rank Ordering of Top 10 States
Based on Quantity of RCRA Hazardous Waste Generated in 2007

State	Rank	Tons Generated	% of Total Hazardous Waste Generated	Number of LQGs
Louisiana	1	15,892,592	34.0	324
Texas	2	13,272,307	28.4	918
Michigan	3	2,397,357	5.1	536
Mississippi	4	2,239,718	4.8	133
Ohio	5	1,608,186	3.4	794
New York	6	1,267,648	2.7	896
Illinois	7	1,122,937	2.4	697
Tennessee	8	1,079,070	2.3	358
Indiana	9	958,019	2.1	427
New Mexico	10	944,581	2.0	37

Of the 50 largest hazardous waste generators in the country, only one, IBM's East Fishkill Facility, is located in New York State. In accordance with the reporting requirements for the federal program, this facility reported generating 972,567 tons of hazardous waste, ranking 11th in the U.S. among LQGs and accounting for 76% of the hazardous waste generated in New York State in 2007. This is a liquid corrosive process waste which, similar to many hazardous waste waters, is neutralized on site to non-hazardous status. The remaining 895 hazardous waste generators in New York accounted for the remaining 24% of the State's generated hazardous waste.

There is only one other generator from a northeastern state among the top 50 hazardous waste generators in the U.S. This facility, 425/445 Route 440 Property, located in New Jersey, ranks 23rd among LQGs in the U.S., and accounted for 62% of the total hazardous waste generated in N.J in 2007. The other 643 hazardous waste generators in N.J. accounted for the remaining 38% of N.J.'s generated hazardous waste.

Quantity of RCRA Hazardous Waste Shipped

According to the USEPA's Biennial RCRA Hazardous Waste Report based on 2007 data, more than 7 million tons of RCRA hazardous waste was *shipped* within the country. More than two thirds of this waste was shipped by the 10 states listed in Table 3-10. New York ranked 10th in the nation, shipping 3.8% of all hazardous waste shipped within the country in 2007.

Table 3-10
Rank Ordering of Top 10 States
Based on Quantity of RCRA Hazardous Waste *Shipped* by LQGs
Total Waste Shipped within the Country in 2007 - 7.2 Million Tons

State	Rank	Tons Shipped	% of Total Shipped	No. of Shippers
Texas	1	810,653	11.3	913
Ohio	2	713,941	10.0	950
California	3	643,078	9.0	2,293
New Jersey	4	596,791	8.3	668
Louisiana	5	474,088	6.6	336
Indiana	6	404,761	5.6	518
Arkansas	7	324,355	4.5	117
Pennsylvania	8	295,716	4.1	821
Michigan	9	277,122	3.9	685
New York	10	274,622	3.8	1,167

Quantity of RCRA Hazardous Waste Received

According to the USEPA's Biennial RCRA Hazardous Waste Report based on 2007 data, nearly 7.2 million tons of RCRA hazardous waste was *received* in 2007. Waste received includes waste from small quantity generators and waste imported from foreign countries. In 2007 two-thirds of this waste was received by the top 10 states listed in Table 3-11. New York ranked 14th, receiving 2.8% of all hazardous waste received across the nation, as compared to 2005 when New York was ranked 10th, and received 3.4% of all hazardous waste received across the nation.

Table 3-11
Rank Ordering of Top 10 States
Based on Quantity of RCRA Hazardous Waste *Received*
as reported in TSD facility reports
Total Waste Shipped in 2007 - 7.2 Million Tons

State	Rank	Tons Received	% of Total Quantity Received Nationally
Ohio	1	803,988	11.2
Indiana	2	509,987	7.1
Texas	3	493,871	6.9
California	4	490,961	6.8
Pennsylvania	5	460,906	6.4
Idaho	6	456,618	6.3
Michigan	7	430,333	6.0
Illinois	8	420,410	5.8
Arkansas	9	358,498	5.0
Louisiana	10	352,288	4.9

To summarize, 7.2% of the nation's LQGs are located in New York State. These generators ship 3.8% of the waste shipped across the nation (this does not include waste shipped to Canada). New York State facilities manage 2.8% of the waste being shipped throughout the nation for proper management.

IV. Current Generation in Surrounding States

Hazardous waste generation information from nearby states, including New Jersey, Pennsylvania, Massachusetts, Connecticut, New Hampshire and Vermont was evaluated, using the USEPA's Biennial RCRA Hazardous Waste Report based on 2007 data. As previously noted, USEPA employs different methods from those used in New York and other states when analyzing State generation and management quantities. Federal figures do not include PCB-only waste, but do include hazardous waste treated on-site that is not wastewater. They also generally do not include hazardous waste exported to Canada and other countries. In order to provide a state-to-state comparison, USEPA's analysis must be used. Nationwide, New York State ranked 6th in amount of hazardous waste generated. New York ranked 1st for hazardous waste generation among neighboring states (see Table 3-12), generating 1.27 million tons of hazardous waste as compared to 0.60 million tons for New Jersey, 0.39 million tons for Pennsylvania and 0.25 million tons for Massachusetts. Connecticut generated 0.03 million tons, New Hampshire generated 0.005 million tons and Vermont generated 0.003 million tons, much lower amounts. These states have pollution prevention and waste minimization programs, but the impact of these programs on their waste generation rates was not investigated.

Table 3-12 Data from USEPA's Biennial RCRA Hazardous Waste Report (2007)		
State Name	**Number of LQGs**	**Hazardous Waste Generated (Million Tons)**
New York	896	1.27
New Jersey	644	0.60
Pennsylvania	742	0.39
Massachusetts	425	0.25
Connecticut	259	0.03
New Hampshire	105	0.005
Vermont	32	0.003

For the three states in this group with the largest number of LQGs, Figure 3-12 presents the number of LQGs reported in the federal database over time. As can clearly be seen, the number of LQGs in New York has been dropping while the numbers for New Jersey and Pennsylvania have been relatively static. As of 2007, while New York continues to have the greatest number of LQGs, the numbers are much closer than in the past for the three states.

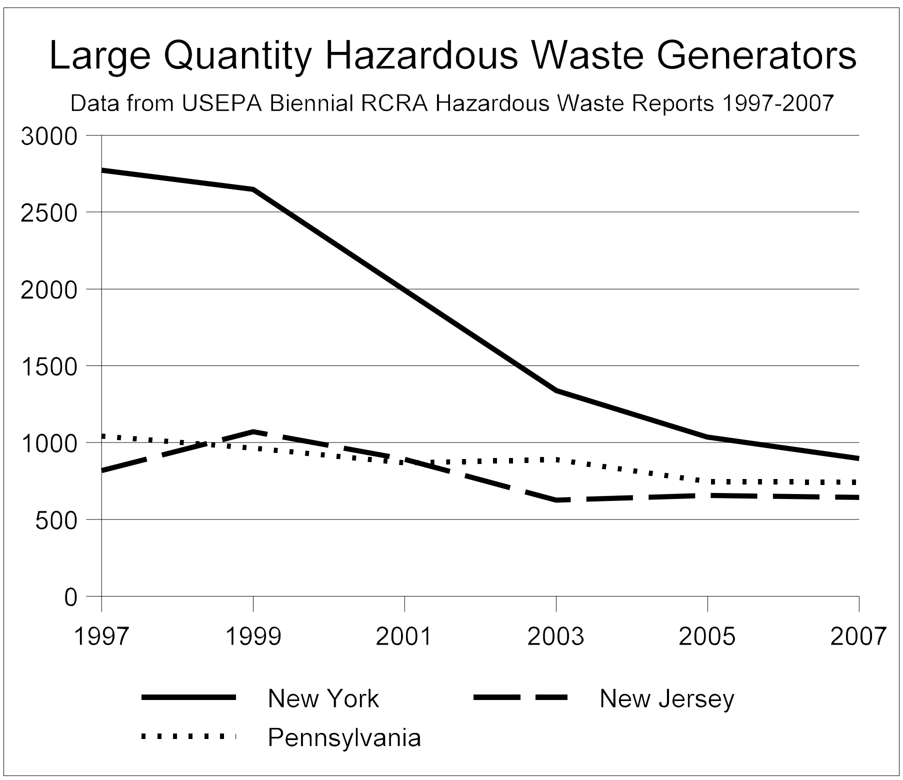


Figure 3-12

V. Projecting New York Hazardous Waste Generation Rates into the Future

Table 3-1 shows that total generation of hazardous waste in the State (line 1), the vast majority of which is treated on-site (line 2), has steadily decreased since 1996 likely attributable to pollution prevention/waste reduction efforts, the economics of waste handling, and a decline in industrial operations in New York.

On-site Hazardous Waste Management

Hazardous waste treated on-site does not have a major impact on the need for permitted commercial hazardous waste TSD facilities. Facilities that are presently treating on-site are anticipated to either continue doing so or decrease their generation and their associated on-site treatment. Because of existing exemptions from permitting for certain types of on-site treatment, facilities who start generating a new waste stream have the opportunity to treat this waste on-site without needing a Part 373 permit. For example, for on-site treatment of hazardous wastewater, treatment tanks would be exempt from hazardous waste facility permitting and thus exempt from the Siting Board requirements of Title 11 of Article 27 of the ECL.

Off-site Hazardous Waste Management

Based on data from 2001 through 2008, there is no specific trend for the total annual quantity of hazardous waste shipped off-site for management over time. The higher numbers prior to that time were due to an error in reporting for one facility. The higher quantities for 2007 and 2008 were due to large remedial cleanups.

For primary waste generation (see Figure 3-5), the data from 1996 through 2008 for waste shipped off-site show some fluctuation over time, but overall, a slow decrease can be seen over the 13 year period. Over that same time period, the number of LQGs decreased. The surcharge included in Chapter 1 of the Laws of 2003, which added significant fees for hazardous waste generation, is expected to cause primary hazardous waste generation to further decline in the State. In addition, waste reduction, reuse and recycling efforts have reduced the rate of hazardous waste generation, and will result in continued waste reduction, reuse and recycling. Finally, there is expected to be a continued change in the nature of manufacturing in New York State. It must be recognized that the slowdown of the economy and the shift in the State from a manufacturing to service based economy is reflected in the decrease in hazardous waste generation over time. For example, several large manufacturers that produced significant quantities of hazardous waste have either closed operations or significantly curtailed manufacturing over the past several decades. In terms of new industries, one of note, nanotechnology, is not anticipated to generate substantial quantities of hazardous waste for off-site management. *Based on these factors, the generation rate of primary hazardous waste in the State over the next 20 years is expected to remain at current levels or to decline slowly.*

Secondary waste generation is directly affected by the types of hazardous waste managed by TSD facilities operating in the State, as well as by the amount and nature of primary generation and LDR requirements. Since 2002, the generation rate has been static. *For the future, no significant change in the quantity of secondary waste generation is projected.*

Remedial waste generation has historically fluctuated dramatically from year to year and this is expected to continue during the next 20 years. The unique Hudson River PCB dredging project entered the dredging phase on May 15, 2009. With the initiation of this project, the State's totals for remedial waste generation may dramatically rise, depending on how much of the dredged material is a hazardous waste. Waste from this project will be disposed of out-of-state. Other remedial projects within the State, such as brownfield projects, are expected to continue but this is expected to have only a modest impact on hazardous waste generation trends. *In general, based on the Division of Environmental Remediation's experiences and expectations and the total number of cleanups over a 30 year period, it is projected that there will continue to be 12 to 15 hazardous waste cleanup actions each year that generate over 1,000 tons of hazardous waste for off-site disposal, but the total quantity of this hazardous waste cannot be projected.*

With regard to waste type (Table 3-7), as can be seen from the data collected from 1996 to 2008, a specific projection of waste type quantity trends is not possible. Industry developments in manufacturing process technologies, the emergence of new less toxic chemicals, and the creation of new hazardous waste reduction options make it impossible to predict specific future waste type increases or decreases.

Nationally, due to changes in the requirements for data collection over time, it is very difficult to make conclusions or projections regarding hazardous waste generation. New York’s number of large quantity generators has been decreasing and is getting closer to the number of large quantity generators in New Jersey and Pennsylvania. However, New York's hazardous waste generation rate continues to be significantly greater than any of the surrounding states. This is expected to continue in the future.

CHAPTER 4

Land Disposal Phase Out – Moving up the Hazardous Waste Management Hierarchy: *a schedule for phasing out land disposal, other than treated residuals posing no significant threat to public health or to the environment, in compliance with the policy established in ECL Section 27-0105.*

The land disposal of hazardous waste has been severely restricted by regulations referred to as the Land Disposal Restrictions or LDRs promulgated in furtherance of ECL Sections 27-0105, 27-0900 and 27-0912 and federal regulatory requirements. ECL Section 27-0105 establishes the overall policy to guide the Department in making policy choices, ECL Section 27-0900 provides that hazardous waste regulations must be at least as stringent as those promulgated by USEPA under RCRA, and ECL Section 27-0912 sets out the specific basis for promulgating restrictions on the land disposal of hazardous waste. Pursuant to RCRA 3004(m)(l)), EPA is required to promulgate regulations "specifying those levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." Treatment residuals not meeting stringent concentration limits, or not resulting from specified treatment technologies, are banned from land disposal at a hazardous waste landfill. Each of the Federal mandates have been adopted by New York State, and the State became authorized for the LDR program administration in 1992.

The LDRs mandate the use of specific treatment or incineration technologies for many types of hazardous waste, resulting in management of these wastes by a method higher up the management hierarchy, that is, by treatment or incineration rather than by landfilling. Examples of mandated treatment technologies include combustion, biodegradation, chemical oxidation, and neutralization. The specified treatment standard for each waste stream reflects the best available technology, which in some cases results in a more stringent approach than solely health based standards would require.

The federal and State LDR programs build upon two basic concepts which provide the framework for the hazardous waste regulatory program. The first is the "point of generation" approach. From the moment a hazardous waste is generated (the point at which the hazardous material first becomes a waste), it becomes subject to the hazardous waste regulations, generally including LDR's. Recordkeeping, storage, handling, transportation and other management requirements become applicable immediately. This ensures that hazardous wastes are properly managed from "cradle to grave," which is the second concept. From the moment they are created to their ultimate treatment and disposal, hazardous wastes must be managed in ways that provide for the protection of human health and the environment.

As a result of implementation of the LDR's, the toxicity and mobility of the treated residuals that are now allowed to be disposed in a hazardous waste land disposal facility are dramatically reduced compared to the toxicity and mobility of wastes that were land disposed in 1987, the year the law was enacted requiring the preparation of this Siting Plan.

History of Federal Mandates

In 1984, the Hazardous and Solid Waste Amendments (HSWA) were enacted. These amendments to the 1976 Resource Conservation and Recovery Act (RCRA) required the USEPA to promulgate regulations which:

- prohibit the land disposal of hazardous wastes, except by methods of land disposal determined to be protective of human health and the environment; and
- where land disposal of a hazardous waste will continue to be allowed, specify levels or methods of treatment, which substantially diminish the toxicity of the waste or the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized.

As specified in the amendments to Section 3004 of RCRA contained in HSWA, the USEPA was required to evaluate the then-current universe of hazardous waste and to perform evaluations thereafter for newly listed or identified hazardous wastes.

Beginning in 1986, USEPA prohibited the land disposal of certain hazardous wastes. Regulatory promulgations were in stages, addressing the most abundant and the most potentially harmful wastes first, and eventually prohibiting all identified and listed hazardous wastes from land disposal unless specified standards were first met. The implementation schedule for the most significant and sweeping regulatory promulgations limiting the land disposal of hazardous wastes is listed below. These major USEPA LDR rules were incorporated into 40 CFR Part 268, and subsequently incorporated into State regulations at 6 NYCRR Part 376.

Implementation schedule for phasing out land disposal

November 7, 1986: “Solvents and Dioxin Rule”
The most abundant and potentially dangerous hazardous wastes were prohibited from land disposal.

July 8, 1987: “The California List”
USEPA adopted standards, developed in California, for banning certain liquid hazardous wastes, certain PCB containing wastes, and certain highly contaminated organic wastes.

August 17, 1988, June 23, 1989, and June 1, 1990: “The First, Second and Third Thirds”
These major USEPA rules created treatment standards for all listed and characteristically hazardous wastes, prohibiting them from land disposal. Many specified technologies were made mandatory for the treatment of certain wastes.

(New York State began its LDR program by adopting the federal LDR regulations through the June 1, 1990 federal amendments, and has adopted all subsequent LDR rules to date.)

August 18, 1992: "The Debris Rule"
This federal amendment established standards and criteria for the decontamination and treatment of hazardous debris by 17 treatment technologies divided into three categories: extraction, destruction, and immobilization. The extraction and destruction technologies are designed to separate the debris from its contaminant(s). Debris treated by one of these technologies can be disposed of as non-hazardous waste. Immobilization is available for hard to treat hazardous debris wastes. The immobilization technologies do not separate the debris from its contaminant(s) so immobilized debris must be disposed of in a hazardous waste landfill. The regulatory definition of "debris" is found at 376.1(b)(1)(vii) and states:

> "*Debris* means solid material exceeding a 60 mm particle size that is intended for disposal and that is: A manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: Any material for which a specific treatment standard is provided in section 376.4, namely lead acid batteries, cadmium batteries, and radioactive lead solids; Process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emission residues; and intact containers of hazardous waste that are not ruptured and that retain at least 75 percent of their original volume. A mixture of debris that has not been treated to the standards provided by subdivision 376.4(g) and other material is subject to regulation as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection."

Hazardous debris is more specifically defined at 376.1(b)(1)(viii) and states:

> "*Hazardous debris* means debris that contains a hazardous waste listed in section 371.4 of this Title, or that exhibits a characteristic of hazardous waste identified in section 371.3 of this Title. Any deliberate mixing of prohibited hazardous waste with debris that changes its treatment classification (i.e., from waste to hazardous debris) is not allowed under the dilution prohibition in subdivision 376.1(c) of this Part."

There are three Debris Rule immobilization technologies: macroencapsulation, microencapsulation, and sealing. Macroencapsulation involves placing the debris in an inert jacket of material to prevent leaching.

> *<u>Macroencapsulation - what is it?</u>*
>
> *Under the federal LDR's, hazardous wastes may be treated to reduce toxicity, or they may be treated to reduce the likelihood of migration of hazardous constituents from the waste.*
>
> *One method established by USEPA to substantially reduce the likelihood of migration of hazardous constituents from hazardous waste debris is macroencapsulation. Hazardous waste debris is extremely difficult to treat in many cases, and for many types of hazardous waste debris there are currently no*

> *alternatives other than macroencapsulation.*
>
> *Macroencapsulation is defined as "application of surface coating materials such as polymeric organics (e.g., resins and plastics) or with a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media." It is a method of disposing of these wastes in a hazardous waste landfill in an environmentally protective manner. The encapsulating material must completely encapsulate the waste and be resistant to degradation by the waste, its contaminants and materials with which it may come into contact after placement in a hazardous waste landfill (leachate, other waste, microbes).*
>
> *Macroencapsulation does not meet the State definition of treatment found at ECL 27-1101(7). As such, hazardous wastes that are macroencapsulated are not considered treated wastes in that context in New York.*

In New York, the 17 alternative treatment standards for hazardous debris can be found in 6 NYCRR Subdivision 376.4(g) (See www.dec.ny.gov/regs/33699.html).

September 19, 1994: "The Universal Treatment Standards" (UTS)
Deviating from the previous rules, where each designated hazardous waste was addressed, this rule looked at constituents of waste that were hazardous and established "universal" treatment levels (numerical limits) for these constituents, regardless of the waste. The universal treatment standards are found in 6 NYCRR Subdivision 376.4(j) (See http://www.dec.ny.gov/regs/33699.html). This regulation was originally established September 19, 1994 by USEPA and subsequently incorporated into New York State Regulation. Also established were treatment standards for "newly identified" toxicity characteristic organics. These organics were regarded as "newly identified" because they were added by the new Toxicity Characteristic Leaching Procedure (TCLP) (replacing the old EP Toxicity test) and therefore required new treatment standards. The TCLP test is universally considered to be a much more stringent method for making hazardous waste determinations and for determining LDR compliance than the EP Toxicity test.

Since promulgation of the UTS rule in 1994, several less significant federal rules have been promulgated. These changes include making the LDRs more understandable, but otherwise consistently continue to require most hazardous wastes to meet stringent LDR requirements prior to any land disposal of treated residuals. Other changes include: added standards for newly identified waste; multiple corrections and clarifications, modifications of the LDR due to court decisions, closure of loop-holes, and expansion of the "impermissible dilution" provisions. Impermissible dilution provisions prohibit hazardous wastes from merely being diluted to achieve the LDR disposal standards. This provision also prevents the improper "sham" treatment of hazardous wastes such as the addition of iron filings to lead bearing wastes which may temporarily chemically bind up lead (so that it passes the TCLP leaching test) that is eventually released in the landfill when the iron rusts away.

USEPA has promulgated land disposal restriction regulations addressing all currently listed or characteristic wastes. When USEPA promulgates a regulation listing a new hazardous waste or creating a new or revised characteristic, they concurrently promulgate a LDR treatment standard for that new hazardous waste.

LDR regulations promulgated by USEPA, under HSWA authority, take effect in RCRA-authorized states, including New York, upon their effective date if such regulations either make the regulatory program broader in scope or establish more stringent standards than the existing state program. The USEPA is responsible for enforcing such rules until the state has adopted equivalent rules and has been authorized to administer them in place of the USEPA rules.

New York State Regulation

The Department's statutory authority for its LDR regulations is found in Section 27-0912 of the ECL, which is consistent with the philosophy of USEPA in its development of the LDR regulations. Paragraph 2 of this Section states:

> "The commissioner shall make a written determination of each such waste or class of wastes for which land burial may not be adequately protective of public health and the environment. In making any such determination, the commissioner shall take into account the following factors:
>
> a. the long-term containment uncertainties associated with land burial, and
>
> b. characteristics of the hazardous waste which degrade containment mechanisms used in authorized hazardous waste land burial facilities, and
>
> c. the persistence, toxicity, mobility, and propensity to bio-accumulate of such hazardous wastes and their toxic constituents."

The State LDR regulations (6 NYCRR Part 376) specify strict standards (6 NYCRR 376.4(a) (See http://www.dec.ny.gov/regs/33693.html)) that must be met before these wastes can be land disposed. Most hazardous wastes that do not meet specified standards (either as generated or after treatment) are prohibited from land disposal.

New York State, through the LDR and the TSD facility permitting process, prohibits the land disposal of hazardous waste liquids or treatment residual liquids. In addition, 6 NYCRR Part 376 provides that many hazardous wastes are subject to a "specified technology," meaning that they must be treated by a particular method (described in 6 NYCRR Subdivision 376.4(c) Table 1(See www.dec.ny.gov/regs/33699.html#33701)). Residues from such treatment may then be land disposed if they are in compliance with any and all applicable treatment standards. Examples of wastes with specified technology requirements include most acute hazardous wastes, which are primarily designated in the hazardous waste listings with a code beginning with a "P". Most of these wastes are required to undergo combustion, chemical oxidation, or chemical reduction by approved processes and treatment systems. Many wastes such as lead-acid and cadmium batteries require metals recovery, while many mercury bearing wastes require retorting to recover mercury.

Whether a treatment standard under the LDR is a concentration level number or a specified technology, LDR standards are based on Best Demonstrated Available Technology (BDAT). LDR standards are often more stringent than treatment to a specified health-based level, reducing the hazardous constituent to its lowest BDAT - achievable level.

Recognizing that land disposal of untreated hazardous waste, as described in ECL 27-0105 is the least desirable management method in the hazardous waste hierarchy, most hazardous wastes that are land disposed are strictly regulated by the standards established in the LDRs and the land disposal of hazardous wastes that do not meet the LDR standards has been phased out. The Department continues to consider land disposal as the least desirable management method, even when LDR standards have been achieved. However, the Department recognizes that for many treated hazardous waste residuals and immobilized hazardous waste debris, land disposal is a necessary management method. Therefore, hazardous waste landfill capacity continues to be needed for the management of hazardous wastes.

Schedule for phasing out land disposal, other than treated residuals posing no significant threat to public health or to the environment:

The Statutory goal expressed at ECL 27-1105 is to phase out land disposal of hazardous wastes, other than treated residuals posing no significant threat to public health or to the environment.

In applying the hazardous waste management hierarchy to hazardous waste remedial projects, timing of implementation options, availability of technologies, and cost effectiveness are taken into account in conjunction with the policy goal of preferring recycling or treatment options over landfill disposal. As more technologies become available and cost effective for remedial actions, it is anticipated that the use of these technologies for on-site or off-site management of hazardous wastes generated by remedial actions will increase.

As discussed, macroencapsulation does not meet the State statutory definition of treatment, and as such, does not result in “treated residuals”. Evaluation of management methods for debris beyond macroencapsulation is on-going by industry, states and USEPA. The Department will, at least annually, review the status of USEPA LDR rulemaking efforts, including actions with regard to macroencapsulation of debris, and initiate amendments to its LDR regulations as appropriate.

As the Department conducts its annual review of the Siting Plan as mandated by Law, and to the extent available resources allow, the Department will independently evaluate whether macroencapsulation of specific waste streams can be eliminated based on the three factors set out in ECL paragraph 27-0912.2.

CHAPTER 5

Regional Hazardous Waste Generation and Management: *the identification, if appropriate, of areas of the State which have compatible hazardous waste generation streams and similar interests in providing regional hazardous waste management and disposal capacity to primarily service such areas.*

Investigation into the relationship between generation of compatible wastes and proximity of facilities to manage these wastes requires a number of analyses. First, a detailed look at New York State generation, by Department region, is presented, and then an analysis of relationships between wastes generated in the State and types of commercial TSD facilities in the State. Next, the movement of hazardous wastes into and out of the State is factored into the equation, and finally, an analysis of hazardous waste management in surrounding states.

In-State Analysis

Data is available regarding how, where and by whom the waste generated at New York facilities is presently managed. Tables 5-1 (a - e) present the quantity of waste generated in 2002, 2004, 2005, 2007 and 2008 which was shipped off-site by large quantity generators, by management method and Department region. These tables do not include any waste managed at the site of its generation, waste that was received by a facility from off-site and then shipped again, or certain wastes not subject to annual reporting, such as precious metal wastes being sent for recovery and universal wastes.

Waste management methods are separated into five categories. These include: recycling/reclamation; treatment; incineration (which includes burning for energy recovery); disposal at a hazardous waste land disposal facility; and temporary storage (for subsequent transport to another facility for management). Generators typically ship to a temporary storage facility when they generate smaller amounts of waste. The temporary storage facility will combine wastes received by consolidating drums or mixing like wastes to make a more economical larger shipment to a final destination facility, such as a landfill, incinerator, or solvent recovery facility.

Appendix A presents 2008 data by region, showing hazardous waste shipped off-site by handling method and by primary, secondary and remedial waste category, and distinguishing hazardous waste shipped to in-state facilities and hazardous waste shipped to out-of-state facilities. In Appendix A, waste that was received by a facility from off-site and then shipped again is not included in the totals for waste shipped.

Table 5-1(a)

Management Methods for Waste Generated in each DEC Region (in tons) in 2002 and Shipped Off-Site of Generation

Region	Storage	Recycle	Burn	Treat	Landfill	Total
1	1,454	2,034	1,934	2,541	834	8797
2	5,656	314	1,502	33,157	6,941	47570
3	1,329	1,523	2,264	3,498	8,016	16630
4	943	1,006	9,785	3,318	8,360	23412
5	289	17,265	1,472	133	10,601	29760
6	1,012	119	4,044	1,069	20,026	26270
7	1,276	9,071	1,848	3,953	27,761	43909
8	285	1,046	1,786	8,862	15,467	27446
9	801	1,413	5,471	3,413	29,486	40584
TOTAL	13045	33791	30106	59944	127492	264378

Table 5-1(b)

Management Methods for Waste Generated in each DEC Region (in tons) in 2004 and Shipped Off-Site of Generation

Region	Storage	Recycle	Burn	Treat	Landfill	Total
1	3,348	1,316	1,195	2,804	2,043	10706
2	10,023	121	1,338	25,182	11,910	48574
3	5,785	2,041	2,678	4,745	3,768	19017
4	289	409	7,719	3,617	19,656	31690
5	66	27,092	2,162	1,255	4,060	34635
6	202	414	3,817	661	5,716	10810
7	905	12,271	1,300	3,012	12,404	29892
8	1,467	3,438	1,837	3,036	3,930	13708
9	2,320	1,449	4,967	12,770	13,255	34761
TOTAL	24405	48551	27013	57082	76742	233793

Table 5-1(c)
Management Methods for Waste Generated in each DEC Region (in tons) in 2005 and Shipped Off-Site of Generation

Region	Storage	Recycle	Burn	Treat	Landfill	Total
1	9,692	2,040	1,319	2,345	967	16363
2	24,669	167	1,631	19,610	6,525	52602
3	1,275	1,383	3,110	4,319	3,722	13809
4	905	1,903	7,444	4,137	15,624	30013
5	257	28,449	1,659	1,439	3,107	34911
6	377	286	6069	974	572	8278
7	2,760	10,119	953	1,648	12,314	27794
8	578	1,012	1,991	4,279	3,804	11664
9	6,148	1,349	4,439	3,297	9,891	25124
TOTAL	46661	46708	28615	42048	56526	220558

Table 5-1(d)
Management Methods for Waste Generated in each DEC Region (in tons) in 2007 and Shipped Off-Site of Generation

Region	Storage	Recycle	Burn	Treat	Landfill	Total
1	1,316	441	948	31,056	27,723	61484
2	2,727	647	1,090	39,358	1,868	45690
3	999	1,279	2,182	4,640	3,804	12904
4	591	443	7,165	1,193	84,282	93674
5	148	22,539	929	1,287	5,803	30706
6	267	259	7,126	1,016	1,460	10128
7	1,067	9,127	1,179	2,524	5,925	19822
8	2,846	1,888	8,120	6,150	6,038	25042
9	922	1,460	3,361	8,182	19,036	32961
TOTAL	10883	38083	32100	95406	155939	332411

Table 5-1(e)
Management Methods for Waste Generated in each DEC Region (in tons) in 2008 and Shipped Off-Site of Generation

Region	Storage	Recycle	Burn	Treat	Landfill	Total
1	1,110	276	601	1,244	1,415	4646
2	3,561	72	1,979	30,667	8,429	44708
3	1,230	1,358	2,440	5,062	5,597	15687
4	610	647	6,156	959	18,375	26747
5	1,041	21,966	815	3,000	83,395	110217
6	468	283	5,415	446	1,800	8412
7	864	9,861	1,426	14,329	12,354	38834
8	658	1,580	8,323	3,787	3,173	17521
9	696	1,629	4,419	22,001	3,053	31798
TOTAL	10238	37672	31574	81495	137591	298570

Table 5-2
Management Methods of Commercial TSD Facilities in 2008 by Department Region

Region	Storage	Recycle	Burn	Treat	Landfill	Total Commercial TSD facilities
1	1					1
2	1					1
3		2				2
4	1		1			2
5						0
6						0
7	3					3
8	1					1
9	2	1		1	1	3

NOTE: Multiple management methods can occur at one facility.

For commercial TSD facilities in 2008, Table 5-2 presents the management methods available in each Department region. One facility uses multiple management methods, and this facility is listed multiple times in the table, once for each appropriate category.

The following discussion uses the data from Tables 5-1 (a - e), Table 5-2, and Appendix A, comparing the quantity of waste shipped off-site with the commercial TSD facilities available.

Temporary storage: Many commercial storage facilities collect waste, co-mingle wastes as appropriate, and then ship the wastes to another facility in larger bulk quantities. In 2002, 2004 and 2005, the Region 1 and 2 area appears to consistently have a higher need for temporary storage capacity. However, in 2007 and 2008, the quantity shipped to storage drops. This could be due to the change in operation of two storage facilities in that area that became transfer stations. While two storage facilities remain in these regions, the majority of the hazardous waste sent for storage in 2007 and 2008 from Regions 1 and 2 was shipped to out-of-state facilities.

Recycling/reclamation: Over time, Region 5 consistently shows a much greater quantity of hazardous waste being shipped off-site for recycling than any other region. This is a secondary waste from a single generator being shipped out-of-state to a facility in Canada for use in smelting operations. Region 7 also shows consistently higher quantities sent away for recycling. This is a secondary waste being shipped out of state by a steel manufacturer for metals recovery in Pennsylvania. Table 5-2 shows two recycling facilities located in the "down State" area and one in western New York; however, recycling facilities are limited by their technology to accept only very specific waste types. One New York facility manages florescent lamps and receives crushed lamps for recycling. The second facility manages lead acid batteries primarily from out-of-state facilities which consolidate batteries from CESQGs, including those from New York CESQGs. The third facility recycles lead contaminated plastics, primarily from a single in-state source and an out-of-country source.

Incineration: For incineration, or burning, Region 4 consistently has the largest quantity of waste generated which is destined for off-site incineration. Approximately half of this generation is sent to the commercial hazardous waste incinerator located in that Region, which is the only commercial hazardous waste incinerator in the State. This facility can accept only liquid organic hazardous wastes, which it uses for fuel to make lightweight aggregate. Other types of waste generated in the State that are destined for incineration must be sent to out-of-state facilities. Region 6 had a moderate quantity of waste shipped for incineration in 2002 and 2004, and an increase to over double that amount by 2007, decreasing some what in 2008, attributable to two generators. The bulk of this waste is a primary waste shipped out of state for incineration.

Treatment: The quantity of hazardous waste shipped off-site for treatment shows some fluctuation over time for most regions and analysis shows that this reflects the impact of remedial projects. Region 2 shows consistently high quantities of hazardous waste shipped for treatment, most of which is remedial hazardous waste from a single ongoing project that is being shipped out of state. In 2007 and 2008, Region 2 also showed a significant quantity of primary hazardous waste going for treatment. This waste is primarily from lead contaminated sandblasting debris from New York City bridge repainting projects. Region 7 shows an increase in 2008, due to a large remedial project. Region 9 shows a jump in the quantity of waste shipped off-site for treatment in 2004 due to a large remedial project that year and from waste generated by a bridge painting project. The quantity of hazardous waste shipped off-site for treatment from Region 9 jumped again in 2008 due to a large remedial project. The New York State facility which receives waste from off-site for treatment is located in Region 9.

Land disposal: The amount of waste shipped for land disposal from each region over time varies greatly. Similar to treatment, this reflects variations in the generation of remedial hazardous waste each year.

Focusing on 2005 data, waste destined for land disposal was generated throughout the State, but the largest quantities came from large remedial projects in Regions 2,4,7, and 9. Three-fourths of the Region 2 waste shipped for land disposal was shipped to the State's one facility. In Region 4, most of the waste shipped for land disposal (87%) was remedial waste that went to a facility located in Canada. Region 7's remedial waste was shipped to the in-state facility, as was the bulk of Region 9 remedial waste (93%). Statewide, two-thirds of the waste generated in the state shipped off-site for land disposal in 2005 went to the in-state facility.

In 2007, Regions 1, 4 and 9 generated the greatest amount of waste destined for landfilling. Again, this reflects large remedial projects. Almost all of the Region 1 landfilled waste was shipped out of state, while 70% of the waste shipped for landfilling from Region 4 went to the in-state facility and half of the waste shipped for landfilling in Region 9 went to the in-state facility.

In 2008, large remedial projects in Regions 4, 5, and 7 resulted in large quantities of hazardous waste shipped for landfilling at the in-state facility.

The Statutory requirement to compare management needs of New York State generators to the location of commercial facilities within the State was based on an assumption that the State should be self sufficient in its hazardous waste management. In fact, however, in 2005, 73% of the hazardous waste generated in New York State that was shipped off-site from its place of generation was shipped out of state, and in 2007, 70% of New York generated hazardous waste that was shipped off-site when to out-of-state facilities. Less than a third of the management needs of New York hazardous waste generators that did not manage hazardous waste on-site were met in New York. In 2008, the percentage of hazardous waste being shipped out of state dropped to 52%, reflecting the large amount of remedial waste shipped to the in-state hazardous waste land disposal facility during that year. The disposal of remedial hazardous waste has the greatest impact on changes in the use of in-state and out-of-state facilities.

As the business of handling of hazardous waste under modern regulation has matured, locally generated hazardous waste is not generally managed locally. The reasons for this are largely economic - thus, planning around regional management is neither useful nor realistic.

Imports and Exports of Hazardous Waste

The State has been reliant on the private sector to build and operate hazardous waste management facilities, consistent with the statutory mandate found at ECL 27-1109.4, where, if a shortfall in capacity is found, the State is required to look to the private sector to resolve the issue in the first instance. Private sector facilities look for customers both within and beyond the State's borders to obtain economies of scale. Thus, the amount of hazardous waste managed and the amount generated in the State are not directly related. In 2007, waste originating in 20 (in 2008: 23) states plus Puerto Rico and foreign countries (primarily Canada) was sent to a number of New York State TSD facilities for management. New York State generators also look beyond State borders for facilities to handle their hazardous waste, and in 2007, New York generators exported hazardous waste to 31 (in 2008: 31) states plus foreign countries for management. Overall, in 2007, New York exported approximately 25,000 more tons of hazardous waste than it imported. In 2008, New York imported approximately 43,000 more tons of hazardous waste than it exported.

The United States Supreme Court has determined that hazardous waste is a commodity, subject to the Commerce Clause of the United States Constitution. Therefore, it is unconstitutional for any State to inhibit the transport of hazardous waste from one state to another. This means, in effect, that a state cannot refuse waste from New York, and New York cannot ban waste coming from other states, assuming that the waste is otherwise lawfully managed. In addition, as part of being authorized to implement USEPA's hazardous waste management program, a state's regulation must be consistent with the federal program. According to 40 CFR 271.4(a): "any aspect of the State program which unreasonably restricts, impedes, or operates as a ban on the free movement across the State border of hazardous wastes from or to other States for treatment, storage, or disposal at facilities authorized to operate under the federal or an approved State program shall be deemed inconsistent."

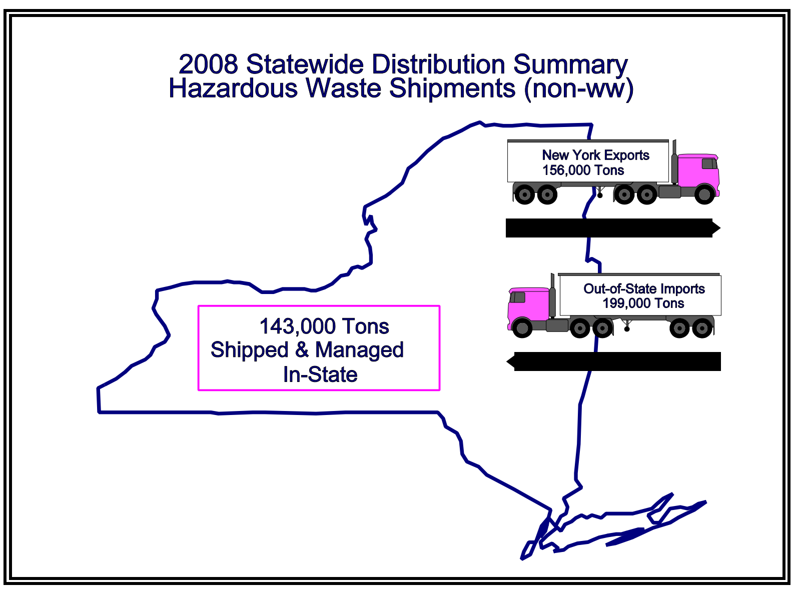


Figure 5-1

While more hazardous waste was exported from New York State in 2007 than was imported, with approximately 232,000 tons of hazardous waste exported and 207,000 tons of hazardous waste imported to various TSD facilities, in 2008 this flipped with more hazardous waste imported to the State than exported from the State (Figure 5-1). The numbers for the past four years are seen in Figure 5-2, with 2007 the only year in which exports were greater than imports. The quantity shipped into the State remained relatively stable, while the quantity leaving the State fluxuated greatly in the past few years. This reflects changes in the quantity of hazardous remedial waste being shipped out of state for management. The total quantity imported to New York State is largely attributable to CWM Chemical Services, Revere Smelting & Refining, and Norlite Corporation receipts, as can be seen in Table 5-6, which shows receipts by New York State commercial facilities for 2007 and 2008.

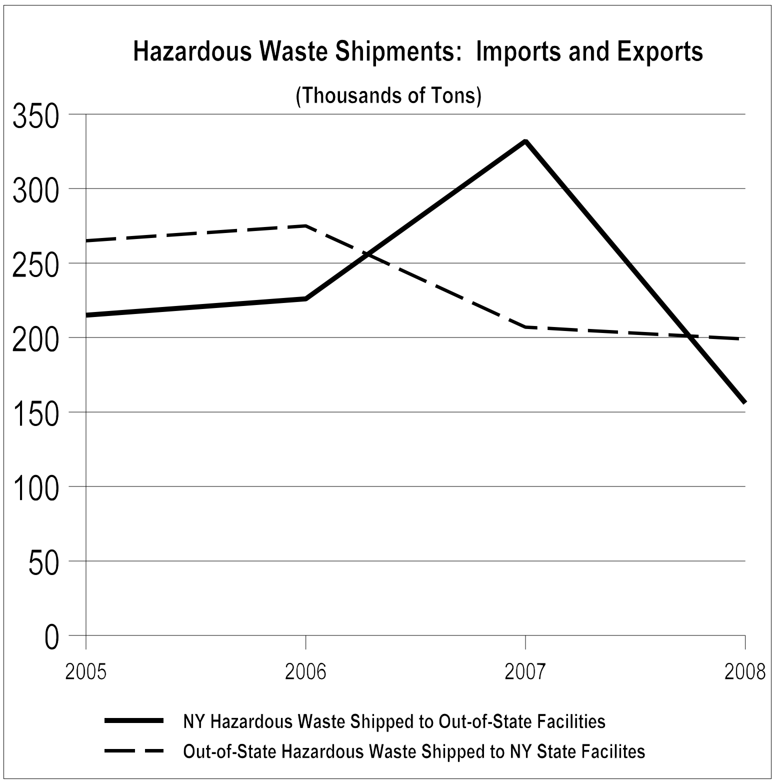


Figure 5-2

Tables 5-3 (a), (b) and (c) show the out of state jurisdictions that receive New York hazardous waste for management and Tables 5-4 (a), (b) and (c) show the jurisdictions whose generators ship the most hazardous waste to New York for management for 2005, 2007 and 2008. Waste shipped to or received from a foreign country is primarily waste shipped to or received from Canada. In the tables below, this is shown as Canada or “FC”.

New York receives most of its out-of-state wastes from nearby states, including Massachusetts, New Jersey, Connecticut, and Pennsylvania. Delaware and Georgia also make the top ranking states list in select years.

Table 5-3(a)
States Sending Waste to NY in 2005

State/Country	Tons	% of Total Waste Imported to NYS
Pennsylvania	89,370	33.7%
New Jersey	65,386	24.7%
Massachusetts	28,426	10.7%
Delaware	27,922	10.5%
Connecticut	23,246	8.8%
Other (24)[1]	30,462	11.5%
TOTAL	264,812	

Table 5-3(b)
States Sending Waste to NY in 2007

State/Country	Tons	% of Total Waste Imported to NYS
Georgia	59,308	28.6%
Pennsylvania	42,413	20.5%
New Jersey	39,527	19.1%
Massachusetts	25,925	12.5%
Connecticut	17,906	8.6%
Other (20)[2]	21,974	10.6%
TOTAL	207,053	

[1] CA, DC, FC, FL, GA, IL, IN, KY, MD, ME, MI, MO, NC, NH, OH, PR, RI, SC, TN, TX, VA, VT, WI, WV
[2] AL, AR, DC, DE, FC, IL, IN, KY, MD, ME, MI, NC, NH, OH, PR, RI, VA, VT, WI, WV

Table 5-3(c)
States Sending Waste to NY in 2008

State/Country	Tons	% of Total Waste Imported to NYS
Pennsylvania	79,156	40%
New Jersey	36,348	18%
Delaware	34,273	17%
Connecticut	20,540	10%
Massachusetts	18,306	9%
Other (19)[3]	10,863	6%
TOTAL	199,486	

[3] AZ, DC, IL, IN, LA, MD, ME, MI, MO, MS, NC, NH, OH, PR, RI, VA, VT, WI, WV

Top ranking states receiving waste from New York generators go a little farther afield. Though New Jersey and Canada received the most waste from New York, Michigan, Pennsylvania and Ohio each received significant quantities of New York's exported hazardous waste.

Table 5-4(a)
States Receiving Waste from NY Generators in 2005

State/Country	Tons	% of Total Waste Exported from NYS
New Jersey	55,047	32.1%
Canada	40,101	23.4%
Michigan	18,054	10.5%
Pennsylvania	17,620	10.3%
Ohio	10,542	6.1%
Other (29)[1]	30,150	17.6%
TOTAL	171,513	

Table 5-4(b)
States Receiving Waste from NY Generators in 2007

State/Country	Tons	% of Total Waste Exported from NYS
Canada	62,892	26.5%
New Jersey	56,904	24.0%
Michigan	42,179	17.8%
Pennsylvania	15,546	6.6%
Ohio	13,925	5.9%
Other (27)[2]	45,522	19.2%
TOTAL	236,668	

[1] AL, AR, AZ, CT, FL, GA, ID, IL, IN, KS, KY, MA, MD, MN, MO, NC, NE, NH, OK, RI, SC, TN, TX, UT, VA, VT, WA, WI, WV
[2] AL, AR, AZ, CT, FL, ID, IL, IN, KY, LA, MA, MD, MN, MO, NC, NE, NH, OK, RI, SC, TN, TX, UT, VA, VT, WI, WV

Table 5-4(c)
States Receiving Waste from NY Generators in 2008

State/Country	Tons	% of Total Waste Exported from NYS
Canada	43,233	28%
New Jersey	42,398	27%
Michigan	22,546	14%
Ohio	18,755	12%
Pennsylvania	14,490	10%
Other (27)[3]	14,444	9%
TOTAL	155,866	

[3]AL, AR, AZ, CO, CT, FL IL, IN, KY, LA, MA, MN, MO, NC, NE, NH, OK, RI, SC, TN, TX, UT, VT, WA, WI, WV

Regional exports

Table 5-5 below compares the amount of shipped hazardous waste disposed out of state for each DEC region. In 2007, for all Regions but Region 4, well over 50% of the waste shipped off-site went out of state for management. Only in Region 4 did more shipped waste go to in-state facilities than out-of-state facilities. The bulk of this waste in Region 4 was generated by remedial actions. In 2008, a number of regions show greater shipments to in state facilities. Again, this reflects the impact of the shipment of large quantities of remedial hazardous waste.

Table 5-5 shows the variations by region in number of generators, total hazardous waste shipped, and total hazardous waste shipped out of state in 2007 and 2008. The differences between the two years are primarily due to the influence of remedial projects.

Table 5-5
Summary of Hazardous Waste Shipped Off Site and Disposed of Out of State By Region in 2007 and 2008 (in Tons)

	Number of Generators		*Total Tons Shipped*		*Total Disposed of Out of State*		*Percent of Disposed Out of State*	
Year	*2007*	*2008*	*2007*	*2008*	*2007*	*2008*	*2007*	*2008*
Region 1	*183*	*147*	*61,483*	*4,646*	*59,666*	*2,803*	*97%*	*60%*
Region 2	*348*	*329*	*45,690*	*44,707*	*44,035*	*38,097*	*96%*	*85%*
Region 3	*149*	*179*	*13,175*	*15.688*	*10,285*	*13,262*	*78%*	*84%*
Region 4	*94*	*96*	*93,673*	*26,747*	*31,263*	*5,591*	*33%*	*21%*
Region 5	*37*	*47*	*30,706*	*110,217*	*27,430*	*28,280*	*89%*	*26%*
Region 6	*55*	*67*	*10,129*	*8,412*	*8,644*	*6,670*	*85%*	*79%*
Region 7	*129*	*142*	*19,823*	*38,834*	*13,555*	*25,336*	*68%*	*65%*
Region 8	*130*	*151*	*25,042*	*17,521*	*15,395*	*7,498*	*61%*	*43%*
Region 9	*191*	*191*	*32,961*	*31,799*	*21,975*	*28,329*	*67%*	*89%*
Totals	*1316*	*1349*	*332682*	*282899*	*232248*	*155866*	*70%*	*55%*

NOTE: does not include waste that was shipped by a facility but was not generated at that facility.

Management Methods

New York State generators do not and need not consider State borders when determining how to meet their hazardous waste management needs. Due to the nature of a specific waste stream, a nearby facility may not be capable of meeting a generator's specific waste management requirements. Certain components of a generator's waste stream may allow the waste to be handled more effectively or at lower cost at a facility located further away.

Of the 232,248 tons of hazardous waste in 2007 and the 155,866 tons in 2008 that was exported out of state:

- 16% (37,413 tons) in 2007, and 24% (36,907 tons) in 2008 went for recycling or reclamation;
- 9% (22,147 tons) in 2007 and 12% (18,862 tons) in 2008 was incinerated ;
- 39% (90,588 tons) in 2007 and 52% (80,668 tons) in 2008 was treated;
- 32% (73,402 tons) in 2007 and 7% (11,680 tons) in 2008 went to land disposal; and
- 4% (8,698 tons) in 2007 and 5% (7,752 tons) in 2008 went to temporary storage facilities.

Of the waste exported from the State, 55% went to an out-of-state treatment, recycling or reclamation facility in 2007, and in 2008 this percentage was 75% . Treatment, recycling, and reclamation are all very waste-specific activities. While there are treatment and recycling/reclamation facilities located in New York State, they handle only specific types of waste. For example, the recycling facility in Region 3 handles waste lead-acid batteries. Generators must look beyond the State for a treatment, recycling or reclamation facility that manages other specific waste types. For example, Safety Kleen collects spent solvent from New York generators, and has a number of temporary storage facilities located in the State to accumulate this waste before shipping it out of state for reclamation. Recovered solvents are returned to customers as usable product.

While there is a permitted commercial incinerator in Region 4, this facility is permitted for only certain waste types. So, again, if a generator needs to have a different waste type incinerated, it must be shipped out of state to an incinerator permitted to handle its specific waste type.

Interestingly, even though there is a permitted hazardous waste landfill in-state, in 2007, 32% of the hazardous waste shipped out of state was destined to be land disposed at an out-of-state facility. In 2008 this percentage dropped to 7% reflecting decisions by generators to send remedial waste to the in state facility.

Hazardous Waste Imports to New York State TSD Facilities

Evaluation of Waste Quantities

Data on the shipment of hazardous waste into the State were gathered to gain an understanding of New York's place in a national context. Since New York cannot prohibit imports, any New York State hazardous siting plan must take interstate transport into consideration. The quantity of hazardous waste that commercial facilities received from within the State and from out of state in 2008 is shown in Table 5-6. For 2007, 33% of the waste handled at these facilities came from in-state sources, and 67% of the waste came from out-of-state sources. In 2008, 42% was from in-state and 58% was from out-of-state. In 2007, of the 13 commercial facilities in the State, 9 received more waste from New York State generators than out-of-state generators, while 4 facilities received more waste from out-of-state generators than New York State generators. In 2008, 10 of the 13 commercial facilities received more hazardous waste from in-state sources than out-of-state sources, while 3 commercial facilities received more waste from out-of-state sources.

Table 5-6
Commercial Facilities - Waste Received in 2007 and 2008
(Non-wastewater)

EPA ID Number	Name	Total From Out of State (tons)		Total From In State (tons)		Total Received (tons)	
		2007	2008	2007	2008	2007	2008
Region 1							
NYD082785429	Chemical Pollution Control	177	100	1931	1,839	2,108	1,939
Region 2							
NYD077444263	Triumvirante	58	70	497	663	555	733
Region 3							
NYD030485288	Revere Smelting & Refining	109,667	107,718	0	0	109,667	107,718
NYR000129015	American Lamp Recycling LLC[1]	0	0	1	1	1	1
Region 4							
NYD080469935	Norlite Corporation	13,132	11,382	10,767	12,680	23, 899	24,062
NYD986872869	Safety-Kleen, Cohoes, NY	39	21	128	127	167	148
Region 7							
NYD049253719	Ashland Distribution Co.	2,657	3,229	1,038	69	3,695	4,098
NYD982743312	Safety-Kleen, Syracuse, NY	0	0	161	167	161	167
NYD013277454	Solvents & Petroleum	0	0	357	397	357	397
Region 8							
NYD980753784	Safety-Kleen, Avon, NY	0	0	197	170	197	170
Region 9							
NYD981556541	Safety-Kleen, Lackawana, NY	0	0	149	150	149	150
NYD049836679	CWM Chemical Services	79,331	74,489	85,177	125,134	164,508	199,623
NYD002113736	Tulip Corporation[1]	1,741	1,979	464	608	2,205	2,587
	TOTAL	206,802	198,988	100,867	142,805	307,669	341,793

1 - Exempt from 6 NYCRR Part 373 permitting.

Table 5-7
Commercial Facilities Receiving Hazardous Waste from Out of State for Management in 2008

EPA ID Number	Name/Location	States Waste Received from in 2008	States Total
NYD077444263	Triumvirante Astoria, NY	CT, MA, MD, NH, NJ, PA, RI	7
NYD080469935	Norlite Corporation Cohoes, NY	CT, MA, MD, ME, NH, NJ, OH, PA, RI, VA, VT	11
NYD082785429	Chemical Pollution Control Bayshore, NY	CT, NH, NJ	3
NYD986872869	Safety-Kleen Systems, Inc. Cohoes, NY	CT, MA	2
NYD030485288	Revere Smelting & Refining Middletown, NY	DE, NJ, PA	3
NYD049253719	Ashland Distribution Co. Binghamton, NY	CT, DE, MA, MD, ME, MS, NH, NJ, PA, RI, VT	11
NYD049836679	CWM Chemical Services Model City, NY	AZ, CT, DC, DE, IL, IN, LA, MA, MD, ME, MI, MO, NC, NH, NJ, OH, PA, PR, RI, VA, VT, WI, WV	22 + Puerto Rico
NYD002113736	Tulip Corporation Niagara Falls, NY	MI, OH	2

FC: Foreign Country

Hazardous Waste Sources

For each commercial hazardous waste facility in New York, the Department also looked at the out-of-state sources of waste received. Eight of the 13 commercial facilities in the State received hazardous waste from out of state. In 2007, 22 states plus Puerto Rico and foreign countries (primarily Canada) exported waste to New York. In 2008, 23 states plus Puerto Rico exported waste to New York. Table 5-7 lists the commercial facilities that received out-of-state hazardous waste and the exporter states for 2008. The table illustrates that it is primarily generators in the northeast, mid-atlantic and mid-west states that utilize the TSD facilities in New York State.

Evaluation of Hazardous Waste Management Methods

Of the total quantity of hazardous waste imported in 2007, 54% was imported for treatment or recycling and 38% for landfilling. In 2008, 55% was imported for recycling and 38% was imported for landfilling. Thus, these management methods account for 92% to 93% of all the waste imported into the State. Not surprisingly, these are the main management methods for the two facilities managing the largest quantities of hazardous waste in the State. In both 2007 and 2008, incineration accounts for another 6%, reflecting the operations of one facility, leaving only 2% of the waste imported being managed by temporary storage. It is not known how much of the waste imported for recycling from collection centers originated from New York conditionally exempt small quantity generators (CESQGs). Hazardous waste from CESQGs is not tracked until it is reported by receiving facilities in their hazardous waste annual reports.

Of the hazardous waste imported from other States to New York State in 2007:

- 54% was treated or recycled (111,419 tons);
- 38% was landfilled (79,045 tons);
- 6% was incinerated (13,132 tons); and
- 2% went to temporary storage facilities (3,206 tons).

Of the hazardous waste imported from other States to New York State in 2008:

- 55% was recycled (109,697 tons);
- 37% was landfilled (74,114 tons);
- 6% was incinerated (11,382 tons); and
- 2% went to temporary storage facilities (3,865 tons).

Hazardous Waste Management in Surrounding States

USEPA's *National Biennial RCRA Hazardous Waste Report (based on 2007 Data)* (set forth in further detail in Appendix E) provides information on hazardous waste management activities across the country.

With one exception, all of the states located in New England, the Mid-Atlantic, and the Mid-West United States, together constituting the northeast quarter of the country for the purposes of this Plan, have at least one receiving facility within their boundaries, with an average of 11 facilities per state. These states make up nearly all of USEPA Regions 1, 2, 3 and 5. Table 5-8 shows the number of receiving facilities and the tons of RCRA hazardous waste received for the states in the northeast quarter of the country. Amounts received range from zero to 804,000 tons of RCRA hazardous waste. New York is seventh for quantity of waste received, with Ohio, Indiana, Pennsylvania, Michigan, Illinois and New Jersey having a greater quantity of hazardous waste managed at facilities within their states compared to New York. Of the top 7 states, 5 have populations over 10 million, with New York having the greatest population of at 19 million.

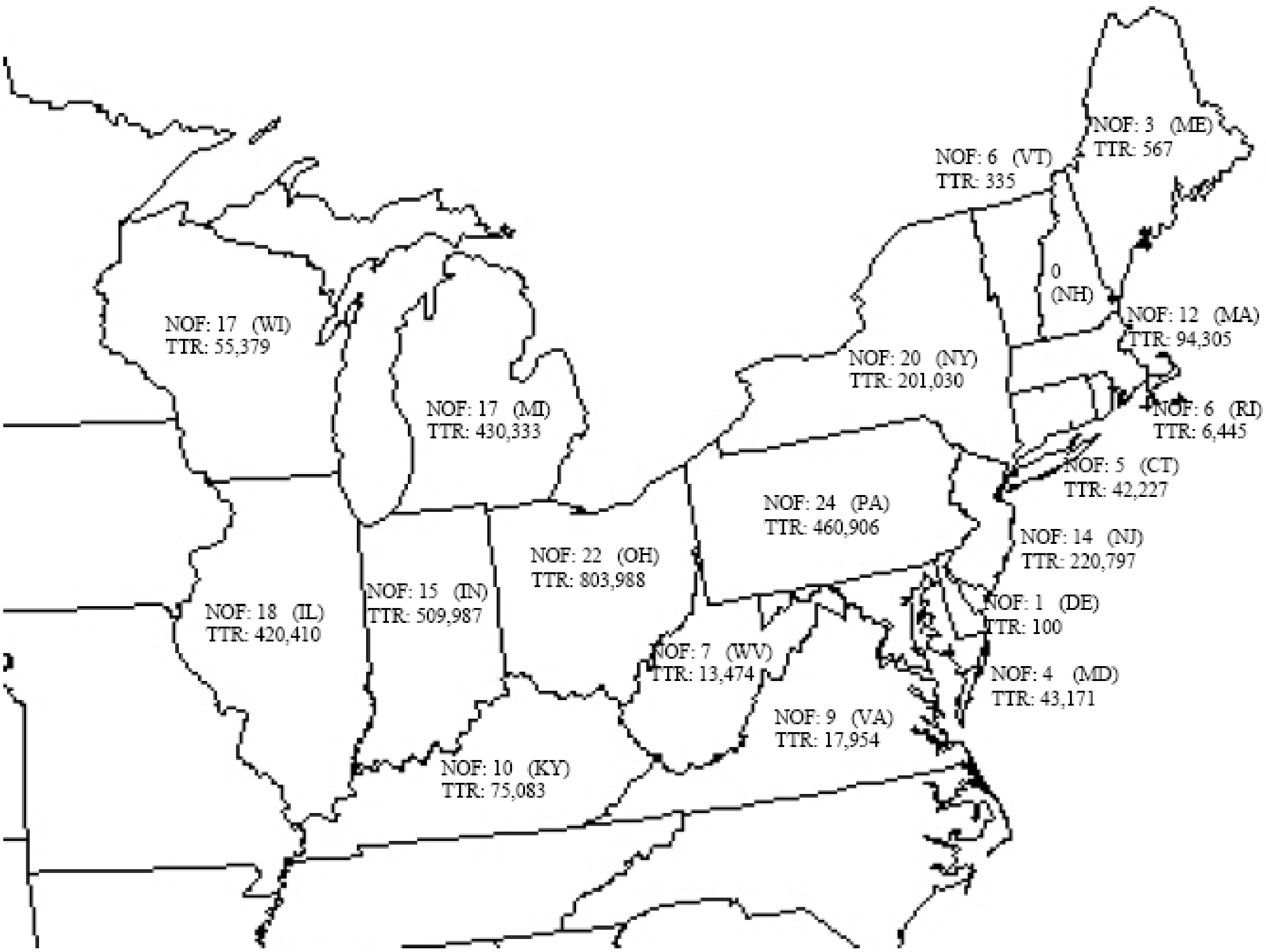
This data, along with figure 5-3, shows the general availability of hazardous waste management capacity within the New England, Mid-Atlantic, and Mid-West United States.

Table 5-8
RCRA Hazardous Waste Receiving Facilities*
USEPA 2007 Data

State	Number of Receiving Facilities	RCRA Hazardous Waste Received - in tons	Population**
Ohio	22	803,988	11,466,917
Indiana	15	509,987	6,345,289
Pennsylvania	24	460,906	12,432,792
Michigan	17	430,333	10,071,822
Illinois	18	420,410	12,852,548
New Jersey	14	220,797	8,685,920
New York	20	201,030	19,297,729
Massachusetts	12	94,305	6,449,755
Kentucky	10	75,083	4,241,474
Wisconsin	17	55,379	5,601,640
Maryland	4	43,171	5,618,344
Connecticut	5	42,227	3,502,309
Virginia	9	17,954	7,712,091
West Virginia	7	13,474	1,812,035
Rhode Island	6	6,445	1,057,832
Maine	3	567	1,317,207
Vermont	6	335	621,254
Delaware	1	100	864,764
New Hampshire	0	0	1,315,828

* Facilities include commercial and captive facilities that received federally defined hazardous wastes.
**2007 estimated populations from http://quickfacts.census.gov

RCRA Hazardous Waste
Receiving Facilities and Tons Received
(based on USEPA 2007 data)



Key:
NOF: Number of Receiving Facilities
TTR: Total Tons of RCRA Hazardous Waste Received
Note: Receivers include commercial and captive facilities that received federal RCRA hazardous wastes.

Identifying compatible hazardous waste streams and regional hazardous waste management opportunities:

With present day hazardous waste management practices, there are no regional hazardous waste management opportunities to address particular waste streams for discrete areas of the State. However, the overall goal embodied in this requirement of the Siting Plan statute, to identify like wastes to be managed at centrally located facilities, is being met by the generators, transporters and TSD facilities across the State in a larger national context.

Simple economics and operational efficiency dictate that waste management companies operate their businesses to maximize collection of compatible waste streams for processing at centralized hazardous waste management facilities. For example, the Safety Kleen facilities located across New York State are storage facilities. These locations collect and consolidate select compatible waste streams to be shipped in bulk to recycling facilities which happen to be located out of state. For these out-of-state recycling facilities to maintain the economies of scale, they collect waste for recycling from a much larger area than just the state in which each is located.

Full service transporter companies utilize 10-day transfer facilities to allow for consolidation of waste collected by multiple trucks into larger shipments for transport to several ultimate disposal facilities. This bulking of shipments maximizes the ability to transport waste to appropriate management facilities while decreasing transportation costs.

The chemical industry uses its trade organizations to provide a network for maximizing reuse and recycling opportunities for the hazardous wastes its members generate. This networking occurs on a statewide and interstate basis, taking advantage of cooperative opportunities wherever they exist. Reuse of one company's waste as a raw material for another process is the best management practice for that waste.

As a result of good environmental and business practices, and economics, it is anticipated that the private sector will continue to assess reuse and recycling options beyond existing practices. Transporters and waste management facilities located within and outside of the State will continue to consolidate compatible hazardous waste streams for re-shipment in bulk to appropriate facilities for proper management or disposal, be that recycling, treatment, incineration or landfilling. The Department, in fulfilling its mission, will continue to encourage reuse and recycling and assure compliance with statutory and regulatory requirements for those facilities located within the State (see further discussion in Chapter 2.)

Efforts by private industry to develop and use new efficient and effective waste disposal methods are encouraged by the Department. A new or expanded facility may be the outgrowth of these efforts, and if so, the Department will be involved from the development stage to ensure protection of human health and the environment.

Because the State is relying on the private sector to build and operate hazardous waste management facilities, economics and efficiencies dictate where and how these facilities will operate, making local management of local waste streams economically unfeasible and, therefore unlikely. Thus, identification of local waste streams for purposes of providing regional management capacity is not the useful or relevant exercise it was anticipated to be in the 1987 law that set for the parameters for a Hazardous Waste Facility Siting Plan.

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CHAPTER 6

Projections for New or Expanded Hazardous Waste Treatment, Storage and Disposal Facilities: *a determination of the number, size, type and location by area of the State of new or expanded industrial hazardous waste treatment, storage and disposal facilities which will be needed for the proper long-term management of hazardous waste consistent with the assurances required pursuant to subdivision one of this section and an equitable geographic distribution of facilities.*

To date, the private sector has built and operated hazardous waste management facilities on sites and in locations that were not pre-determined by the State. The legislature had previously authorized the Environmental Facilities Corporation (EFC), under the Public Authorities Law in 1978, to build, operate and maintain hazardous waste treatment, storage or disposal (TSD) facilities, and, prior to enactment of the Siting Law, EFC conducted studies to assess siting a full service hazardous waste TSD facility in the State and initiated a process to site such a facility. In the early 1980's the State withdrew its efforts in this regard, deciding to rely on the private sector to build and operate any needed hazardous waste facilities. This policy was further strengthened and confirmed in the Governor's Hazardous Waste Treatment Facilities Task Force Report in 1985. Thus, at the time the Siting Law was enacted in 1987, the New York State legislature did not require DEC to play an aggressive role in the siting and development of hazardous waste facilities.

Since that time, the legislature has not required DEC or EFC to facilitate the building or operation of TSD facilities. In fact, at Environmental Conservation Law (ECL) 27-1109, enacted as part of the Siting Law in 1987, consistent with the New York State Hazardous Waste Treatment Facilities Task Force Final Report of September 1985, DEC is required to first look to the private sector in the construction and operation of such facilities, and only in the event that the private sector does not adequately respond, should DEC turn to EFC to fill capacity gaps.

Facility Need

New York generators must use a hazardous waste TSD facility which is permitted by the Department (or that is explicitly exempt from permit requirements) to manage their waste according to State regulations, or, for waste transported to out-of-state facilities, according to the receiving state's regulations and federal regulations.

Preventing and reducing hazardous waste generation, and, thus, the need for TSD facilities, is a top priority for the Department and the State, as mandated by the preferred hazardous waste management hierarchy (ECL 27-0105.) This hierarchy has guided hazardous waste policies and decisions since it was established in 1987. This approach will continue to be used to guide all hazardous waste management policies and decisions of the Department, including permitting and other regulatory activities.

Reduction or elimination of hazardous waste generation is directly encouraged by the waste reduction plans required pursuant to ECL 27-0908, established in 1990. The hazardous waste regulations in many areas provide incentives for the minimization, recovery, reuse or recycling of hazardous waste. It must be recognized, however, that hazardous waste from remedial clean-up actions remains a major contributor to the total quantity of hazardous waste generated for management off-site. As discussed in Chapter 3, the Department has increased use and will continue to encourage the use of management methods higher on the hierarchy, such as in-situ treatment. Use of alternative technologies will continue to be evaluated and selected as the remedy of choice whenever it is technically and economically feasible. But the need for off-site disposal at a hazardous waste landfill of select portions of the contaminated materials from remedial clean-up actions is a reality.

The land disposal restrictions (LDRs) mandate the best management method for each specific waste, be it detoxification, treatment or destruction technologies. And for those wastes that are to be land disposed, the LDRs set specific treatment standards to assure the land disposal of the waste will pose no significant threat to the public health or the environment.

The present national and international market for commercial hazardous waste management demonstrates that state boundaries are not the salient factor in determining where a generator will ship a particular waste. More important is the match between the type of waste generated and the management options available for that type of waste, wherever located. In delineating treatment standards and often dictating a disposal method for a particular type of hazardous waste, LDR compliance represents the most important limitation on the number of facilities acceptable for management of hazardous waste. A secondary impact of the LDRs is that a greater variety of treatment technologies are needed to manage the universe of hazardous waste. Most commercial facilities offer only a few treatment options; thus a generator will often have to ship its wastes to several different management facilities. Simple landfilling, recycling, or incineration are not available handling methods for all or even most wastes.

New hazardous waste management technologies are actively being pursued by government and the private sector. Remedial technologies are in various stages of research and development, from concept to proposals for full scale implementation, including thermal, chemical and biological technologies. New York State is an active participant in the Interstate Technology and Regulatory Council (ITRC) which is a multi agency (states, federal agencies and private companies) effort to increase the deployment of innovative treatment technology. The Department has been involved since the effort started in 1995. Additional information about ITRC can be found at its web site at: http://www.itrcweb.org.

With continuing development of new technologies, existing or new hazardous waste TSD facilities may manage different types of wastes using processes not envisioned at the present time, but there are too many unknowns to predict the nature of these facilities and where such facilities might be proposed to be located. This Plan does not preclude the siting of such a facility in New York State. The suitability of an operation at a proposed location would have to be determined by a Hazardous Waste Facility Siting Board established pursuant to ECL 27-1105 and Department permit proceedings.

It is clear that the number of facilities managing hazardous waste in New York State has decreased. Commercial facilities decreased from 29 facilities in 1991 to 19 in 2001. By 2005 the number of commercial facilities in the State totaled 16, and in 2006 this number had dropped to 13, a decrease of 55% since 1991. As of 2008, the number of commercial facilities remained at 13. A large decrease in the number of on-site facilities has also occurred and captive facilities are now very uncommon in the State. (Chapter 1, Table 1-2).

However, while the number of facilities in the State have been decreasing, USEPA's national analysis in 2009, subsequent to the 1995 National Capacity Assessment Report (CAP), determined that national capacity remains available to handle the waste generated in New York State and across the nation at least through 2034 (see Appendix E). Based on this decision by USEPA, federal Superfund monies continue to come into New York and other states for remedial cleanup activities.

National data, presented in Table 6-1, shows that in 2001, the number of RCRA hazardous waste receiving facilities nationwide increased significantly and the quantity of waste increased. This may well be the result of the changes in reporting which occurred at that time. Since 2001, a very slow decrease in the number of receiving facilities can be seen, while the quantity of RCRA hazardous waste managed shows no discernable trend.

Table 6-1
National Biennial Report Data from "National Analysis" Documents

Year/exhibit	# of Receiving Facilities Nationwide	Tons Received
1999/exhibit 3.12	499	6,554,360
2001/exhibit 3.7	595	8,094,720
2003/exhibit 3.7	569	7,232,170
2005/exhibit 3.7	557	8,545,857
2007/exhibit 3.7	540	7,199,231

Table 6-2
National Biennial RCRA Hazardous Waste Report: 2007 Data
Management Method, by Quantity of RCRA Hazardous Waste Managed, Waste Received from Off-site

Management Method	Tons Managed	Percent of Quantity	Number of Facilities
Recovery*	1,471,981	20.4	268
Treatment	1,070,665	14.9	215
Incineration	2,286,702	31.8	229
Land Disposal**	1,575,596	21.9	49
Storage	408,884	5.7	350
Other	385,401	5.3	26
TOTAL	7,199,229	100.0	540

*The data in the table includes waste burned for energy recovery as “recovery” while in New York State, waste burned for energy recovery is considered disposal and is counted under “incineration”.

**Federal summary tables, which were the source of this information, include surface impoundments and land treatment/application/farming along with land disposal in this total. Of these methodologies, only land disposal occurs in New York State.

The Siting Plan must assure the availability of industrial hazardous waste TSD facilities which have adequate capacity for the destruction, treatment or secure disposition of all hazardous wastes generated in New York. The available facilities can be located within or outside of the State. No one state has all the various types of facilities necessary to treat or dispose of every type of waste generated within its borders. Every state is dependent upon other states for certain types of hazardous waste treatment and disposal.

This can be seen by looking at the distribution of commercial RCRA-C hazardous waste land disposal facilities across the nation in 2007 (Figure 6-1), and commercial RCRA-C incineration and waste-to-energy facilities in 2007 (Figure 6-2). Commercial RCRA-C hazardous waste land disposal facilities are scattered around the country. Of the 48 contiguous states, 32 have no RCRA-C hazardous waste land disposal facilities. Commercial RCRA-C incineration and waste-to-energy facilities are located primarily in a north-south corridor just east of the middle of the nation, primarily including the midwest and the southern states below the midwest.

Figure 6-1

Commercial Landfill Facilities for RCRA Hazardous Waste in 2007

- 22 commercial hazardous waste land disposal facilities located in the contiguous states
- 16 states have a hazardous waste land disposal facility within their borders
- 32 of the contiguous states have none

Figure 6-2

Commercial Waste-to-Energy and Incineration Facilities for RCRA Hazardous Waste in 2007

Key:
▲ Location of Waste-to-Energy Facility
● Location of Incineration Facility
★ Location of WTE and Incineration Facility

In New York State PCB waste is regulated as a hazardous waste, while at the federal level this waste is regulated under TSCA (the Toxic Substances Control Act) rather than under RCRA. Liquid PCB waste is typically incinerated while solid PCB waste, such as contaminated soils, may be treated, incinerated or landfilled. Federally permitted commercial storage and disposal locations across the nation are provided in Appendix F. For landfill capacity, there are 10 permitted landfills in the country located in Texas, New York, Alabama, Michigan, Utah, California, Nevada, Oregon, and Idaho.

Interdependence among the states for hazardous waste management and disposal capacity is expected to continue. While Congress under CERCLA, and through the USEPA, sought to require states to be self-sufficient or to enter into interstate agreements in the 1980's, and states across the country passed laws to attempt to implement this concept at the time, Congress did not authorize states to erect barriers to interstate commerce. The USEPA has concluded that the focus must be on national capacity rather than state self-sufficiency. (See Appendix J.) This perspective is consistent with present practice and with the Supreme Court decisions that solid waste (which includes hazardous waste) is a commodity and interstate transport cannot be inhibited. See *Philadelphia v. New Jersey*, 437 U.S. 617, 98 S.Ct. 2531, 57 L.Ed.2d 475 (1988); *Fort Gratiot Sanitary Landfill, Inc. v. Michigan Dept. of Natural Resources*, 504 U.S. 353, 112 S.Ct. 2019, 119 L.Ed.2d 139 (1992). These decisions assure that no one state can limit the movement of hazardous waste into or out of its borders.

The need for additional TSD facilities in the State over the next 20 years is extremely difficult to assess. The continuing decline in the number of commercial facilities in the State demonstrates that small facilities are no longer economically viable and that there may not be a meaningful market for new facilities in the State simply because of the availability of hazardous waste management services elsewhere.

For example, New York State has no capacity at present for commercial incineration of solids or sludges; however, there is sufficient national capacity for these wastes. In 2007, New York State generated wastes were sent for incineration or fuel blending at facilities in 27 states and out of country. States including Utah, Texas, Arkansas and Florida received waste from New York for incineration. Meanwhile, New York has received no new applications for commercial facilities that can burn hazardous waste solids or sludges since the early 1980's, when a unit was permitted but never went into production. The only other facility in the State that could burn solids closed in 2002.

In addition, the long-term status of existing facilities, other than land disposal, is difficult to project. While facilities that treat, store, recycle or incinerate wastes have an indeterminent life expectancy as long as they are maintained and continue to meet evolving regulatory permit requirements, the data clearly show that many of these facilities do close, presumably due in large part to market demand. However, a number of storage facilities in New York are no longer permitted hazardous waste storage facilities, but continue to operate as hazardous waste transporters by changing their operations to 10-day transfer facilities which are exempt from hazardous waste facility permitting. Facility longevity cannot reasonably be forecasted.

If a facility closes, another facility may not be needed to replace it if the closing facility was not economically viable. However, if a facility closes for non-economic reasons, market conditions may support opening a similar facility. This could be at the site of the closed facility or perhaps at a new location. However, since New York generators can ship their hazardous waste out-of-state for management, it is not necessary for the State to initiate the siting of additional facilities as a result of these closures. Rather, any siting proposals will originate from companies based on their own scientific, technical, environmental, regulatory, social, and economic considerations. This Siting Plan embraces the market forces that have served to assure adequate hazardous waste management capacity and does not discourage the consideration of private sector siting proposals that meet the requirements of the ECL and regulations, including the siting criteria at 6 NYCRR 361.

Even if it was possible to anticipate new siting proposals, the location of a proposed facility cannot be predicted, as wastes that would be handled would in all likelihood originate from a broad geographic area encompassing at least several states and not be limited to the hazardous waste generated in the immediate surrounding area of the proposed location.

RCRA-C Hazardous Waste and TSCA PCB Landfill Capacity Projections

Unlike incinerators, landfills have diminishing capacity, a fact that must be considered in exploring the question of need for additional capacity in the future. According to the most recent USEPA assessment (Appendix E), there is sufficient RCRA-C hazardous waste capacity in the country through at least 2034. According to the USEPA, this assessment does not include capacity that has not yet been approved by the governing State.

For a nationwide perspective, the Department gathered information on the existing commercial hazardous waste landfills across the country and, as of 2007, seven hazardous waste landfills had life expectancies of at least 20 years for existing permitted units. While, from a national perspective, RCRA-C hazardous waste landfill capacity exists, distances to many of these landfills from New York makes transportation other than by rail expensive. Looking more locally at the northeast quarter of the country, there are six commercial hazardous waste landfills. Facilities in Illinois, New York, Michigan, Ohio and Indiana received 849,518 tons of federal RCRA-C hazardous waste in 2005 and 625,065 tons in 2007. To estimate remaining capacity at these landfills, a conversion factor of 1.5 tons per cubic yard is used. This is the conversion factor historically used by CWM for calculations regarding the waste disposed at their permitted facility in New York. The two facilities in Illinois have almost reached capacity for existing permitted units. The remaining capacity for the four other commercial landfills as of 2008 is estimated at approximately 18.3 to 28.7 million tons of capacity, depending on what factors were taken into consideration. The lowest number, 18.3 million tons, resulted from taking into consideration the use of capacity at some locations by non-RCRA C wastes, including PCB and non-hazardous waste disposal. Using the lower capacity value of 18.3 million tons, and a high estimate of approximately 850,000 tons of hazardous waste landfilled at these facilities per year, a conservative estimate calculates at least 21 years of federal RCRA-C waste capacity as of 2007, resulting in a conservative estimate of capacity in the northeast quarter of the country through at least 2028. The bulk of this capacity is from one landfill located in Indiana. This does not include facility capacity located in the central, southern and western parts of the United States.

The Department analysis shows that capacity for landfilling PCB waste in the northern quarter of the country is limited to Wayne Disposal in Michigan, Heritage Environmental Services in Indiana and CWM in New York. In 2009, remaining capacity at Wayne Disposal totaled an estimated 2.5 million cubic yards and it is accepting approximately 200,000 cubic yards per year. If it maintains that level of receipts, the remaining life for the existing landfill cell is estimated at 12 years (2021). Heritage Environmental has an estimated site life that extends beyond the year 2100. Heritage can accept “Mega Rule” PCB remediation waste. Per federal regulation 40 CFR 761.61(a)(4)(i), “bulk PCB remediation waste includes, but is not limited to, the following non-liquid PCB remediation waste: soil, sediments, dredged materials, muds, PCB sewage sludge, and industrial sludge.” As of the end of 2009, CWM has a remaining capacity of 496,000 cubic yards with the remaining life for the existing landfill cell estimated at four to five years, based upon a fill rate of 104,000 cubic yards per year.

Conclusion regarding Facility Need

Based on the national availability of facilities, there are sufficient available TSD facilities for management of RCRA hazardous waste generated in New York, and will be for the forseeable future. Periodically, USEPA will revisit the issue of national capacity and need through analysis of available data and regulators at both a state and federal level will have years of lead time to address potential capacity shortfalls. Thus there is no current or near term need for increased capacity for hazardous waste management in New York State.

For PCB wastes that can be landfilled, landfill capacity is estimated to exist through 2021, with landfill capacity for “Mega Rule” PCB remediation waste estimated to exist beyond 2100 for the northeast quarter of the country.

Environmental Justice Considerations

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.

Environmental justice policies are a response to the recognition that some communities, particularly minority and low-income communities, have historically been overburdened by a high density of known contaminated sites and elevated levels of air, water, and noise pollution. In addition, these communities often lack green open space, and have not received a fair share of environmental programs and related benefits. Often the result is reduced quality of life as compared to other communities, with the accompanying potential for increased environmental and related public health impacts. Therefore, environmental justice efforts focus on improving the environment in these communities, addressing disproportionate exposures to multiple environmental harms and risks to populations, ensuring opportunities for meaningful public participation, and ensuring access to programs and other benefits that improve the environmental condition of communities.

Current federal and State programs require that certain activities, including the procurement of environmental permits, address related environmental justice issues. Both the U.S. Environmental Protection Agency Region II and the New York State Department of Environmental Conservation have issued policies on environmental justice and permitting. The permitting process applicable to hazardous waste facilities triggers the scrutiny and considerations required by these policies.

The USEPA Region II Interim Environmental Justice Policy provides permitting staff with guidance on how to consider EJ in the context of permitting decisions, including new federal major permits, significant permit modifications, or major permit renewals. The Interim Environmental Justice Policy can be found at http://www.epa.gov/region2/ej/.

In furtherance of the federal policy on EJ and in response to concerns raised by parties interested in EJ, the Department has established a program to address EJ concerns and ensure public participation in the State's environmental decision-making process. On March 19, 2003, the Department issued Commissioner Policy 29, Environmental Justice and Permitting (CP-29), which among other things, provides guidance for incorporating EJ concerns into the Department's environmental permit review process (Uniform Procedures, 6 NYCRR 621) and the State Environmental Quality Review Act (6 NYCRR 617). CP-29 applies to new applications for major projects and major modifications for the permits authorized by the ECL, including Title 11 of Article 27, siting of industrial hazardous waste facilities. This policy requires that EJ issues be considered in the permitting of such industrial hazardous waste facilities. CP-29 can be found at http://www.dec.ny.gov/public/36929.html.

Upon receipt of a permit application, Department staff conducts a preliminary screen using a geographic information system and census data to determine whether the proposed action is in or near a potential EJ area and likely to have an effect on the community. A potential EJ area means a community with a significant minority or low-income population that may bear a disproportionate share of the negative environmental consequences of a proposed activity. If the proposed action is in or near and likely to effect such an area(s), CP-29 requires that Department staff notify the applicant of the need to comply with the requirements of CP-29. The first substantive requirement of CP-29 is the applicant's submission of an enhanced public participation plan for Department approval as part of the complete application. The enhanced public participation plan requires the applicant to engage in meaningful public outreach to all stakeholders in the potential EJ area(s), including the distribution of written material, discussion of the proposed action with stakeholders at a public information meeting, and the establishment of document repositories in or near the potential EJ area(s). The enhanced public participation plan also requires that the applicant provide the Department with a summary report of its outreach activities and certification of completion of the plan.

Additionally, CP-29 requires the completion of a full environmental assessment form and requires the Department to coordinate the agency review of the action if it is determined to be a Type 1 or Unlisted Action. Where the Department determines the proposed action may include the potential for at least one significant adverse environmental impact, several additional procedures must be followed, including an opportunity for meaningful public participation during the environmental impact statement scoping phase, an evaluation of disproportionate impacts on the potential EJ area(s), and a public hearing and a minimum 60 day public comment period on the draft environmental impact statement.

While CP-29 is mostly a permitting policy, it also states, "It is the general policy of the Department to promote environmental justice and incorporate measures for achieving environmental justice into its programs, policies, regulations, legislative proposals and activities." To that end, the Department supports efforts to: ensure that programs designed to improve the environmental condition of communities are equitably distributed regardless of race, color, national origin or income; equitably distribute industrial hazardous waste management facilities; promote hazardous waste reduction technology; and promote new, efficient and effective hazardous waste disposal methods. Consistent with regulation governing the siting of industrial hazardous waste facilities, the Department recommends that the Siting Board consider issues of EJ when making its determination to grant, conditionally or otherwise, or to deny a certificate for construction or operation of a new or expanded industrial hazardous waste facility.

Equitable Geographic Distribution of Facilities

The issue of equitable geographic distribution of facilities is raised in the Siting Law ECL 27-1102.2(f) in the following context:

2. The plan shall include but not be limited to: (f) a determination of the number, size, type and location by area of the State of new or expanded industrial hazardous waste treatment, storage and disposal facilities which will be needed for the proper long-term management of hazardous waste consistent with the assurances required pursuant to subdivision one of this section and an equitable geographic distribution of facilities.

Thus, when the Plan states what new or expanded industrial hazardous waste TSD facilities are needed, the number, size, type and location of these new or expanded facilities must be stated. The determination that new or expanded industrial hazardous waste TSD facilities are needed must be consistent with the requirements of subdivision one and consistent with an equitable geographic distribution of facilities. The concept of equitable distribution is not defined or otherwise referenced in the statute.

As stated on page 6-9 of this Chapter, the Department has determined that, based on the national availability of facilities, there are sufficient TSD facilities for management of hazardous waste generated in New York, and will be for the forseeable future. As no new or expanded industrial hazardous waste TSD facilities are needed, there is no required evaluation of the impact of new or expanded facilities on the geographic distribution of facilities to evaluate at this time.

Still, because the Legislature required equitable distribution, to the extent that the Department has an opportunity to direct the placement of facilities, equitable distribution must be assessed. Thus, if a Siting Board finds that, regardless of the lack of need for new capacity, a new or expanded facility may be sited, the following evaluation regarding distribution will provide a context for their assessment.

DEC regions have been selected for geographic analysis due to the ability to evaluate available data using these boundaries, and the fact that hazardous waste is generated throughout the State.

A number of approaches to this evaluation are presented, depending on the definition of "industrial TSD facilities".

If "industrial TSD facilities" is defined as facilities that received regulated hazardous waste from off-site for management or treated regulated hazardous waste at the site of generation, then the distribution of these facilities by Department Region in 2008 is as shown in Figure 6-3.

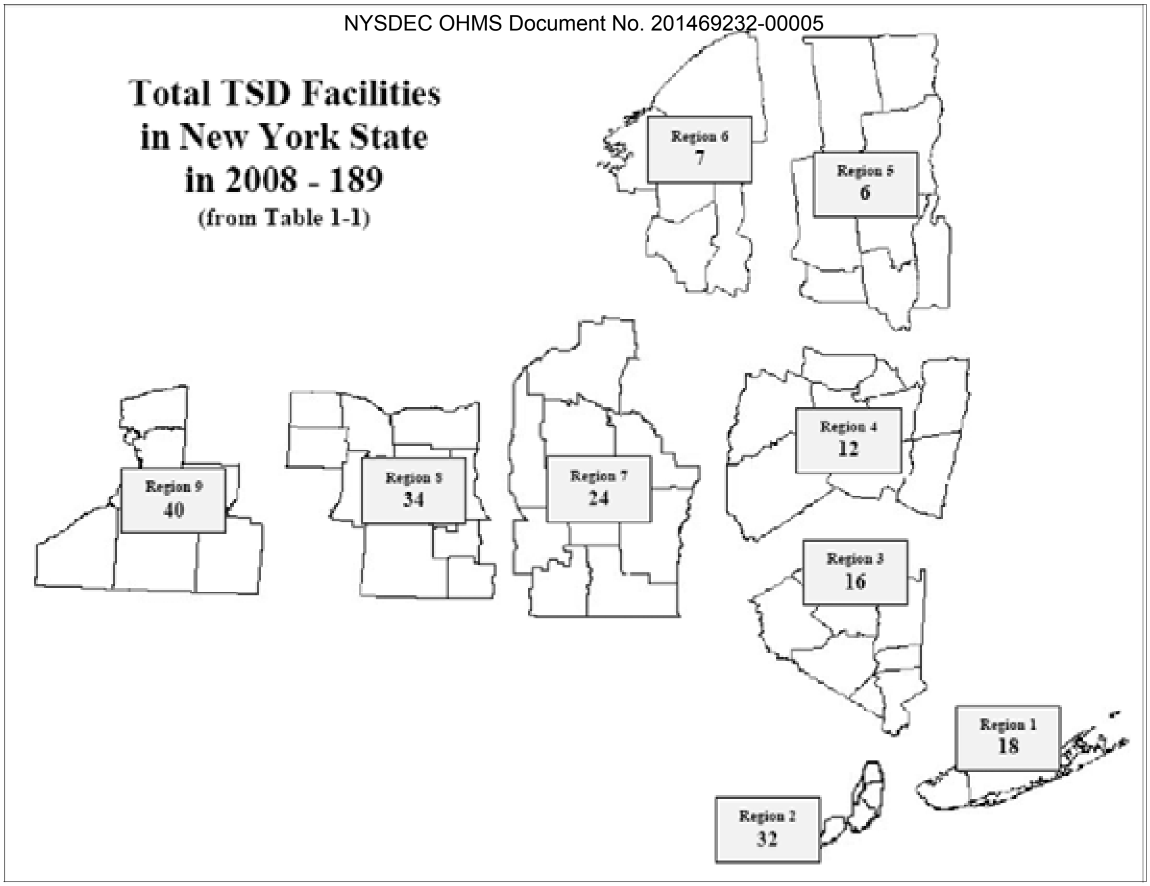

Figure 6-3

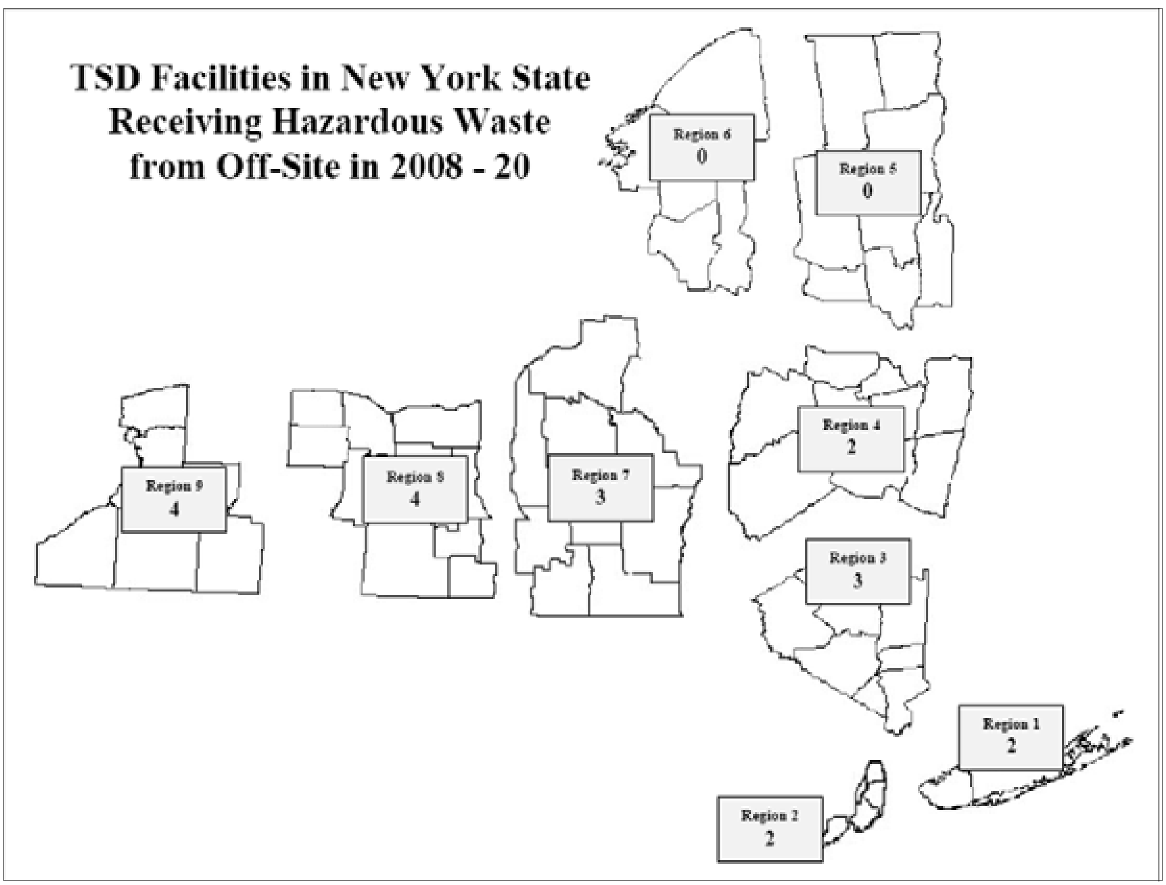

Figure 6-4

If "industrial TSD facilities" is defined as facilities that receive regulated hazardous waste from off-site, then the distribution of these facilities by Department Region in 2008 is as shown in Figure 6-4.

If "industrial TSD facilities" is defined as commercial facilities that receive regulated hazardous waste from off-site, then the distribution of these facilities by Department Region in 2008 is as shown in Figure 6-5.

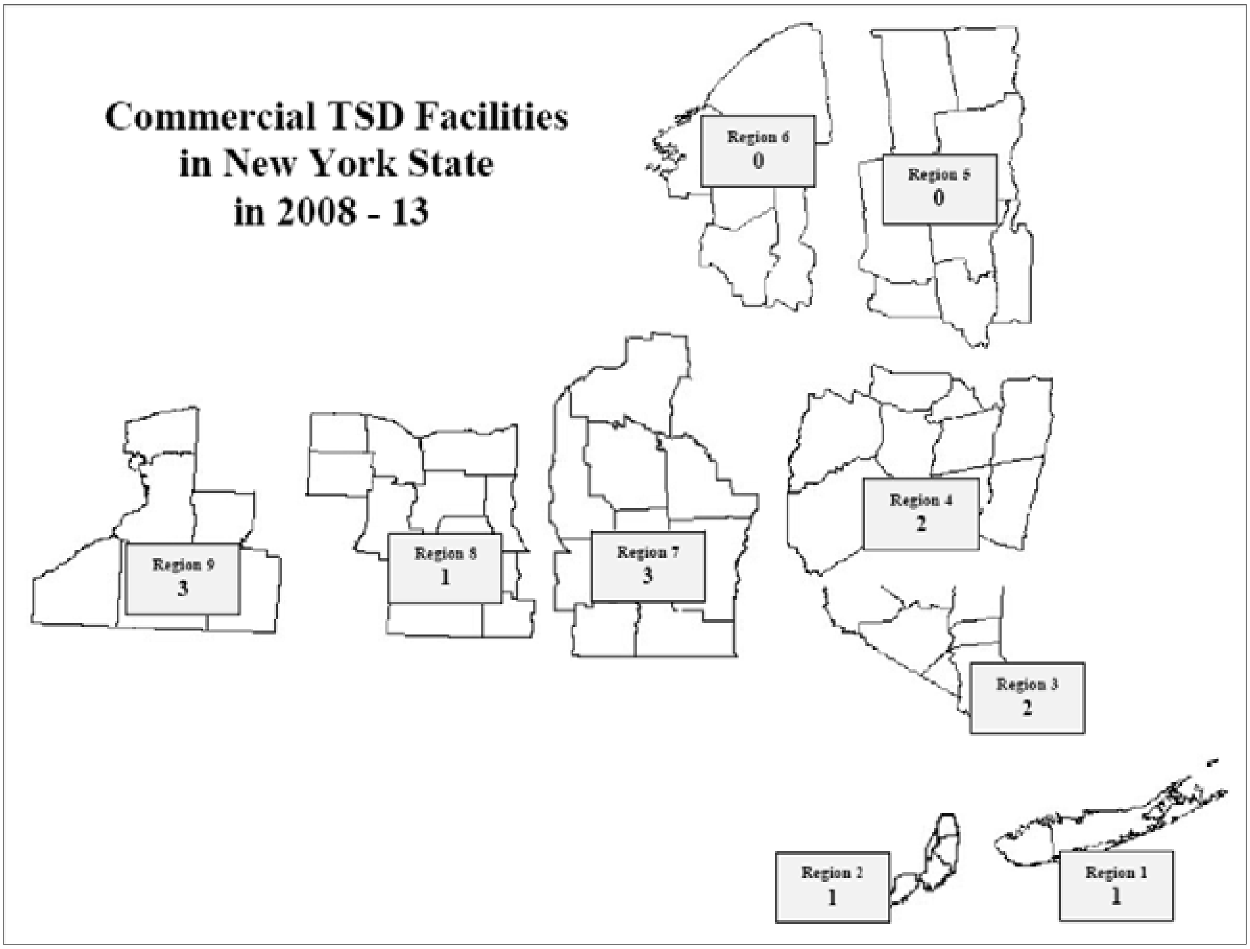

Figure 6-5

Overall, hazardous waste TSD facilities and hazardous waste generators are found across the State, with concentrations near the greater industrialized areas. Fewer facilities are found in more rural or wilderness areas. The review of the siting of any new hazardous waste management facility subject to ECL 27-1105 should consider the distribution of hazardous waste management facilities operating within the State at that time.

Table 6-3
Total Hazardous Waste Generated or Managed in 2008 (tons)

Region	Managed On-Site	Shipped Off-Site	Received from Off-Site	TOTAL
Region 1	651,040	4,646	1,968	657,654
Region 2	77,252	44,707	806	122,765
Region 3	1,070,386	15,688	107,749	1,193,823
Region 4	369,978	26,747	24,210	420,935
Region 5	12,694,299	110,217	0	12,804,516
Region 6	350,332	8,412	0	358,744
Region 7	110,121	38,834	4,793	153,748
Region 8	27,755,606	17,521	174	27,773,301
Region 9	2,524,749	31,799	204,245	2,760,793
TOTAL	45,603,763	298,571	343,945	46,246,279

Table 6-3 presents, for each DEC Region in the State, the total quantity of hazardous waste reported in hazardous waste annual reports that was generated or managed in 2008. Every area of the State is potentially impacted by the presence of hazardous waste.

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CHAPTER 7

Hazardous Waste Transportation Issues: *An analysis of transportation routes and transportation risk and costs from industrial hazardous waste generators to existing or potentially suitable sites for industrial hazardous waste treatment, storage and disposal facilities.*

Transportation Routes

New York's existing road system is rated for truck traffic along certain routes. Information from the New York State Department of Transportation (NYSDOT) web site, www.nysdot.gov, and the US Department of Transportation's (USDOT) web site, at www.dot.gov, provide a range of road usage statistics, including overall traffic volume by county, local traffic volumes by county, traffic data reports, average highway accident costs/severity distribution, local highway traffic count information, highway traffic count information by county, and highway traffic count information by route. Normal maintenance is scheduled based on a priority system and implemented to meet strict regulatory and safety requirements.

NYSDOT has indicated that the traffic generated by transport of hazardous waste clearly fits within the current road design capacities and volumes. Truck transport of hazardous wastes in New York occurs on maintained, recognized truck routes or on routes which allow truck transport, with sufficient capacity and good interstate connections. Based on annual average daily traffic volumes, roads that are used to transport hazardous waste are not operating at capacity, and therefore are generally not expected to experience congestion delays.

In addition, there is existing capacity for the use of rail, though the majority of hazardous waste is not transported by rail in New York State. Rail transport is sometimes used for large volume remedial waste removals where rail access is available. Even so, issues regarding spills, contamination and safety of hazardous waste transport via rail is confined to dedicated routes. Rail safety and spill response contingency plans exist to deal with potential spills in transit.

Approximately 64,000 manifested shipments of hazardous waste either originated from the State or were received by a facility located in the State in 2005, and approximately 64,500 similar manifested shipments occurred in 2007. In 2005, manifested hazardous waste shipments originated from the sites of 1,524 large quantity generators (including manholes), approximately 6,600 small quantity generators, and, in 2007, these shipments were manifested from the sites of 1,316 large quantity generators, and approximately 5,200 small quantity generators. In 2008, 61,535 manifested shipments came from 1,349 large quantity generators and 5,101 small quantity generators. Thus, approximately 6,000 to 8,000 locations, from all areas of the State, annually originate shipments of hazardous waste which is transported from the generating facilities to in-state and out-of-state hazardous waste treatment, storage or disposal facilities (TSD) facilities, using primarily public roadways, or railroad routes. Shipments by rail tended to involve large quantities.

New York's 22 commercial and captive TSD facilities received waste from both New York and out-of-state generators. In 2008, TSD facilities, located in seven of the Department's nine regions, received these shipments via public roadways, except for one facility in Region 3 which also has direct rail access.

Facilities, both generators and TSD facilities, are located in greater concentrations in the more industrialized areas. Thus, long distance hazardous waste shipments by truck are mostly on the major interstates connecting these industrialized areas, which also provide access into and out of the State. These interstates are the routes with the highest concentration of shipments of hazardous waste in the State. These routes are adequately designed, are well maintained for transporting hazardous waste and are directly connected to other large interstate routes. Therefore, in general, there is sufficient vehicular capacity and the expected level of vehicular activity is not expected to generate a significant impact on roadways, no matter which route is used to transport a hazardous waste to a TSD facility.

For shipments by truck, these routes include Interstates 90, 87, 88, and 81, and other state and local roads designated for truck use. Hazardous waste transported by large trucks in New York State utilize roads that NYSDOT has designated as suitable for truck traffic.

On May 12, 2008, Governor Paterson and Senator Schumer announced a new plan to keep large trucks off local roads, initially focusing on the central New York area. In this announcement, it was noted that the national interstate system was originally designed to be the best and safest route for transporting freight by truck. The system is built to higher standards than local roads, and is intended for non-local travel. NYSDOT has instituted a statewide policy regarding large truck freight movement, and is working on associated regulations, using the following principles:

- Large trucks should utilize the national Network (primarily the interstate highway system) for all travel except to access terminals or to reach food, fuel, rest or repair locations.

- When traveling off the National Network, large trucks should utilize the most direct route when accessing terminals and services.

Out-of-state generators can ship waste through New York to out-of-state facilities. For example, a New Jersey generator shipping waste to Canada, or a Massachusetts generator shipping waste to Michigan, would transport waste through New York to get to its destination. For shipments by truck, these shipments would be anticipated to travel along the same routes, using the larger highways in the State, such as Interstate 90 traveling the east-west corridor, or Interstate 87 traveling the north-south corridor. Similar corridors exist by rail. Given this pass through, there is no practical way to determine the number of shipments that travel through New York by any mode of transportation.

Hazardous waste transportation associated with any new facility, and transportation impacts on the local community, must be evaluated during the permitting and Siting Board processes for a facility, pursuant to: 6 NYCRR 361; ECL 27-1103.2 (c) and (d); Part 617 and Part 373 and others; taking into account site-specific conditions as part of the individual siting and permitting process of the facility.

In addition, transportation of any kind can impact greenhouse gas emissions. Certain proactive measures can be implemented by handlers of hazardous waste to limit the impacts of hazardous waste management on global warming. Information on this topic can be found on the USEPA web site, www.epa.gov, as well as at the NYSDEC web site at www.dec.ny.gov, under discussions on climate change and waste management issues.

Decreasing vehicle miles traveled will have a positive impact on the environment by decreasing greenhouse gas emissions. Reducing vehicle miles traveled should be a goal for generators in choosing a TSD facility location for their hazardous waste. In the same vein, consideration of vehicle miles traveled versus green house gas emissions should be part of the evaluation process for locating a potential TSD facility.

Transporters of hazardous waste can consider expanded use of bio-fuel to decrease their carbon footprint. Rail and water transportation use significantly less energy than truck transport as they are more fuel efficient. As such, these modes of transportation should be considered where practical. Increased use of transfer stations and temporary storage facilities could decrease the total number of truck shipments by increasing the number of full load shipments.

Transportation Cost Analysis

Pricing structures for hazardous waste transport by truck vary from company to company across the State, with some charging by the mile, some by the ton, and some by the hour. The physical form of waste (solid, liquid, drums, bulk) also plays a role as to the type of vehicle (small truck, large truck or tanker) and the price of gas. In 2007, several members of the transportation industry in the State were contacted to obtain pricing estimates. Prices per mile per shipment ranged from $1.50 with a significant fuel surcharge, to $4.00 per mile, with a fuel surcharge. Prices per hour varied from $90 per hour to $150 per hour. For bulk waste, prices per ton were quoted as $40 to $45, some with fuel surcharges. For those that charged fuel surcharges, the surcharge ranged from 28% - 32%. In some cases, the price per mile drops when transport is over a longer distance, for instance, 1,000 miles. Tanker trucks typically cost more than tractor trailers. Depending on the transporter, additional charges may be added for loading and unloading, or transporting out of the country. Several generators have stated that recent increases in fuel prices have dramatically impacted their transportation costs.

In informal communications with several New York generators and comments received on the draft plan, it was stated that facilities may choose not to have their waste travel over excessive distances, preferring to keep within a 200 mile radius, and in some instances up to a 500 mile radius, from the facility. Concerns included convenience of proximity, increase transportation cost, and potential increased liability that an additional disposal location would represent.

Recent attempts (May and June 2009) to collect detailed hazardous waste transportation costs have revealed another approach to pricing. After contacting four major transportation companies in the truck and rail industries it was learned that these companies cost entire projects, and do not readily offer specific dollar/ton-mile cost breakdowns.

While it is reasonable to conclude that rail transportation efficiencies offer lower dollar/ton-mile transportation costs once on the rail line than truck transportation costs once on the road, that does not include the cost of various mobilization tasks, transportation between original site and beginning rail yard, transportation from the ending rail yard to the final waste disposal site, waste container filling and emptying coordination, etc. Other factors that might affect the choice of transportation mode include project time lines, availability of services, surcharges, waste disposal costs and ultimate destination. These are project specific needs not amenable to generalized cost analysis.

An additional source to estimate transportation cost is USEPA's CostPro, Closure and Post-Closure Care, Cost Estimating Software, Version 6.0, released in May 2009. This application acquires transportation cost data derived from R.S. Means Company, Inc., Means Building Construction Cost Data, 2009. Within this program, the data shows a cost of transporting hazardous wastes within New York State of $6.06 per mile per truck. One truckload can generally transport 20 cubic yards, 6250 gallons or 80 drums of waste.

Transportation Risk Analysis

Many decisions that regulatory agencies face today require that risks be evaluated in the context of impacts on public health and environment by a specific event. These analyses may foster certain enhanced regulatory actions designed to minimize the potential impacts of such events. These may include the implementation of new rules, data gathering, guidelines for interpreting data, and criteria for applying a specific set of actions.

When analyzing transportation risk for a site specific analysis, specifics of transportation route and site characteristics, such as proximity to ground water, surface water, wetlands, and structures, along with the ability of the existing community and facility infrastructure and equipment to accommodate potential hazards, can be incorporated into the analysis.

From the Statewide perspective of the Hazardous Waste Facility Siting Plan (Plan), in the case of hazardous waste transport, site specific criteria are not applicable. The general characteristics of hazardous waste transport, including the design features of roads and rail, and the design and operation of transport vehicles used in rail or trucking, along with emergency response protocols in place throughout the state, work together to minimize potential risks no matter which route combination or mode of transportation is used.

NYSDOT traffic data, available on it's web site, shows that routes of transport across the State are not operating at capacity, and, therefore, there is sufficient capacity to transport hazardous waste. If an accidental release does occur during transport, existing local and state hazardous materials and emergency response plans will be implemented and trained personnel will be deployed. Implementation of such plans along transportation routes are key to dealing with any potential impacts to human health and the environment. Data collected by the USDOT on hazardous materials incidents in New York State supports a conclusion that there are no risks associated with hazardous waste transport that would indicate a need for special statewide planning consideration.

Hazardous materials, as defined by USDOT, include raw materials, products and wastes that meet certain defined hazardous characteristics, including all regulated hazardous wastes as specifically defined in New York State in 6 NYCRR Part 371, and federally in 40 CFR Part 261, including PCB wastes. Incidents related to the shipment of hazardous materials are reported to USDOT.

USDOT defines hazardous material and hazardous waste as follows in 49 CFR 171.8:

> "*Hazardous material* means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials table (see 49 CFR 172.101), and materials that meet the defining criteria for hazardous classes and divisions in [49 CFR part 173]."

> "*Hazardous waste*, for the purposes of this chapter, means any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR part 262." (Note: This definition includes PCB waste.)

6 NYCRR Part 370, of the hazardous waste management regulations, defines spill as follows:

> "*Spill* means the accidental leaking, pumping, emitting, emptying or dumping of hazardous wastes or materials which, when spilled, become hazardous wastes, into or on any land or water."

Each person in physical possession of a hazardous material, at the time that any of the incidents listed in 49 CFR 171.16 occurs during an activity regulated by USDOT, must submit a Hazardous Materials Incident Report to USDOT. Regulated activities include loading, unloading, in transit storage, and in transit. These incidents include the discharge of quantities of hazardous material over specified limits, any quantity of hazardous waste, certain types of damage to large cargo tanks (even if there is no release of hazardous materials), or the discovery of an undeclared hazardous material. It does not include leakage of fuel from a vehicle resulting from an accident. All modes of transportation are covered, including air, highway, rail and water.

Table 7-1 presents the total number of hazardous materials incidents in New York State which were reported over a five-year time period. In New York State from January 1, 2004 through December 31, 2008 there were a total of 2,546 hazardous materials incidents reported, of which 58 involved hazardous waste in transit (2.3%).

Table 7-1
Hazardous Materials Incidents vs. Hazardous Waste Incidents In Transit - New York State
(all modes of transportation)

	2004	2005	2006	2007	2008
Hazardous Materials incidents	461	458	557	538	532
Hazardous Waste incidents in transit	0	15	15	11	17

(Statistics based on U.S. Department of Transportation, Hazardous Materials Safety, Hazardous Materials Information System as of 9/2009)

Table 7-2 shows the number of hazardous waste incidents in transit in New York compared to the number of manifested hazardous waste shipments in the State's tracking system over a five year time span. The vast majority of these reported incidences were leaking transportation containers. These dump trucks and dump trailers typically contained soil or sludge material that was either wet when removed from the original location or became wet from exposure to rain during transportation. Less frequently, individual containers, such as drums, are discovered to be leaking. Over this time, the number of manifested hazardous waste shipments per year have been dropping from 66,762 in 2004 to 61,535 in 2008. Using the 2008 numbers, 0.028% of the total tracked shipments of hazardous waste were involved in a hazardous waste incident during active transport.

Table 7-2
Hazardous Waste Incidents in New York State
2004 – 2008

	2004	2005	2006	2007	2008
Incidents in Transit	0	15	15	11	17
Manifested Shipments	66,762	64,003	63,587	64,447	61,535

(Statistics based on U.S. Department of Transportation, Hazardous Materials Safety, Hazardous Materials Information System as of 9/2009 and NYSDEC hazardous waste manifest data)

Analysis

There are innumerable routes in New York State that are used to transport hazardous wastes into and out of the State. Hazardous waste transported by large trucks in New York State utilizes roads that NYSDOT has designated as suitable for truck traffic, in accordance with federal and State requirements.

The major interstates connecting industrialized areas and providing access into and out of the State, Interstates 90, 87, 88, and 81, would be the roads with the highest concentration of use for transporting all hazardous material, including hazardous waste in the State.

One receiving facility in the southeastern portion of the State has direct rail access. This mode of transportation is also sometimes used by generators for large quantity bulk shipments, such as contaminated soils from remediation projects, where there is relatively easy rail access.

With the cost of transportation of hazardous waste by truck increasing, cost has become a more important factor, though not the only factor, in selecting a receiving facility for hazardous waste.

The risk, as demonstrated by the information compiled by USDOT over a four year period, of a release of hazardous waste to the environment during transportation in New York State is low. There is no reason to believe that the risk would change in the future.

Transportation routes and the related impacts on the local community must be evaluated during the Siting Board process for a proposal subject to a siting board by taking into account site-specific conditions as part of the individual siting and permitting process.

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CHAPTER 8

Recommendations for Statewide/Regional Coordination of Hazardous Waste Management and Planning

a) Recommendations on regional and Statewide coordination of methods and procedures to encourage cooperative treatment, storage, disposal and transportation of industrial hazardous waste and other such hazardous waste management methods.

b) Recommendations on procedures for periodically updating the Statewide Hazardous Waste Facility Siting Plan and for future coordination of hazardous waste management and planning on a regional basis.

c) Per ECL 27-1102.7, establish a schedule for siting any new or expanded industrial hazardous waste treatment, storage or disposal facilities identified as necessary in such Plan.

a) Coordination Methods and Encouraging Cooperative Hazardous Waste Management

As with other aspects of hazardous waste planning and management, recommendations on regional and statewide coordination methods and procedures to encourage cooperative hazardous waste management methods must be made from a national perspective, within the context of Supreme Court decisions on solid waste barriers. Since the enactment of the legislation for development of this Plan, the hazardous waste management industry has changed significantly. As discussed previously, federal court decisions regarding the Commerce Clause of the U.S. Constitution prevent states from erecting barriers to the interstate shipment of hazardous wastes. All participants in the hazardous waste industry, from generators, to transporters, to TSD facilities, look at both in-state and out-of-state facilities in terms of technical capability, capacity, availability and costs when making hazardous waste management decisions.

Recommendations

- Cooperative hazardous waste management requires sound information about current hazardous waste generation, treatment, storage and disposal. The United States Environmental Protection Agency (USEPA) will continue to collect national data through the hazardous waste biennial reports submitted by the states. New York State will continue to annually collect reports from its facilities on hazardous waste generation and management and provide quality data to USEPA biennially for inclusion in the national data base. In addition, the State hazardous waste manifest data provides ongoing information on the transport of hazardous waste. USEPA is working on developing a national electronic manifesting system which would provide another source of national hazardous waste transport data in the future. The commercial hazardous waste management industry, as well as state and federal agencies, use publicly available national and state data as the basis for analyses of hazardous waste generation trends, including what types of hazardous waste are generated and where those wastes are generated and managed. The USEPA data base provides a nationwide analysis, and the State's more frequent data reporting further enhances the analysis with regard to New York's generation and management. These databases provide the key information necessary in developing and encouraging cooperative treatment, temporary storage, disposal and transportation of industrial hazardous waste.

- Regional and statewide coordination must be viewed in the context of a nationwide market. Many hazardous waste generators network both within and beyond state boundaries through their trade organizations and business associations and use the state and federal data to better manage and maximize reduction, reuse and recycling opportunities for the hazardous wastes they generate. The Department, through its pollution prevention program, requires, encourages and enhances these efforts in New York State, through, for example, its outreach efforts to specific industrial and commercial sectors and use of conferences for technology transfer. This is discussed in greater detail in Chapter 2. The Department will continue these networking and outreach activities.

- The Department will reach out to the business community through the New York State Business Council and other State and national organizations to keep current and gain input on hazardous waste generation and management needs.

b) Procedures for periodically updating the Statewide Hazardous Waste Facility Siting Plan and for future coordination of hazardous waste management and planning

Recommendations for future coordination of hazardous waste management and planning

- Federal and state hazardous waste reporting databases will continue to assist hazardous waste management and planning by federal, state and local entities as well as by the hazardous waste management industry. State and federal hazardous waste regulators will continue to collect management data to provide current information for future coordination of hazardous waste management and planning activities.

- The State will continue to look to USEPA for assessment of the status of national hazardous waste management capacity and long term needs. With the federal Commerce Clause requiring the non-discriminatory ability to transport hazardous waste from state-to-state, updates on hazardous waste management capacity and needs must be nationwide in scope. USEPA's biennial assessment of national hazardous waste management will provide the opportunity for this periodic updating of national capacity. No further analysis of regional coordination of hazardous waste management is planned because the State's generation rates are expected to continue to decrease and alone are not anticipated to be sufficient to support an economically viable hazardous waste TSD facility.

- It is anticipated that industries will continue working together to better manage and maximize reduction, reuse and recycling opportunities for the hazardous wastes they generate. The Department will encourage and enhance these efforts through continued outreach by its pollution prevention programs across New York State.

Recommendations for the future updating of the Siting Plan

As part of the annual Siting Plan review, the Department will evaluate business changes in the state impacting hazardous waste management using all available information sources, including analysis of hazardous waste annual reports and manifest data. The Siting Plan will be updated as necessary if:

- a USEPA assessment identifies a current or projected shortfall in national hazardous waste management capacity, including the impact of the addition of newly regulated hazardous waste streams;

- changes in interstate or international transport law allow limitations on the transportation of hazardous waste. For example, Congress might choose to enact legislation giving states the authority to ban or limit the import of hazardous waste. Such legislation has been proposed for solid waste and was enacted many years ago for low level radioactive wastes;

- in the Department's annual review, it concludes that there is a trend showing a significant increase in State hazardous waste generation over time or changes in required management methods that would increase the need for additional management capacity; or

- in the Department's annual review, it identifies a significant decrease in commercial hazardous waste treatment or disposal capacity or required management methods without capacity available elsewhere in the nation.

c) Per ECL 27-1102.7, establish a schedule for siting any new or expanded industrial hazardous waste treatment, storage or disposal facilities identified as necessary in such plan.

Because there is no need for increased capacity for hazardous waste management, no schedule for siting any new or expanded hazardous waste TSD facilities is needed. However, neither the Statute nor the Siting Plan precludes the consideration of applications at any time for any new or expanded facilities in any part of the State.

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CHAPTER 9

Guidance for State Agencies and Authorities and Facility Siting Boards: *establish a framework to guide state agencies and authorities and the facility siting board established pursuant to section 27-1105 of the ECL in the discharge of their responsibilities and to assure the availability of industrial hazardous waste treatment, storage and disposal facilities which meet certain criteria.*

Notwithstanding the State's strong waste reduction and pollution prevention policies and programs discussed in Chapter 2, hazardous waste requiring proper management will continue to be generated within the State. The purpose of the Hazardous Waste Facility Siting Plan (Plan) is to assess capacity needs and assist in the proper siting of hazardous waste facilities. The Siting Law is intended to complement the existing regulatory approach for processing permit applications for facilities within the State.

ECL §1-0101 sets forth the general environmental policy of the state, which, in essence, is to promote environmental quality in the larger context of the public good. Both the Plan and the actions of the Siting Board must necessarily follow this dictate and otherwise be consistent with the laws of the state, including the Department's duly promulgated regulations.

In accordance with ECL 27-1102, the Plan establishes:

> *…a framework to guide state agencies and authorities and the facility siting board … in the discharge of their responsibilities and to assure the availability of industrial hazardous waste treatment, storage and disposal facilities which :*
>
> *a. have adequate capacity for the destruction, treatment or secure disposition of all hazardous wastes that are reasonably expected to be generated within the state in the next twenty years;*
>
> *b. are within the state or outside the state in accordance with an interstate agreement or regional agreement or authority;*
>
> *c. comply with all federal and state requirements governing such facilities; and*
>
> *d. comply with the preferred hazardous waste management practices hierarchy established pursuant to section 27-0105 of this article.*

Much of the detail provided in the Plan, as specified by statute, is not direct guidance, but rather, data for the Board to consider, and includes:

- the identification, location and life expectancy of all industrial hazardous waste treatment, storage and disposal facilities within the State (Chapter 1 and Appendix C);
- a discussion on existing programs for various pollution prevention and hazardous waste reduction, recycling and reuse initiatives (Chapter 2);
- an evaluation of historic hazardous waste generation data to provide a basis for long-range projections on generation (Chapter 3);

- the status of phasing out land disposal of hazardous waste other than treated residuals posing no significant threat to public health or to the environment (Chapter 4);

- an evaluation of the possible need for specific hazardous waste management facilities in particular regions of the state (Chapter 5);

- the need for hazardous waste management capacity, the distribution of hazardous waste management facilities across the state and across the country, and information on the environmental justice program (Chapter 6); and

- hazardous waste transportation data (Chapter 7).

Guidance for Facility Siting Boards

The law requires that certain new hazardous waste management facilities or facility expansions must receive a certificate of environmental safety and public necessity from a Facility Siting Board. Certification by the Facility Siting Board must be based on a duly compiled factual record developed during an adjudicatory hearing process and other information gathering. The final decision of a Siting Board determining whether a certificate of environmental safety and public necessity is granted, granted with conditions, or denied must be a formal, reasoned judgment based on an evaluation of the entire record, of which the Plan is only one component.

The Board has the authority to impose conditions as part of granting a certificate of environmental safety and public necessity based on the record, as it deems appropriate. Examples of conditions a Board might consider include requirements for:

- addressing the statutory mandate of moving up the hazardous waste management hierarchy per ECL 27-0105;
- assuring availability of capacity for New York generated waste (while not impeding interstate waste flow);
- enhanced community involvement and public participation, consistent with ECL 27-1111, 27-1113 and 27-1115;
- environmental benefit projects, for example, establishment of a permanent household hazardous waste facility for local residents;
- alternative transportation routes to mitigate potential impacts on the surrounding community; and
- connecting quantity of hazardous waste managed with the level of community benefit.

With regard to the use of the Plan, as stated in ECL 27-1105.3(f), once the Plan is adopted, a facility Siting Board may deny an application, if:

- “it is not consistent with such plan, or
- the need for such facility is not identified in such plan and the board finds that the facility is not otherwise necessary or in the public interest.”

Thus, a Siting Board must evaluate an application in terms of: (a) consistency with the Plan; (b) need for the facility based on capacity; (c) need based on other factors (whether the facility is “otherwise necessary”); and (d) public interest. These factors are addressed below.

The principal finding of the Plan is that, based on present national capacity, there is no need for additional hazardous waste management facilities or expanded hazardous waste management capacity in New York.

The Plan identifies hazardous waste generation in New York which requires management by all facility types: recycling, incineration, treatment, landfill, and storage. Based on the capacity data and analysis, the Plan finds sufficient capacity within and beyond New York's borders for the management of the hazardous waste presently generated within the state. The projection of the amount of hazardous waste that will be generated in the longer term is complicated by the variable nature of remedial waste generation. Based on the substantial number of past remedial cleanups and anticipated future projects within New York, however, it appears that national capacity exists for the management of this and other hazardous waste for at least 20 years (see Chapter 3).

This projection is based on USEPA’s assessment of the national availability of facilities. Periodically, USEPA will revisit the issue of national capacity and need through analysis of available data, and regulators at both State and federal levels will have sufficient time to address any potential capacity shortfalls. USEPA’s most recent national RCRA-C hazardous waste management capacity assessment of July 17, 2009 (Appendix E) states that there remains adequate national capacity through 2034. As part of the annual Siting Plan review required by the law, the Department will determine if an update to the Siting Plan is necessary, as described in Chapter 8.

If changes occur that impact on the available capacity to manage hazardous waste generated in New York and the Plan has not yet been revised to address new information, these changes should be considered by the Board in evaluating State vulnerability in meeting capacity needs.

Is the proposal consistent with the Plan, otherwise necessary, or in the public interest?

While the Plan does not identify a current need for additional hazardous waste management capacity, the statute requires the Facility Siting Board to also evaluate whether a proposed facility that is consistent with the Plan is “otherwise necessary” or “in the pubic interest.” Information from the record, including: the adjudicatory hearing record, the hearing officer's report, briefs from the parties, and other information that the Siting Board has formally collected, must be taken into consideration. In addition, DEC policy and guidance, consistent with applicable and relevant rules and regulations, must be considered by the Board in making its determination. In general, as with any decision of this nature, no single issue should be the sole basis of a determination of whether a certificate of environmental safety and public necessity is granted or denied, but, rather, a determination should result from a comprehensive review and analysis, and a full evaluation and balancing of all of the factors properly before the Siting Board.

Any decision regarding hazardous waste facility siting must not result in the state's delegated hazardous waste management program becoming inconsistent with federal requirements pursuant to 40 CFR 271.4(b), including the requirement that "[a]ny aspect of ...the State program which has no basis in human health or environmental protection and which acts as a prohibition on the treatment, storage or disposal of hazardous waste in the State may be deemed inconsistent." New York's requirements for the siting of any new or expanded hazardous waste facilities in the state must accordingly be read in the context of this federal requirement.

I. Is a proposed facility consistent with the Plan?

In determining if a proposed facility is consistent with the Plan, the following guidance is offered:

- The law requires the Plan to determine what new or expanded facilities are required and where these should be located, consistent with an equitable geographic distribution of facilities. (See Chapter 6.) The law does not differentiate between types of facilities in this regard. The Plan concludes that, at present, there is no need for new or expanded facilities and that, when considering all types of facilities currently operating, there is an equitable geographic distribution of facilities across the state. The Plan cannot predetermine future proposed locations and their potential impact on equitable distribution.

- The Siting Board should consider the local impacts of any particular type of facility. The Facility Siting Board may use as guidance the criteria employed in the Plan to evaluate equitable geographic distribution, but is not limited by these criteria. For example, the Board may choose to consider the history of facility operations in an area and the presence of non-operating facilities, such as closed hazardous waste landfills.

- Facilities which will promote moving up the hierarchy for management of hazardous waste are consistent with the Plan. As a result of good environmental and business practices, Department pollution prevention and hazardous waste reduction efforts, and economics, it is anticipated that the private sector will continue to develop and implement reuse, reduction and recycling options beyond existing practices. The Department, in fulfilling its mission, and specifically in implementing ECL 27-0105, which states in part that the preferred hierarchy is to be used to guide all hazardous waste policies and decisions, will continue to encourage reduction, reuse and recycling.

II. Is a proposed facility otherwise necessary or in the public interest?

The Facility Siting Board may deny an application to construct or operate a hazardous waste management facility subject to Board certification, as per ECL section 27-1105, if the Plan has not identified a need and the "board finds that the facility is not otherwise necessary or in the public interest." With the finding in the Plan that there is no need for new hazardous waste management capacity in New York, the following guidance is offered in regard to the question of whether a facility is not otherwise necessary or in the public interest:

- It is the applicant's burden in the first instance to make a showing on the record, through the presentation of documentation and analysis, as to why a proposed facility is "otherwise necessary" or "in the public interest," notwithstanding that there is no actual need for new capacity. Other parties to a siting proceeding may also present documentation and analysis with respect to this issue. As the law does not provide a definition for either criteria, the following discussion is offered for consideration, but is not intended to be definitive or limiting:

- The assumption in the Statute that commercial hazardous waste TSD facilities service small regional areas has not been proven, as discussed in Chapter 5. Accordingly, the location of hazardous waste generation across the state should not significantly impact on the location of a proposed commercial facility.

- A facility being considered under the "otherwise necessary" and "public interest" standards must still be otherwise consistent with the Plan and all applicable Department and State policies. Thus, among other things, the Siting Board should evaluate the location of a proposed facility, including past and present activities at the property and in the surrounding area, the facility's size and impact on the surrounding area including transportation issues, the facility's compliance history, and environmental justice considerations. Information on the distribution of existing facilities is provided in Chapter 6 to assist the Board in this analysis.

- A facility may be "otherwise necessary" if it is proposed to manage new types of wastes generated in New York using processes not envisioned at the present time.

- The specific type of services offered by a facility may need to be evaluated in greater detail with respect to ECL 27-0105, regarding the need for recycling, incineration, treatment, or landfilling waste. In each area, there is specialization and variations in facility permits and authorizations that should be considered in evaluating if a facility is "otherwise necessary".

• The following additional criteria may be employed in determining the question of whether a facility is "in the public interest:"

- whether siting the proposing facility will result in measurable and significant environmental and public health benefits (e.g., reducing greenhouse gas emissions) or impacts;

- whether the facility will promote moving up the hierarchy for management of hazardous waste and employ sustainable options for the management of hazardous waste;

- whether approving the facility will result in significant economic costs or benefits to New York State, the community where the proposed facility will be located or New York industry, or, alternatively, whether the denial of an application will cause significant economic cost or benefit. Examples to consider include:

    • potential reduction in property values, new housing construction, attracting new clean and sustainable business, tourism and tax dollars; and
    • the cost for New York businesses for alternative management options or longer transportation distances;

- whether the availability of the proposed facility will offer New York customers other significant benefits, or alternatively, the availability of the facility will cause other significant impacts to the state or the community for which it is proposed.

• DEC priorities, policies and guidance, consistent with applicable and relevant rules and regulations, which will have a bearing in the evaluation of the "public interest" standard include, but are not limited to:

- environmental justice policy (http://www.dec.ny.gov/public/36929.html) ;
- promoting a toxic free future, including reducing, recycling or eliminating waste and toxic chemicals; energy and water conservation measures; and investments in "green" chemistry, technology and purchasing. (Pollution Prevention report: http://www.dec.ny.gov/docs/permits_ej_operations_pdf/art28rpt42809.pdf) (Recycling: http://www.dec.ny.gov/chemical/294.html);
- safeguarding New York's unique natural assets, including wetlands; watersheds and water supplies; habitat protection; flood protection; tourism; and quality of life. (Lands and Waters website: http://www.dec.ny.gov/61.html);

- climate change issues (http://www.dec.ny.gov/energy/44992.html);
- fostering green and healthy communities and public partnerships, including improved waste management; pollution prevention; redevelopment of contaminated land; air and water quality; transportation efficiency; quality of life and public health issues. (Brownfields program: http://www.dec.ny.gov/chemical/8450.html) (Department of Health: http://www.nyhealth.gov/) (DEC website: http://www.dec.ny.gov/)

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Glossary

Acute hazardous waste: Any hazardous waste with an EPA Waste Code beginning with the letter "P", or any of the following "F" codes: F020, F021, F022, F023, F026, and F027. These wastes are subject to stringent quantity standards for accumulation and generation. These acute hazardous wastes are listed in regulation at 6 NYCRR 371.4 (b) and 371.4(d)(5) at http://www.dec.ny.gov/regs/14898.html.

CERCLA: The Comprehensive Environmental Response, Compensation, and Liability Act commonly known as Federal Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

CESQG: A Conditionally Exempt Small Quantity Generator is a generator which meets all of the following criteria:

- in a calendar month, generates no more than 100 kg (220 lbs) of non-acute hazardous waste, and generates no more than 1 kg (2.2 lbs) of acute hazardous waste, and generates no more than 100 kg (220 lbs) of material from the cleanup of a spillage of acute hazardous waste; and

- accumulates no more than 1,000 kg (2,200 lbs) of non-acute hazardous waste, and accumulates no more than 1 kg (2.2 lbs) of acute hazardous waste, and accumulates no more than 100 kg (220 lbs) of material from the cleanup of a spillage of acute hazardous waste, at any time.

ECL: New York State Environmental Conservation Law.

EMS: Environmental Management System. NYSDEC Commissioner's Policy CP-34 established EMS's development and implementation as a primary mechanism for improving environmental performance and reducing a facility's environmental impact.

HWRP: A Hazardous Waste Reduction Plan. Section 27-0908 of the Environmental Conservation Law, states that it is in the best interest of the State to require facilities that release hazardous wastes and toxic substances into the environment to reduce to the maximum extent possible the volume or quantity and toxicity of waste.

LDR: Land Disposal Restrictions are the federal land disposal restrictions are found in 40 CFR 268 and restrict the land disposal of all currently listed or characteristic hazardous wastes. The State has incorporated the federal LDRs into State regulation at 6 NYCRR 376.

LQG: A Large Quantity Generator is a generator which meets any of the following criteria:

- in a calendar month, generates 1,000 kg (2,200 lbs) or more of a non-acute hazardous waste, or generates 100 kg (220 lbs) or more of material from the cleanup of a spillage of acute hazardous waste; or

- accumulates 1 kg (2.2 lbs) or more of an acute hazardous waste, or accumulates 100 kg (220 lbs) or more of material from the cleanup of a spillage of acute hazardous waste.

NYCRR: New York Codes, Rules and Regulations.

NYSDEC: The New York State Department of Environmental Conservation.

NYSDOT: The New York State Department of Transportation.

NYSEFC: New York State Environmental Facilities Corporation.

NYSERDA: New York State Energy Research and Development Authority.

Non-acute hazardous waste: Any hazardous waste that is not listed under the definition of "acute hazardous waste" is considered non-acute hazardous waste.

PCB: Polychlorinated biphenyls. PCB's are regulated as a hazardous waste in New York, and are regulated federally by the Toxic Substances Control Act.

RCRA: The Resource Conservation and Recovery Act is the federal statute that regulates the generation, treatment, storage, disposal, and recycling of solid and hazardous waste.

Source codes: These are descriptor codes used in annual waste management reporting which identify the source of a hazardous waste.

SPDES: New York's State Pollutant Discharge Elimination System.

SQG: A Small Quantity Generator is a generator which meets all of the following criteria:

- in a calendar month, generates more than 100 kg (220 lbs) but less than 1000 kg (2200 pounds) of non-acute hazardous waste, and generates no more than 1 kg (2.2 lbs) of acute hazardous waste, and generates no more than 100 kg (220 lbs) of material from the cleanup of a spillage of acute hazardous waste; and

- accumulates no more than 6,000 kg (13,200 lbs) of non-acute hazardous waste, and accumulates no more than 1 kg (2.2 lbs) of acute hazardous waste, and accumulates no more than 100 kg (220 lbs) of material from the cleanup of a spillage of acute hazardous waste, at any time.

Solid waste: Any garbage, refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials including solid, liquid, semi-solid, or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to certain permits.

TSCA: The Toxic Substances Control Act of 1976 provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.

TSDF: A Treatment, Storage and Disposal Facility. A TSDF may be further characterized as onsite, captive or commercial. See Chapter 1 for additional details.

USDOT: The United States Department of Transportation.

USEPA: The United States Environmental Protection Agency.

Waste code: An EPA waste code identifies a particular waste and consists of one letter (D, F, P, U, or K) and three numbers. In addition, New York State provides waste codes for PCB waste consisting of one letter (B) and three numbers. The lists of waste codes can be found in regulation at 6 NYCRR Part 371.3 and 371.4 at http://www.dec.state.ny.us/website/regs/index.html.

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Appendix D

Spill Prevention, Control and Countermeasures Plan

SPILL PREVENTION, CONTROL AND COUNTERMEASURES PLAN

PREPARED BY:

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK

JULY 1998

REVISED – OCTOBER 2009

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
CERTIFICATION PAGE
CWM CHEMICAL SERVICES – MODEL CITY, NEW YORK

I hereby certify that I am familiar with the requirements of 40 CFR Part 112; I or my agent has visited and examined the facility; the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of 40 CFR Part 112; procedures for required inspections and testing have been established; and this Plan is adequate for the facility.

Engineer: ALBERT G. LYONS, JR

Signature:

Registration Number: 074710

Date: 3/26/07

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
REVIEW PAGE
CWM CHEMICAL SERVICES – MODEL CITY, NEW YORK

In accordance with 40 CFR 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every five years. As a result of this review and evaluation, the plan will be amended within six months of the review to include more effective prevention and control technology if: (1) such technology will significantly reduce the likelihood of a spill event from the facility, and (2) if such technology has been field-proven at the time of review. Any amendment to the SPCC Plan shall be certified by a Professional Engineer within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil into or upon the navigable waters of the United States or adjoining shorelines. Non-technical amendments (i.e., phone number changes, name changes, etc.) do not have to be certified by a Professional Engineer.

Review Date	Signature
3/26/07	John B. Hino
10/15/09	John B. Hino

Statement of Management Approval

CWM Chemical Services is committed to the prevention of discharges of oil to navigable waters and the environment, and maintains the highest standards for spill prevention control and countermeasures through regular review, updating, and implementation of this Spill Prevention Control and Countermeasure Plan (SPCC Plan). I certify that I have reviewed this SPCC Plan for the CWM Chemical Services, LLC, Model City facility, and authorize the commitment of the necessary resources for implementation of all spill prevention, control and countermeasure actions as specifically described herein.

Authorized Facility Representative: Michael Mahar **Signature:** [signature]

Title: District Manager **Date:** 3/9/07

CERTIFICATE OF SUBSTANTIAL HARM DETERMINATION FORM

Facility Name: CWM Chemical Services, LLC.

Facility Address: 1550 Balmer Road, Model City, New York 14107

1. Does the facility have a maximum oil storage capacity greater than or equal to 42,000 gallons and do the operations include over water transfers of oil to or from vessels?

   Yes __ No X

2. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and is the facility without secondary containment sufficiently large to contain the capacity of the largest aboveground storage tank within the storage area?

   Yes __ No X

3. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance such that the discharge from the facility could cause injury to an environmentally sensitive area?

   Yes __ No X

4. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance such that a discharge from the facility would shut down a public drinking water intake?

   Yes __ No X

5. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and within the past five years, has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons?

   Yes __ No X

CERTIFICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this form, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

By: Michael Mahar, District Manager

Signature: [signature] **Date:** 3/9/07

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1.0 INTRODUCTION

The CWM Chemical Services, LLC (CWM) Model City, New York facility provides for the proper handling and disposal of permitted volumes of hazardous wastes. This document is a key tool in the effective operation of the facility. It addresses the procedures for the prevention and containment of spills associated with oil handled at the facility.

The following plan describes the "Spill Prevention, Control and Countermeasures" (SPCC) for the Model City facility. This plan focuses on oil storage facilities and other associated facility areas. CWM periodically reviews this plan and updates its contents as appropriate to address changes at the facility at a minimum of once every five years.

40 CFR Part 112.7 provides, "General Requirements for Spill Prevention, Control, and Countermeasure Plans", which were originally promulgated to prevent spills from oil production facilities located on-shore and/or offshore. This plan addresses components from 40 CFR Part 112.7 applicable to the Model City facility.

Previous SPCC plans for the Model City facility were reviewed and incorporated into this plan where appropriate. Additionally, the following EPA and NYSDEC regulations were reviewed and incorporated where appropriate:

- 40 CFR Part 112 - Oil Pollution Prevention
- 40 CFR Part 761 - Polychlorinated Biphenyls Regulations
- 49 CFR Part 173 - DOT Regulations for Shippers - Preparation of Hazardous Materials for Transportation
- NYSDEC 6 NYCRR Parts 612, 613 and 614 - Petroleum Bulk Storage Regulations

- NYSDEC 6 NYCRR Part 373-2 - Final Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities

- National Fire Protection Association (NFPA) No. 30 Section 2-3.4.3 - Impounding Around Tanks by Diking.

The above regulations apply to spill prevention, control and countermeasures for the bulk storage of oil at the facility.

Waste transportation and receipt, inspection and record keeping procedures, security, storage facilities, treatment, process and disposal areas are described within this plan. This plan also contains brief discussions on waste characteristics, site geology, hydrology, surface water and hydrogeology, procedures to prevent hazards, contingency planning and the personnel training program.

2.0 GENERAL SITE INFORMATION

2.1 FACILITY DESCRIPTION

The Model City Facility began hazardous waste operations in 1972 as Chem-Trol Pollution Services, Inc. and as a result of corporate acquisitions and name changes, CWM Chemical Services, LLC, a subsidiary of Waste Management, Inc. is the present owner and operator of the Facility. The site was originally part of the Lake Ontario Ordinance Works and was used by the Departments of Energy and Defense prior to ownership by Chem-Trol.

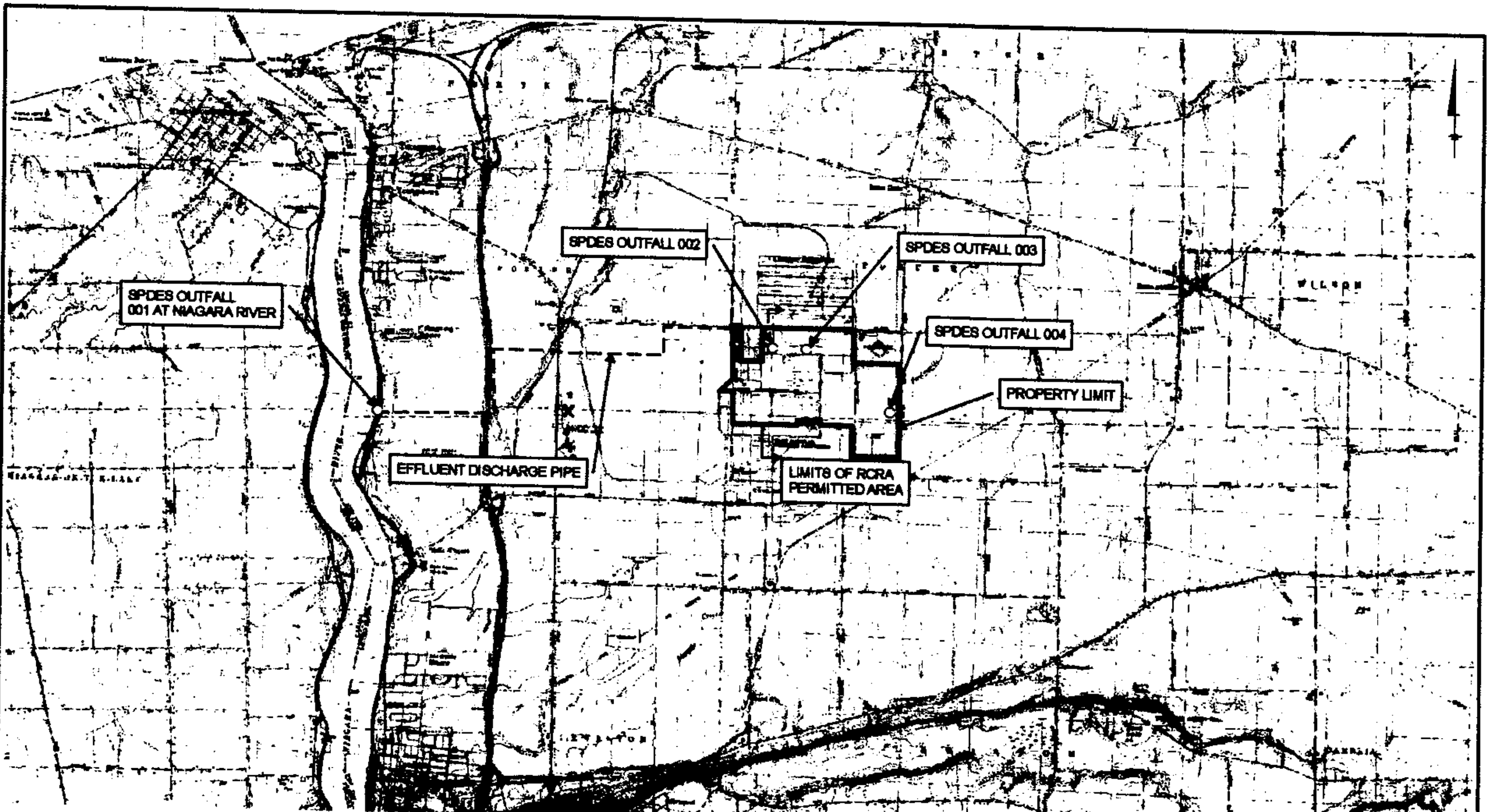
2.1.1 Location of Facility and Description of Surrounding Area

The CWM Facility is located on Balmer Road in Model City, New York, approximately 1.9 miles east of New York State Route 18 (Creek Road). The Facility occupies land in the towns of Lewiston and Porter; however all existing treatment, storage and disposal facilities on the site are located in the Town of Porter. The contiguous property along Balmer Road is also the location of offices for the Administrative, Sales, Marketing, Data Processing, Accounting, Environmental and Engineering Departments. Figure 2-1 represents a Regional Location Map for the site.

The Model City facility lies on a broad relatively flat lowland known as the Ontario Plain, which ends abruptly at the Niagara Escarpment to the south and at Lake Ontario to the north. The plain is bisected to the west by the Niagara River, which flows across the Ontario Plain from the mouth of the Niagara Gorge to Lake Ontario. A number of northward flowing streams also drain the lake plain, two of which drain the site. The contiguous property along Balmer Road encompasses approximately 710 acres, of which 630 acres have been the site of waste management activities.

2.1.2 Purpose of Facility

The CWM Model City Facility provides for the storage, treatment, recovery, and ultimate disposal of a variety of solid and liquid organic and inorganic hazardous wastes. Current capabilities include an



NOTES:

1. PROPERTY LINES ARE APPROXIMATE.
2. NO DRINKING WATER WELLS EXIST WITHIN 1/4 MILE OF THE FACILITY.
3. THE TREATED EFFLUENT DISCHARGE IS LOCATED AT THE NIAGARA RIVER.
4. 710 TOTAL ACRES.
5. 630 RCRA PERMITTED ACRES.

AREA LOCATION

0 1 2
MILES
GRAPHIC SCALE

DATA SOURCE: 24K USGS TOPO QUAD, NRCS Geospatial Data Gateway

DRAFT

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK

REGIONAL TOPOGRAPHIC MAP

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FIGURE 2-1

aqueous wastewater treatment system based on chemical, physical and biological treatment processes that discharges treated water to the Niagara River in accordance with the facility's State Pollutant Discharge Elimination System (SPDES) permit; secure landfilling of approved waste solids and semi-solids including PCBs; waste stabilization including micro- and macro-encapsulation; container and tank storage; transformer decommissioning; and PCB treatment and storage. Waste material analysis is a routine function and is done in accordance with the facility Waste Analysis Plan. The Model City facility has a permitted trailer storage area and a fully equipped emergency response unit.

2.2 SITE GEOLOGY, HYDROLOGY, SURFACE WATER AND HYDROGEOLOGY

Summary information on the hydrology, surface water and hydrogeology of the site was extracted from a February 1988 report entitled "Hydrogeologic Characterization Update, CWM, Model City, New York Facility", prepared by Golder Associates.

2.2.1 Geology

The bedrock formation underlying the Model City site is the Queenston Shale. It underlies all of Niagara County north of the Niagara Escarpment, including the Towns of Lewiston and Porter. Approximately 30-60 feet of unconsolidated deposits overlie the bedrock formations. The material was deposited during several Pleistocene glacial periods and consists of glacial till, alluvial, and glaciolacustrine deposits. These deposits range in thickness from two to twenty feet.

The upper portion of the site consists of an Upper Till sequence (Upper Clay Till and Upper Silt Till) underlain by a Glaciolacustrine Clay. The clay is underlain by a Glaciolacustrine Silt/Sand unit, which forms the uppermost aquifer at the site. A lodgment till (Basal Red Till) underlies the aquifer, which in turn is underlain by the shale bedrock of the Queenston Formation. In the northwest portion of the site, a Middle Silt Till exists either between the Glaciolacustrine Clay and the Glaciolacustrine Silt/Sand or between an upper and lower Glaciolacustrine Clay sequence. Surficial post-glacial alluvial deposits exist discontinuously across the site.

2.2.2 Hydrology

Characterization of the site hydrology has been evaluated by a water budget analysis, which considers the natural volume of water entering and exiting the site. This method quantifies, to the degree possible, the main sources of water and distribution of water loss. The components of the water budget include:

1. Precipitation
2. Evapotranspiration (free water evaporation and plant transpiration)
3. Runoff
4. Interflow (expressed as stream base flow)
5. Aquifer recharge (infiltration recharge)
6. Storage

The data needed to accurately quantify each component are not available for the Model City site. However, applicable major meteorological and hydrologic components were estimated from regional data, which have been collected and analyzed over several years. Regional meteorological data from water atlases and regional water resources publications indicate precipitation is in the range of 28 inches to 32 inches per year, potential evapotranspiration is on the order of 20 inches per year and runoff on the order of 10 inches per year.

The water budget analysis clearly indicates that the vast majority of precipitation at the Model City site is eventually lost by runoff and evapotranspiration. Storage of some of the precipitation is a mechanism for delayed evapotranspiration and runoff. Due to the highly impermeable clays which underlay the site, the amount of precipitation which becomes deep aquifer recharge is negligible.

2.2.3 Surface Water

The Model City site is located on the Ontario Plain, a relatively flat, lowland area situated between Lake Ontario and the Niagara Escarpment. The plain varies in width from about 6.5 miles to ten miles and trends in an east-west direction along the south shore of Lake Ontario. The Niagara River is a dominant feature cutting across the plain. Surface drainage is generally northward on a gentle slope from the Escarpment to Lake Ontario. The distance from the base of the Niagara Escarpment to Lake Ontario is approximately seven and one-half miles in the general site area. The site is located about midway between the Escarpment and the lakeshore.

The Ontario Plain slopes very gently northward at approximately 0.3 percent from about elevation 375 at the base of the Niagara Escarpment, to about elevation 275 near the Lake Ontario shoreline. The shoreline is marked by wave cut bluffs and steeply sloping ground where the ground surface drops from about elevation 275 down to the Lake Ontario water level of about elevation 245. Along the lakeshore the stream estuaries and Valleys of Four Mile and Twelve Mile Creeks (creeks that drain the site area) cut into the plain with steep sided banks up to 35 feet in height.

Total natural ground elevation differences across the Model City facility from south to north vary between approximately five feet and ten feet over a distance of about 4,400 feet, resulting in average northward surface gradients between 0.1 percent and 0.2 percent. This is in general agreement with the average northward gradient for the Ontario Plain of 0.3 percent.

The Model City facility site is primarily drained by Four Mile Creek, with the exception of a small portion of the southeast corner of the site, which is drained by Twelve Mile Creek. At some time in the past, the majority of the site was within the Six Mile Creek drainage area. Surface grading and construction, which apparently took place on the U.S. Military Reservation property before the Model City site was used for a waste disposal facility, altered the course of Six Mile Creek and its drainage area. The present drainage area of Six Mile Creek begins well north of the Model City facility near the northeast edge of the present U.S. Military Reservation. The drainage south of this location has been diverted to Four Mile Creek. This area includes most of the Model City facility site and the portion of the U.S. Military Reservation south of the Model City facility site.

2.2.4 Hydrogeology

Golder Associates performed a detailed hydrogeologic study at the Model City facility. The study included a review of the regional geology, a thorough review and compilation of the data and reports of previous subsurface investigations and hydrogeologic studies for the site, additional subsurface exploration and piezometer installations as needed for the study, and evaluation of the site hydrogeologic system.

The groundwater potentiometric contours in the glaciolacustrine silt/sand aquifer indicate flow to be generally to the north, as expected from the regional hydrologic setting, with a component toward the west. The westerly flow is thought to be a localized condition caused by the combination of low rock surface and the thickness of the aquifer in this area.

Horizontal gradients are low in the glacial aquifer and the rock because of the near-horizontal configuration of the top of rock and ground surface between the Niagara Escarpment and Lake Ontario. Horizontal gradients in the upper tills (near surface water table) are low with respect to the site as a whole, but may become steeper locally around the surface drainage features and unlined, open ponds with water levels above the natural water table. The glaciolacustrine clay unit acts as an aquitard toward downward flow to the aquifer, thus creating a fairly high vertical gradient across the unit. Vertical gradients across the other units are low.

The results of this study clearly demonstrate that the glaciolacustrine silt/sand unit is a confined aquifer and is the uppermost aquifer at the site. Primary aquifer recharge is vertical flow through the upper glacial soils. The study also indicates that the groundwater flow rates through the various geologic units are low, on the order of feet to fractions of a foot per year.

2.3 FACILITY AIR, SURFACE WATER AND GROUNDWATER MONITORING

CWM has a comprehensive program for monitoring air, surface water, and groundwater at the facility. These programs are defined in detail in the facilities existing 6 NYCRR Part 373-2 permit.

2.4 PRIOR SPILL EVENTS

There have been no documented spills or releases of oil directly into navigable waters of the United States from this facility. All prior oil spills which have occurred at this facility have been minor in nature, confined to small localized areas on site, contained and cleaned up in accordance with the applicable regulatory requirements.

In addition to the reporting requirements specified in Section 2.5, all actions needed to protect human health, safety and the environment are initiated upon discovery of a release. The investigation of all actual, probable or suspected releases or spills is performed to determine the quantity of release or spill, the extent of contamination and potential threat to public health, safety and the environment. Corrective action measures are completed as necessary. Preventive actions are identified as needed to prevent recurrence.

2.5 SPILL REPORTING

A spill report is completed by site personnel for spills that occur at the CWM facility (an example form is given in Figure 2-2). Spills of petroleum products, waste oils, oily hazardous waste and waste oils with PCBs may trigger reporting to various agencies under a number of regulatory programs. These reporting requirements are outlined in the Site Contingency Plan (reference Section 9.3). As specified in the Contingency Plan, the Facility Emergency Coordinator is contacted and notification is made to the National Spill Response Center (1-800-424-8802) and the NYSDEC spill hotline (1-800-457-7362), as appropriate. Refer to the Contingency Plan for a complete listing of all agencies, contacts, phone numbers and clean up contractors.

MODEL CITY FACILITY SPILL REPORT

1. DATE OF INCIDENT ____/____/____ TIME ____:____ AM / PM

2. LOCATION OF INCIDENT ______________________________

3. WEATHER CONDITIONS ______________________________

4. WHO FOUND THE SPILL ______________________________

5. DESCRIBE WHAT HAPPENED ______________________________

____

____

____

6. THE SPILLED MATERIAL WAS RELEASED TO THE: ____ASPHALT ____GROUND

____SURFACE WATER ____CONTAINMENT AREA* ____AIR**

* IF YOU CHECKED CONTAINMENT, IDENTIFY THE AREA ______________________

** IF YOU CHECKED AIR, HOW LONG DID THE RELEASE LAST ______________________

7. WHAT WAS SPILLED ______________________ HOW MUCH ____________

8. PROFILE ____________HAZARDOUS WASTE CODE(S) ______________________

9. WHO DID YOU NOTIFY____ D. CASSICK OR ____J. KNICKERBOCKER OR ____G. ZAYATZ

NOTE: IF SPILL IS OUT OF SECONDARY CONCRETE CONTAINMENT OR INVOLVES PETROLEUM (DIESEL, OIL, HYRDRAULIC, ETC.), YOU MUST SPEAK TO SOMEONE IN EMD.
*** * * PLEASE DO NOT LEAVE A MESSAGE ON VOICE MAIL * * ***

10. RESPONSE ACTION TAKEN ______________________________

____

____

11. DISPOSAL ACTION TAKEN ______________________________

____

12. MATERIALS USED: ____DIAPER ____DUCT TAPE ____CORN COB ____SPEEDI DRY

____5 GAL PAIL ____DRUM (16 / 55) OTHER____________ MAN HOURS USED____

13. IS SUBPART CC APPLICABLE TO THIS SPILL? ___YES ___NO
(IF NO, SKIP TO 14.)

FOR CONTAINERS (DRUMS, ROLLOFFS, DUMPS, ETC):

WAS FIRST ATTEMPT TO ELIMINATE LEAK DONE WITHIN 24 HOURS? ___YES ___NO

WAS LEAK ELIMINATED WITHIN 5 DAYS? ___YES ___NO

FOR TANKS:

WAS FIRST ATTEMPT TO ELIMINATE LEAK DONE WITHIN 5 DAYS? ___YES ___NO

WAS LEAK ELIMINATED WITHIN 45 DAYS? ___YES ___NO

14. IS SUBPART BB (PUMPS, FLANGES, VALVES) APPLICABLE TO THIS SPILL? ___YES ___NO
(IF NO, SKIP TO 15.)

IF YES, DID YOU CONTACT ENVIRONMENTAL MONITOR? ___ YES ___NO

15. DOES THE PCB SPILL CLEAN-UP POLICY APPLY? ___YES ___ NO
(IF NO, SKIP TO 16.)

IS A PCB WIPE TEST OR SOIL SAMPLE NEEDED? ___YES ___ NO

IF YES, WHO TOOK THE SAMPLE ______________________ DATE____/____/____

WHAT SAMPLE NUMBER WAS ASSIGNED BY THE LAB? ______________

16. IDENTIFY CORRECTIVE ACTION(S) THAT NEED TO BE TAKEN AND WHO IS RESPONSIBLE:

____

____

____

17. ADDITIONAL INFORMATION, COMMENTS AND DIAGRAMS:

____

____

____

____

____

REPORT PREPARED ON___/___/___ BY:______________________

SUPERVISOR REVIEW ON___/___/___ BY:______________________

RQ DETERMINATION ON___/___/___ BY:______________________

DM REVIEW ON___/___/___ BY:______________________

dac/06/28/02

MODEL CITY PETROLEUM SPILL REPORT

Is the spilled material petroleum (i.e. hydraulic oil, fuel oil, motor oil, gear oil, diesel fuel, gasoline, etc.)? ☐ Yes ☐ No

Was the material spilled on asphalt or concrete? ☐ Yes ☐ No

Is the spill contained and under control? ☐ Yes ☐ No

Is the spill less than five gallons? ☐ Yes ☐ No

Was the spill cleaned up within two hours of discovery? ☐ Yes ☐ No

IF YOU ANSWERED NO TO ANY OF THE ABOVE QUESTIONS, YOU MUST REPORT THE SPILL TO SOMEONE IN EMD. PLEASE DO NOT LEAVE A MESSAGE ON VOICE MAIL. IF REQUIRED, WHO DID YOU NOTIFY?

☐ D. CASSICK OR ☐ J. KNICKERBOCKER OR ☐ G. ZAYATZ

Spill Date ____/____/____ Spill Time ___:___ AM / PM

Location ____

What was spilled ____________________ How much __________

What is the source of the spill ____________________________

Material spilled onto ☐ concrete ☐ asphalt ☐ dirt/gravel ☐ other__________

Response action taken __________________________________

____

____

	Signature:	Date:
Report prepared by	____________________	____/____/____
Supervisor review	____________________	____/____/____
Reportable Y / N	____________________	____/____/____

OVER

MATERIALS USED: _____DIAPER _____DUCT TAPE _____CORN COB _____SPEEDI DRY

_____5 GAL PAIL _____DRUM (16 / 55) OTHER_______________

MAN HOURS USED_____

3.0 RECEIPT AND TRANSPORTATION OF MATERIALS

3.1 WASTE OIL RECEIPT

Presently, most incoming and outgoing waste oil shipments are made by truck. Incoming load verification begins upon arrival of the waste oil at the facility. Incoming trucks are recorded and identified at the main security gate located at the entrance to the facility. If all permits, placards and manifest data are in order, bulk loads are directed to the scale for weighing. Following weighing, the manifest is checked for any discrepancies. Shipments of containers are directed to the Drum Building where the load information is verified.

All waste materials are entered into the Receiving and Waste Tracking Systems. This allows the facility personnel to access a record of all incoming waste oil. The record contains the following information:

- Customer Name and EPA ID#
- Profile #
- Number of containers or quantity of material
- Date received
- Location of source
- Location of receiver (Model City)

This computerized record is maintained daily with manual input by authorized personnel. Hard copies of the records are stored by the Records Department personnel.

3.2 PETROLEUM BULK LIQUID PRODUCT RECEIPT

Petroleum bulk liquid products are delivered to one of the following internal locations:

- A/T Fuel Oil Tank
- Plant Boiler Fuel Oil Tank
- Vehicle Fueling Area

- Heavy Equipment Maintenance Building

3.3 TRANSPORTATION ON INTERNAL SITE ROADWAYS

Roadways provide the means for access to all process and disposal areas at the site. Although all transporting vehicles within the facility should be in compliance with 49 CFR Part 173, Department of Transportation Regulations for Shippers - Preparation of Hazardous Materials for Transportation, vehicles transporting wastes could conceivably lose material enroute to a processing or disposal area. The likelihood for complete, sudden failure of the container is minimal because all incoming bulk transport vehicles are examined for signs of leakage upon arrival at the main security gate.

3.3.1 Potential Equipment Failure and Appropriate Containment

The maximum liquid spill associated with transportation at the site could be 7,000 gallons, assuming a large capacity tank trailer completely ruptured. All bulk loading/unloading areas are equipped with concrete secondary containment. If a spill was to occur during transit, the roads are paved and crowned in the center, sloping toward roadside drainage ditches which are capable of providing containment. The liquid will, in general, flow into and be contained within the roadside drainage ditches or the specially constructed containment areas for storing waste hauling vehicles. Flow control within the ditches will be performed in order to limit the area of contamination. If the spill enters the site's storm water management system, it will flow, by gravity, through the drainage channels to a closed Surface water Monitoring Point (SMP) gate. Water is contained until it is tested and approved for discharge (see drawing sheet 1 for the SMP gate locations).

Small quantity spills of liquid will be contained in a localized area using absorbent, and drummed for proper disposal based on the type of material spilled. The absorbent is stored in the Drum Handling Building and other strategic operating areas. Standing liquid will be removed by pumping to drums or another tank truck or by a vacuum-truck depending on the type of liquid. The liquid will be treated or disposed of according to the type of material spilled. After remediation, excavated areas may be tested for clean-up effectiveness.

Solid materials dropped on the roadway could also pose a hazardous situation, but will normally be self-contained, thereby reducing clean-up difficulties as compared to liquid spills. Generally, these materials will be removed along with any contaminated soil and placed in the secure landfill. After remediation, excavated areas may be sampled and tested to accurately detail clean-up effectiveness.

4.0 STORAGE FACILITIES

4.1 CONTAINER STORAGE

4.1.1 PCB Warehouse

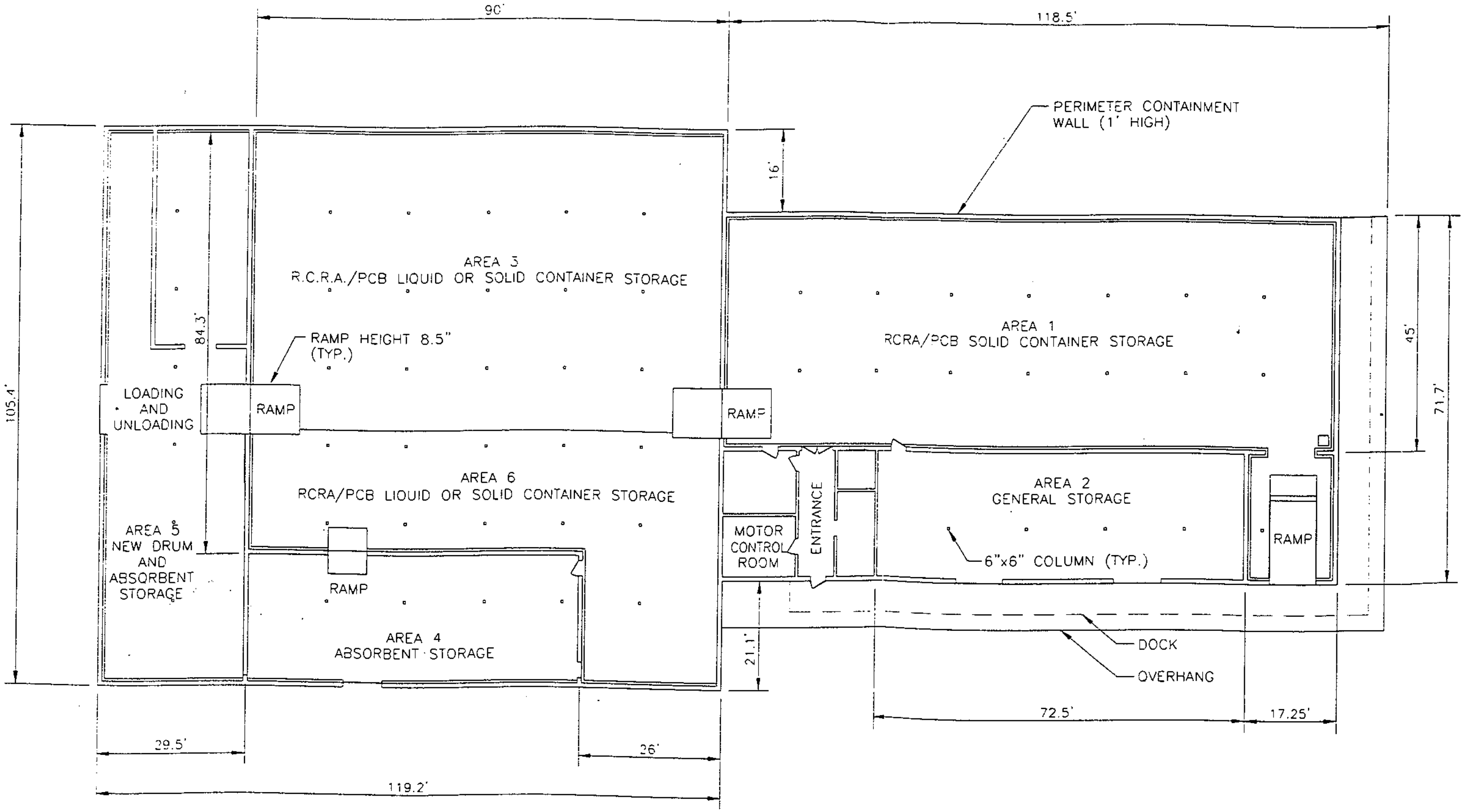
4.1.1.1 Physical Description

The present PCB storage warehouse is located on the east side of Marshall Street, as shown on Sheet 1 of 2, Site Plan, PCB and Bulk Petroleum Storage Locations (back pocket) and Figure D-2 "PCB Warehouse Building Layout" (next page). The structure is a single-story brick and frame structure, which is approximately 238 feet long by 106 feet wide. There are five major areas within the building, which are separated by masonry walls. The floor is constructed of a six-inch concrete slab on fill material. There is a perimeter concrete footing, which is approximately four feet above the surrounding ground level. The exterior walls are wood frame. The roof structure is a wood deck sealed with roofing membranes and bituminous sealers. There is electrical service provided throughout the building, as well as overhead lighting. Other electrical and piping systems within the building are currently not in service. The structure was built in the 1940's.

As shown on Figure D-2, a one-foot high concrete containment wall has been constructed around Areas 3 and 6 within the building to facilitate the storage of liquid hazardous wastes (both RCRA and PCB). In addition, each is surrounded by a ten-inch concrete curb inside of the existing 12-inch concrete curb. Only hazardous waste solids may be stored in Area 1. Area 5 is used to store new or empty drums. Areas 2 and 4 are used to store facility supplies and equipment including clean overpack drums.

4.1.1.2 Operation

The PCB warehouse facility is used to store PCB containerized waste for disposal and is also used to stage Model City outbound shipments of containerized hazardous waste to other treatment, storage and disposal (TSD) facilities.



NOTES:

1. BASE MAP BY RUST ENVIRONMENT & INFRASTRUCTURE 1/25/95, "PCB BUILDING LAYOUT". APRIL, 1995 8824RR02.DWG
2. THE ARRANGEMENT SHOWN MAY BE MODIFIED TO SUIT THE NEEDS OF SPECIFIC STORAGE REQUIREMENTS.
3. A MINIMUM OF TWO FEET BETWEEN ROWS OF DRUM PAIRS WILL BE USED AS GUIDANCE FOR AISLE SPACING THROUGHOUT THE FACILITY.
4. CONCRETE CURBING WILL BE UTILIZED ALONG WITH EXISTING CONCRETE FLOOR AS SECONDARY CONTAINMENT IN THE LIQUID WASTE STORAGE AREA.
5. DRUMS WILL BE STORED 2 FEET FROM THE EDGE OF CURBING, AND MAXIMUM STACKING OF TWO HIGH.
6. THIS DRAWING DEPICTS THE EXISTING BUILDING WITH PROPOSED CONTAINER STORAGE AREAS. DRAWING IS NOT TO SCALE.

MAXIMUM HAZARDOUS WASTE LIQUID STORAGE-AREAS 3 & 6: (55 GALLON DRUMS)-2,338

MAXIMUM HAZARDOUS WASTE SOLID STORAGE-AREAS 1, 3 & 6: (55 GALLON DRUMS)-3,706

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK

6NYCRR PART 373 PERMIT APPLICATION

PCB WAREHOUSE BUILDING LAYOUT

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE D-2

It is the ultimate responsibility of the Facility General Manager to ensure that CWM is in compliance with the (40 CFR 761) PCB Regulations. The Facility General Manager must make certain that all information generated, data produced, physical handling of PCB wastes, items, materials and procedures used, are carried out in compliance with all applicable regulations.

Personnel protective equipment is worn as specified by CWM's Health and Safety Programs:

- MDC HS - 1161 Personal Protective Equipment
- MDC HS - 1162 Respiratory Protection Program

Disposable outer garments must be removed after PCB contact and properly disposed. All PCB contaminated clothing, rubber gear and absorbent material must be placed in a proper container, labeled and properly disposed in accordance with 40 CFR Part 761.75.

4.1.1.3 Potential for Spills

Spills are most likely to occur during the handling and transporting phase of the operation. The likelihood for a container to break and leak is also present during this phase. The total quantity of material which could be released from a container, which ruptures during handling or storage is 110 gallons. A rupture or leak could occur in the transport vehicle, during the container transfer, or in the storage area. Released material will be localized and mitigation procedures immediately implemented.

Potential for material to be discharged from the PCB Warehouse and related operations is minimal due to containment in this area, the relatively small potential amounts of material which could be released and the 10-inch concrete curbing surrounding the storage areas. Preventive measures will be employed to minimize the potential for spills, however mitigative measures are necessary in the event a spill or leak does occur. Section 4.1.1.7 expands upon these measures.

4.1.1.4 Spill Containment

As presented in Attachment B of this report, containment is provided by a one-foot high continuous curb in Areas 3 and 6 (Figure D-2), except along the west walls, where it is ten inches high. Doors are equipped with elevated ramps to prevent liquid from exiting the building. The building floor and curb are constructed of reinforced concrete, which is sufficiently impervious to prevent the discharge of spilled liquids from the secondary containment structure. The physical integrity of the floor and curb is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired. Additionally, liquid PCB waste containers are stored on "Modules" which help contain any spillage from the containers. These modules are constructed on top of the concrete floor and covered with steel grating. The containers are stored on top of the steel grating. Any spillage from the above stored containers would be collected within the contained space of the module below. The spillage is then accessible for cleanup by removing the containers and the grating and cleaning in accordance with the provisions identified in 40 CFR Part 761, Subpart.G - PCB Spill Cleanup Policy.

4.1.1.5 Run-on and Run-off Control

Because all operations take place within the confines of the existing building, no run-off or run-on storm waters will be generated. Doorways are ramped to prevent liquids from escaping and precipitation from entering the building. Since precipitation is precluded from entering the enclosed building and secondary containment structure, precipitation drainage will not be required within the secondary containment. All liquids collected within the secondary containment structure are removed by the mobile vacuum tank truck or cleaned with adsorbent and appropriately managed consistent with the regulatory classification of the liquid.

4.1.1.6 Spill Prevention

The transporting of PCBs by contract haulers is performed in accordance with 49 CFR Part 173, Subpart B, Department of Transportation Regulations for Shippers - Preparation of Hazardous

Materials for Transportation. In general, the transporting occurs in a manner that prevents spillage during transit. Containers are strapped, braced or bound in a manner that will prevent movement or damage to the container during transit.

The facility and stored containers are inspected weekly in accordance with the Site Inspection Plan (reference Section 9.1).

4.1.1.7 Spill Countermeasure

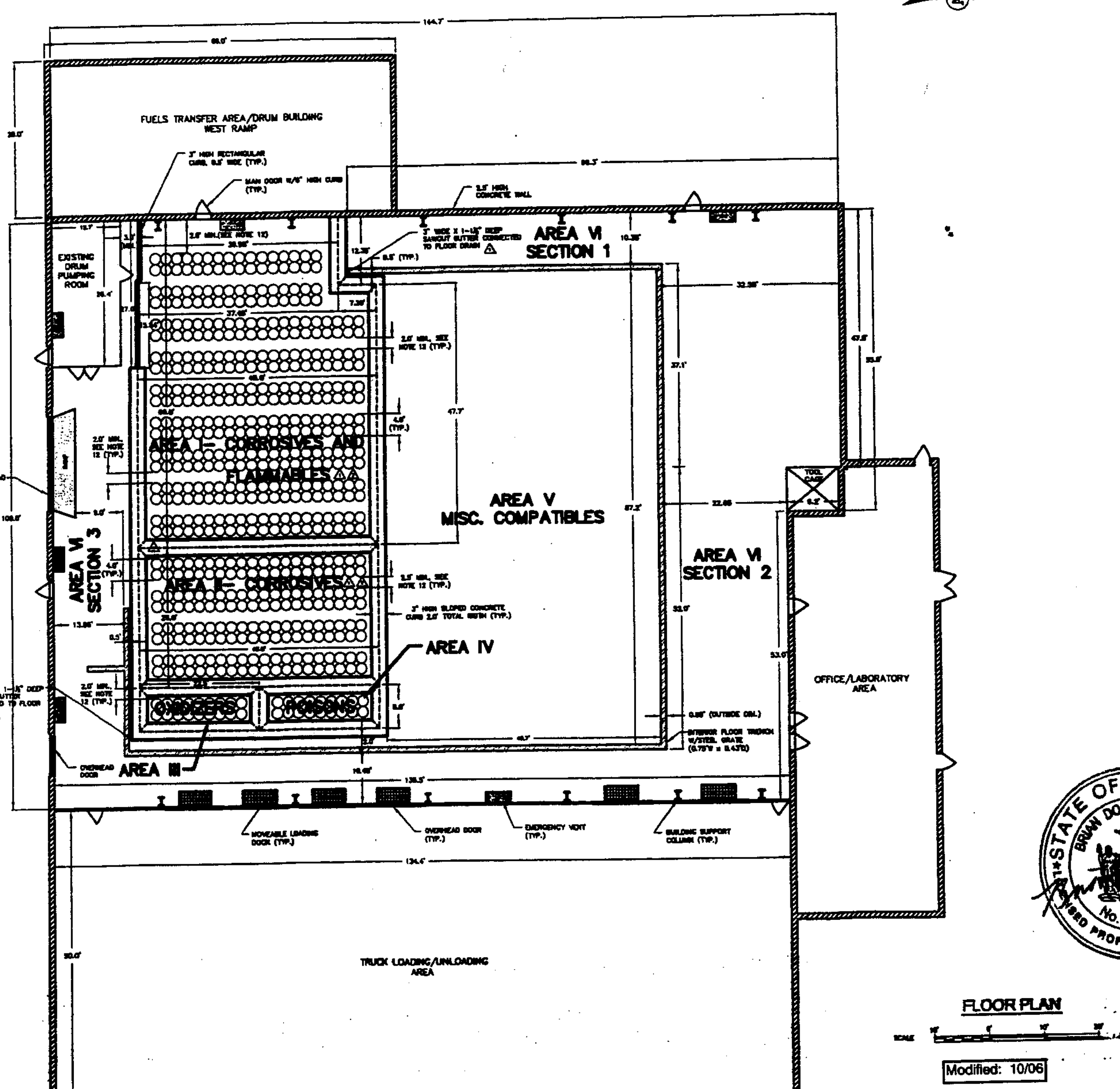
The PCB warehouse is checked weekly for leaks or spills. If PCB spills are observed, the cleanup guidelines identified in 40 CFR Part 761, Subpart G - PCB Spill Cleanup Policy will be used.

After the spilled material is removed by the absorbent and the affected area cleaned with an appropriate solvent, all contaminated material, clothing, and disposable tools involved in the cleanup procedure are placed in a drum for disposal.

4.1.2 Drum Building

4.1.2.1 Physical Description

The Drum Building is set back from MacArthur Street (across from RMU-1), as shown on Sheet 1 of 2, Site Plan, PCB and Bulk Petroleum Storage Locations (back pocket). Figure D-1 "Existing Drum Management Building Layout" shows the general layout of the Drum Building, which was built in 1981. The building is equipped with six docks for receiving and shipping wastes, as well as space for storing approximately 3,400 drums. The container storage areas are designed to provide segregation of incompatible wastes and containment for liquids.



NOTES:

1. BASE MAP BY ENSOL, INC. FROM FIELD MEASUREMENTS TAKEN ON MAY 17, 2005.
2. THE ARRANGEMENT SHOWN MAY BE MODIFIED TO SUIT THE NEEDS OF SPECIFIC STORAGE REQUIREMENTS.
3. A MINIMUM OF TWO FEET BETWEEN ROWS OF DRUM PAIRS (FOUR FEET FOR FLAMMABLES) WILL BE USED AS GUIDANCE FOR AISLE SPACING THROUGHOUT THE FACILITY.
4. CONCRETE CURBING WILL BE UTILIZED ALONG WITH EXISTING CONCRETE FLOOR AS SECONDARY CONTAINMENT FOR LIQUID STORAGE.
5. DRUMS WILL BE STORED A MINIMUM OF TWO FEET FROM THE CENTERLINE OF CURBING AND EDGE OF WALLS (FOUR FEET FOR FLAMMABLES), AND MAY BE STACKED TWO HIGH (ONE HIGH FOR FLAMMABLES).
6. INCOMPATIBLES WILL BE STORED WITH A MINIMUM FOUR FOOT SEPARATION BETWEEN STORAGE AREAS.
7. MAXIMUM STORAGE CAPACITY: CALCULATED AS 55-GALLON DRUMS
   - AREA I: CORROSIVES AND FLAMMABLES – 688 (LIQUID OR SOLID)
   - AREA II: CORROSIVES – 320 (LIQUID OR SOLID)
   - AREA III: OXIDIZERS – 36 (LIQUID OR SOLID)
   - AREA IV: POISONS – 36 (LIQUID OR SOLID)
   - AREA V: MISCELLANEOUS COMPATIBLES – 117 (LIQUID)
   - AREA V: MISCELLANEOUS COMPATIBLES – 1,376 (SOLID)
   - AREA VI: MISCELLANEOUS COMPATIBLES – 956 (SOLID)

   MAXIMUM TOTAL BUILDING STORAGE (55-GALLON DRUMS) – 3,412 (3,412 SOLID DRUMS; 1,197 LIQUID DRUMS)

   AREAS I–IV MAY STORE LIQUIDS, SOLIDS, OR A COMBINATION OF LIQUID AND SOLID DRUMS. OTHER COMPATIBLE LIQUIDS AND SOLIDS MAY ALSO BE STORED IN THESE AREAS.
8. THIS DRAWING DEPICTS THE EXISTING BUILDING WITH PROPOSED CONTAINER STORAGE AREAS.
9. THE TRUCK LOADING/UNLOADING RAMP IS PERMITTED FOR SOLIDS CONTAINERS STORAGE ONLY. LIQUID CONTAINERS MAY BE STAGED ON THE RAMP FOR UP TO ONE DAY. THEREFORE, SECONDARY CONTAINMENT IS NOT REQUIRED.
10. MAXIMUM CAPACITY FOR UNLOADING/LOADING AREA IS 13 FLATBEDS OR 13 TRAILERS CONTAINING APPROXIMATELY 80 DRUMS EACH (i.e., 1040 DRUMS MAXIMUM)
11. MAXIMUM CAPACITY FOR FUELS TRANSFER AREA/DRUM BUILDING WEST RAMP IS TWO TANKERS CONTAINING UP TO 5,500 GALLONS EACH.
12. FLOOR PLAN SHOWS TYPICAL MAXIMUM LAYOUT USING 55-GALLON DRUMS. DRUMS MAY BE DOUBLE STACKED. DRUMS CONTAINING FLAMMABLES MUST BE ONLY SINGLE STACKED AND STORED FOUR FEET MINIMUM FROM WALLS/CURBS AND BETWEEN DOUBLE ROWS. OTHER TYPES, SIZES, AND ARRANGEMENT OF CONTAINERS ARE POSSIBLE AS LONG AS THE SECONDARY CONTAINMENT CAPACITY IS NOT EXCEEDED.
13. THE DRUM MANAGEMENT BUILDING CONTAINMENT STORAGE AREA LAYOUT CONFORMS TO ALL APPLICABLE PROVISIONS IN THE NFPA CODES.
14. CORROSIVES IN AREAS I AND II MAY BE EITHER ACIDS OR CAUSTICS, BUT NOT BOTH IN THE SAME AREA AT ANY TIME.

STATE OF NEW YORK · BRIAN DOUGLAS SMITH · No. 079072 · LICENSED PROFESSIONAL ENGINEER

TITLE:	PROPOSED DRUM MANAGEMENT BUILDING LAYOUT
PROJECT:	CWM CHEMICAL SERVICES, LLC, MODEL CITY, NEW YORK 6NYCRR PART 373 PERMIT APPLICATION
PREPARED FOR:	CWM CHEMICAL SERVICES, LLC.
TOWN OF PORTER	COUNTY OF NIAGARA / STATE OF NEW YORK

EnSol, Inc.
Environmental Solutions
661 MAIN STREET
NIAGARA FALLS, NY 14301
PHONE (716) 285-3920 FAX (716) 285-3928

PROJECT NO: 05-7007
SCALE: AS NOTED
DES BY: BDS DRW. BY: MJM CHK BY: BDS
DATE: 8/12/05

FIGURE D-1A

4.1.2.2 Operation

Oils may be temporarily staged in the Quality Control (QC) / Trailer Unloading area of the Drum Building during the receiving activities and subsequently stored in the building.

4.1.2.3 Potential for Spills

Spills are most likely to occur during the handling and transporting phase of the operation. The likelihood for a container to break and leak is also present during this phase. The total quantity of material, which could be released from a container that ruptures during handling or storage is 110 gallons. A rupture or leak could occur in the transport vehicle, during the container transfer, in the QC area or in the main storage area. Released material will be localized and mitigation procedures immediately implemented. Potential for material to be discharged from the Drum Building and related operations is minimal due to the floor trench containment in this area and relatively small potential amounts of material which could be released. Preventive measures will be employed to minimize the potential for spills, however mitigative measures are necessary in the event a spill or leak does occur. Section 4.1.2.7 expands upon these measures.

4.1.2.4 Spill Containment

Building containment is provided by the concrete floor, curbs and trench surrounding the main area. The loading dock is provided with a concrete ramp. The Drum Building containment is discussed in Section 8.0 and the calculations of available containment capacity are presented in Appendix B of this report. There is sufficient containment capacity for such a potential release as described in 4.1.2.3. The building floor, curb and ramp are constructed of reinforced concrete, which is sufficiently impervious to prevent discharge of spilled liquids from the secondary containment structure. The physical integrity of the concrete is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired.

4.1.2.5 Run-on and Run-off Control

Because all operations take place within the confines of the existing building, no run-off or run-on storm waters will be generated. Doorways are ramped, curbed or lead to containment to prevent liquids from escaping and precipitation from entering the building. The unloading ramp is covered by an extension of the building roof. Some run-on precipitation may be collected in the ramp area and wash down water may be present in the building trench system. All liquids collected within the building and ramp are removed by the mobile vacuum tank truck, tested and pumped or cleaned with adsorbent, and appropriately managed consistent with the regulatory classification of the liquid.

4.1.2.6 Spill Prevention

The transporting of PCBs by contract haulers is performed in accordance with 49 CFR Part 173, Subpart B, Department of Transportation, Regulations for Shippers - Preparation of Hazardous Materials for Transportation. In general, the transporting occurs in a manner that prevents spillage during transit. Containers are strapped, braced or bound in a manner that will prevent movement or damage to the container during transit. The stored containers are inspected daily on operating days and all secondary containment is inspected weekly. Due to the type of container used at the facility (i.e., shop fabricated, aboveground, 55-gallon drum), visual daily inspections are an acceptable method of integrity assessments required in accordance with 40 CFR Part 112.8. The Container Storage Inspection Schedule for this operation is included in the Site Inspection Plan (reference Section 9.1).

4.1.2.7 Spill Countermeasure

The Drum Building is checked daily for leaks or spills on operating days. If PCB spills are observed, the cleanup guidelines identified in 40 CFR Part 761, Subpart G - PCB Spill Cleanup Policy will be used.

After the spilled material is removed by the absorbent and the affected area cleaned with an appropriate solvent, all contaminated material, clothing, and disposable tools involved in the cleanup procedure are placed in a drum for disposal.

4.1.3 Trailer Park

4.1.3.1 Description

The Model City facility utilizes the Trailer Park for the storage of a variety of waste, including PCB and other waste oil. The Trailer Park is located on Hall Street just west of the Drum Building as shown on Drawing Sheet 1 of 2, Site Plan, PCB and Bulk Petroleum Storage Locations in the back pocket of this document. The 84,000 square foot trailer staging area was constructed in 1986 and is divided into two areas. The north side is for the staging of empty trailers and the south side is for the staging of full trailers. The full trailer area is constructed of a reinforced concrete pad, which is curbed on three sides. It is sloped so that all precipitation and/or potential leakage will be contained.

4.1.3.2 Operation

PCB and other waste oil in containers or bulk tanker trucks is stored in the Trailer Park while awaiting unloading, additional filling or off site shipment for disposal.

4.1.3.3 Potential for Spills

The types of potential problems which can occur at the Trailer Park are mainly due to small leaks which may develop and complete structural failure of the tanker. There are no material transfer operations performed in the Trailer Park. Spills associated with the tanker itself were discussed previously. A complete structural failure of a tanker could potentially result in a release of 7,000 gallons to the secondary containment.

4.1.3.4 Spill Containment

The Trailer Park is 300 feet long and is constructed of a reinforced concrete pad, curbed on three sides and sloped so that all precipitation and/or potential leakage from any unit full of waste will be contained.

Containment for the Trailer Park is discussed in Section 8.0 and the calculations of available containment capacity are presented in Appendix B of this report. There is sufficient containment capacity for such a potential release as described in 4.1.3.3. The floor and curb are constructed of reinforced concrete, which is sufficiently impervious to prevent discharge of spilled liquids from the secondary containment structure. The physical integrity of the floor and curb is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired.

4.1.3.5 Run-on and Run-off Control

Run-on and run-off in general is prevented by curbs at the Trailer Park. All liquids impounded within the Trailer Park secondary containment structure, including precipitation, are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid. Visual observations of the impounded liquid, particularly the presence of any oil, are taken into account as part of subsequent management of the collected liquid.

4.1.3.6 Spill Prevention

There are no materials transfer operations performed in the Trailer Park, therefore the highest potential for material release is from leaks. All fittings, valves, hoses, etc. are checked for leaks when the material is received.

4.1.3.7 Spill Countermeasures

The Trailer Park is inspected by the site compliance inspector at least once each operating day in accordance with the Site Inspection Plan (reference Section 9.1). Problems, discrepancies or potentially hazardous situations are noted on the specific process inspection sheet, with a reference to the particular area. In addition, as part of this inspection, the tankers are visually inspected for integrity in accordance with 40 CFR Part 112.8. Due to the type of tanker used at the facility (i.e., factory manufactured), visual daily inspections during operating hours are an acceptable method of integrity assessments.

When the inspection identifies a problem, action is initiated to remedy the problem. In particular, visible oil leaks from tanker seams, gaskets, rivets and bolts sufficiently large to cause an accumulation of oil within the secondary containment areas will be promptly corrected. There are two types of problems that may be identified:

A. Excessive corrosion or damage is identified that could lead to, but has not developed a leak.

B. A system is found to be leaking.

Response to leaks or spills will be performed as follows:

Depending on the quantity, leaked material from any tanker may be pumped out of the containment area by a vaçuum truck and then transferred to a compatible tank or tanker or alternately cleaned up using an absorbent. The remaining material may be removed from the leaking tanker and also transferred to a compatible tank or tanker. The tanker will not be reused until the leak is repaired. Spills from tankers will be retained within containment areas.

4.2 BULK STORAGE

Ignitable or reactive petroleum products will only be placed in tanks, which are designated for storage of such wastes unless the tank is used solely for emergencies. These tanks meet the buffer zone requirements of the National Fire Protection Association (NFPA) Combustible Liquids Code (1984). At this facility, all tanks are located in excess of the minimum distance (50 feet) from the property lines or public ways. The roads on this facility are not considered public ways because the facility has a controlled access. The storage of the petroleum products will be in compliance with 6 NYCRR Part 613.

All oil storage tanks at the facility are located within concrete secondary containment, which contains greater than the capacity of the largest tanks plus storm flow for a 25 year, 24 hour storm. Piping associated with these tanks is aboveground, designed and supported in accordance with accepted engineering practices. All pipe supports associated with the bulk storage tanks have been properly designed to minimize abrasion and corrosion and to allow for expansion and contraction. The oily waste storage and processing tanks are listed in Table 4-1. Table 4-2 lists the registered petroleum bulk storage tanks on site. A copy of the registration certificate is located in Appendix A.

Some of the bulk storage tanks listed in Tables 4-1 and 4-2 are loaded and/or unloaded using adjacent vehicle loading areas. All vehicle loading/unloading areas are provided with concrete secondary containment. Standard operating procedures require that all manual loading and unloading operations are constantly monitored by site personnel or the transport vehicle driver. Loading and unloading operations are discontinued upon discovery of any spill or leak. While the facility does not include a piped quick drainage system, it does maintain sufficient quantities of spill absorbent materials and booms on-site for use in spill response and containment as detailed in the facility's Contingency Plan. The spill response measures detailed in this plan include a facility audible alarm and a properly trained emergency response team to ensure prompt and complete containment of any spills. Any spills will be controlled with the use of absorbent materials and booms and any impacted soils will be properly removed, treated and disposed as necessary. Following clean-up, if necessary, all impacted spill areas will be sampled and analyzed to confirm proper clean-up as needed.

There are many other tanks on site that store predominantly aqueous PCB liquids which are generated by the on site PCB landfills. Specific requirements for these tanks are described in the facility Part 373-2 Permit. These tanks are not addressed in this SPCC plan since the liquids stored are mainly aqueous with low oil concentrations.

4.2.1 Oily Waste Storage Tanks

4.2.1.1 Tank Description

The Model City facility utilizes tanks for the storage and processing of a variety of liquids. Drawings sheet 1 and sheet 2 are located in the back pocket of this document and they provide the locations of the bulk storage and process tanks at the Model City facility. This section describes the bulk storage for oily waste liquids.

As indicated in Table 4-1, all oily waste storage and process tanks are constructed of either steel or fiberglass reinforced plastic. The conventional construction materials are compatible with the materials stored in the tanks.

4.2.1.2 Tank Operation

Oily wastes in containers and in bulk tanker trucks are received from off-site generators and verified as described in the Facility Waste Analysis Plan. After the oil has been tested it is transported to its respective process area where it is unloaded into transport vehicles and prepared for shipment to an off-site TSDF. All tanks listed in Table 4-1 store oily liquids associated with landfill leachate, non-aqueous phase from a groundwater extraction system or bi-phased liquids. The oil component of the landfill leachate is generally removed by oil/water separation and shipped to an off-site TSDF.

4.2.1.3 Potential for Spills

The types of potential problems which can occur at transfer areas and oily waste storage and processing tanks are:

- Spills during loading and unloading
- Structural failure of tanker
- Operating equipment (i.e., pumps, valves) failure or malfunction
- Level-monitoring failure, resulting in over-filling
- Structural failure of the tank

Spills associated with the tanker itself could potentially result in a maximum of 7,000 gallons released. This amount would be contained within the loading/unloading secondary containment area or, when in transit, in facility drainage ditches where it would be held by the SMP system. Overfilling or a complete structural failure of a tank could potentially result in a release of the entire tank contents to the secondary containment. Each secondary containment is sized for such an occurrence.

4.2.1.4 Spill Containment

All oily waste liquid bulk storage tanks are located within secondary containment areas. Containment for each of the tanks and tank farms is discussed in Section 8.0 and the calculations of available containment capacity are presented in Appendix B of this report. There is sufficient containment capacity for such a potential release as described in 4.2.1.3.

As shown in Appendix B, secondary containment for the Leachate Tank Farm (tanks T-101, T-102, T-103) is provided by a perimeter reinforced concrete wall having a minimum height of 5 feet. Secondary containment for the SLF 1-6 leachate surge tank (tank T-130) is provided by a reinforced concrete wall with a height of 2.5 feet. Secondary containment for the SLF 1-6 Lift Station (tank T-105) is provided by a building with a 10-inch reinforced concrete curb. Secondary containment for tank T-107 is provided by a building with a 2.5-foot reinforced concrete wall. Secondary containment for tanks T-108 and T-111 is provided by a reinforced concrete perimeter building wall having a minimum height of 4-feet. Secondary containment for tanks T-109 and T-110 is provided by a building with a 4-foot high perimeter reinforced concrete wall. Secondary containment for tank T-158 is provided by a building with a 4-foot high reinforced concrete wall. Secondary containment for tank T-8008 is provided by the 7.25-foot high reinforced concrete wall surrounding tanks T-100 and T-125. The secondary containment for each of these tanks, consisting of reinforced concrete curbs or walls, is sufficiently impervious to prevent discharge of spilled liquids from the secondary containment structure. The physical integrity of the secondary containment structure is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired.

4.2.1.5 Run-on and Run-off Control

Run-on and run-off in general is prevented by curbs and walls of each secondary containment area. All liquids (including precipitation) impounded by the secondary containment structures for the tank storage areas which are not enclosed are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid. Visual observations of the impounded liquid, particularly the presence of any oil, are taken into account as part of subsequent management of the collected liquid. For the tank storage areas and associated secondary containment structures that are enclosed, precipitation drainage is precluded from entering the secondary containment structure. All liquids collected within these enclosed secondary containment structures are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid.

4.2.1.6 Spill Prevention

All oily waste storage and process tanks are provided with fail-safe engineering measures developed to preclude overfilling of the tanks. Also, pursuant to the provisions of 40 CFR 112.7, CWM provides for "other effective spill prevention and containment procedures for the tank loading/unloading areas". All tank truck loading/unloading procedures are implemented in accordance with the minimum requirements and regulations established by the New York State Department of Transportation. At a minimum, standard operating procedures are required of site personnel for all tanker material transfers (loading and unloading). These operating procedures include prior verification by responsible site personnel that the receiving tank has sufficient capacity to receive the anticipated liquid volume, set procedures for valving, connecting and disconnecting the transport vehicle, and constant, direct surveillance of the entire liquid transfer activity. During this surveillance, tank fittings, valves and transfer hoses, etc. are constantly monitored for indications of leakage. Also, prior to filling and departure of any tank truck, the lowermost drain and all outlets of such vehicles are closely examined for leakage, and if necessary, tightened, adjusted or replaced to prevent liquid leakage while in transit. This constant surveillance allows for immediate operator response in stopping the material transfer in the event of a spill or overflow incident and provides the opportunity for immediate spill response and communication to other operating personnel, etc. As detailed in the facility's Contingency Plan (reference Section 9.3), sufficient quantities of spill absorbent materials are maintained for use in spill response and containment.

In addition to these minimum standard operating procedures, additional physical fail-safe engineering measures are provided for the oily waste storage and process tanks, which are filled and emptied within enclosed tank and piping systems using level control. Additional physical measures include level indicators and high level warning alarms.

4.2.1.7 Spill Countermeasures

Each transfer area and tank system is inspected individually by the site compliance inspector at least once each operating day in accordance with 6 NYCRR Part 373-2.10. Problems, discrepancies or potentially hazardous situations are noted on the specific process inspection sheet, with a reference to the particular area. In addition, CWM conducts integrity assessments of the tanks in accordance with CWM's Site Inspection Plan and the CWM 6 NYCRR Part 373-2 Permit. This program satisfies the integrity assessment requirements presented in 40 CFR Part 112.8.

The inspection program must address the entire transfer system including its associated ancillary equipment and containment system. Ancillary equipment is defined as all equipment associated with the operation such as piping, pumps, valves, etc. When the inspection identifies a problem, action is initiated to remedy the problem. In particular, visible oil leaks from tank seams, gaskets, rivets, bolts and ancillary equipment sufficiently large to cause an accumulation of oil within the secondary containment areas will be promptly corrected. There are two types of problems that may be identified:

A. Excessive corrosion or damage is identified that could lead to, but has not developed a leak.

B. A system is found to be leaking.

Response to leaks or spills will be performed as follows:

Depending on the quantity, leaked material from any tank may be pumped out of the containment area by a vacuum truck and then transferred to a compatible tank or tanker or alternately cleaned up using an absorbent. The remaining material may be removed from the leaking tank and also transferred to a compatible tank. The tank will not be reused until the leak is repaired. Spills from tanks will be retained by the containment areas.

4.2.2 Petroleum Bulk Storage Tanks

4.2.2.1 Tank Description

The Model City facility utilizes tanks for the storage of bulk petroleum liquids. Drawings sheets 1 and 2 are located in the back pocket of this document and provide the locations of the bulk petroleum storage tanks at the Model City facility. Table 4-2 lists the registered petroleum bulk storage tanks on site. The storage of petroleum products is in compliance with 6 NYCRR Part 612-614. A copy of the registration certificate is located in Appendix A.

As indicated in Table 4-2, all petroleum bulk storage tanks are constructed of steel. This conventional construction material is compatible with the various petroleum materials stored in the tanks.

4.2.2.2 Tank Operation

Bulk petroleum tanks are filled by outside supplier deliveries as needed. The products are used for the operation of site vehicles and in heating systems for various buildings. Prior to unloading a tank truck, the suppliers' truck driver verifies that the receiving tank has adequate capacity to receive additional material. During the filling of petroleum tanks there must be personnel present at all times, monitoring the transfer operation.

4.2.2.3 Potential for Spills

The types of potential problems which can occur at transfer areas and petroleum tanks are:

- Spills during loading and unloading
- Structural failure of tanker
- Operating equipment (i.e., pumps, valves) failure or malfunction
- Level-monitoring failure, resulting in over-filling
- Structural failure of the tank

Spills associated with the tanker itself could potentially result in a maximum of 3,000 gallons released. This amount would be contained within the loading/unloading secondary containment area or, when in transit, in facility drainage ditches where it would be held by the SMP system. Overfilling of the petroleum tanks could potentially result in a release of the entire volume of the refueling tanker to the secondary containment (a maximum of 3,000 gallons). A complete structural failure of the petroleum tanks could potentially result in a release of the entire contents of the petroleum storage tank to the secondary containment (see Table 4-2 for the tank capacities). Each secondary containment is sized for such an occurrence.

4.2.2.4 Spill Containment

Tank DF3 is located inside a contained building adjacent to the fire water tank. Tanks DF1, UG1, LG2 and G04 are located west of the T.O. Building and are surrounded by concrete secondary containment. Tank T27 is within concrete secondary containment west of the boiler house. Tank T20 is east of the Aqueous Wastewater Treatment Building, which also has concrete secondary containment. Tanks E03, E04 and E05 are installed within a steel catchment located inside the Heavy Equipment Maintenance Building, which has a pitched concrete floor equipped with floor drains that lead to an underground holding tank, which is typically used for floor wash down water. The secondary containment provided for these tanks is welded steel and the building floor is constructed of reinforced concrete. These materials are sufficiently impervious to prevent discharge of spilled liquids from the tanks and secondary containment structures. The physical integrity of the secondary containment structures is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired. All of these areas have sufficient containment for the volume of the largest tank within, including the volume of water produced by a 25 year 24 hour rainfall (for uncovered areas). Overfilling could potentially release an amount that is larger than the containment area could hold, but the chance of this occurring is minimized by continually monitoring the transfer process. A potential release by overfilling would be similar, but less severe (due to the containment area retaining a portion of the material), as a complete failure of a tanker truck during transportation on site as described previously.

The secondary containment areas for each of the tanks and tank farms is discussed in Section 8.0 and the calculations of available containment capacity are presented in Appendix B of this report. There is sufficient containment capacity for such a potential release from tank failure as described in 4.2.2.3.

4.2.2.5 Run-on and Run-off Control

Run-on and run-off in general is prevented by the curbs and walls of the secondary containment areas. All liquids (including precipitation) impounded by the secondary containment structures for the tank storage areas which are not enclosed are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid. Visual observation of the impounded liquid, particularly the presence of any oil, is taken into account as part of subsequent management of the collected liquid. For the tank storage areas and associated secondary containment structures, which are enclosed, precipitation drainage is precluded from entering the secondary containment structure. All liquids collected within these enclosed secondary containment structure are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid.

4.2.2.6 Spill Prevention

All petroleum bulk storage tanks are provided with fail-safe engineering measures developed to preclude overfilling of the tanks. Also, pursuant to the provisions of 40 CFR 112.7, CWM provides for "other effective spill prevention and containment procedures for the tank loading/unloading areas". All tank truck loading/unloading procedures are implemented in accordance with the minimum requirements and regulations established by the Department of Transportation. At a minimum, standard operating procedures are required of site personnel or delivery driver for all tanker material transfers (loading and unloading). These operating procedures include prior verification by responsible site personnel or delivery driver that the receiving tank has sufficient capacity to receive the anticipated liquid volume, set procedures for valving, connecting and disconnecting the transport vehicle, and constant, direct surveillance of the entire liquid transfer activity. During this surveillance, tank fittings, valves and transfer hoses, etc. are constantly monitored for indications of leakage. Also, prior to filling and departure of any tank truck, the lowermost drain and all outlets of such vehicles are closely examined for leakage, and if necessary, tightened, adjusted or replaced to prevent liquid leakage while in transit. This constant surveillance allows for immediate operator response in stopping the material transfer in the event of a spill or overflow incident and provides the opportunity for immediate spill response and communication to other operating personnel, etc. As detailed in the facility's Contingency Plan (reference Section 9.3), sufficient quantities of spill absorbent materials are maintained for use in spill response and containment.

In addition to these minimum standard operating procedures, additional physical fail-safe engineering measures are provided for the petroleum bulk storage tanks, including level indicators.

4.2.2.7 Spill Countermeasures

The petroleum bulk storage tanks are inspected monthly in accordance with 6 NYCRR Part 613.6. The inspection also checks the associated ancillary equipment and secondary containment. Ancillary equipment is defined as all equipment associated with the operation such as piping, pumps, valves, etc. In addition, as part of this inspection, the tank systems are visually inspected for integrity in accordance with 40 CFR Part 112.8. Due to the type of tank used at the facility (i.e., shop fabricated, aboveground), visual monthly inspections are an acceptable method of integrity assessments. When the inspection identifies a problem, action is initiated to remedy the problem. In particular, visible oil leaks from tank seams, gaskets, rivets, bolts and ancillary equipment sufficiently large to cause an accumulation of oil within the secondary containment areas will be promptly corrected. There are two types of problems that may be identified:

A. Excessive corrosion or damage is identified that could lead to, but has not developed a leak.

B. A system is found to be leaking.

Response to leaks or spills will be performed as follows:

Depending on the quantity, leaked material from any tank may be pumped out of the containment area by a vacuum truck and then transferred to a compatible tank or tanker or alternately cleaned up using an absorbent. The remaining material may be removed from the leaking tank and also transferred to a compatible tank. The tank will not be reused until the leak is repaired. Spills from tanks will be retained within containment areas.

4.3 OTHER STORAGE

4.3.1 Main Laboratory

4.3.1.1 Physical Description

The Main Laboratory is located on the corner of M Street and Hall Street, as shown on Sheet 2 of 2, PCB and Bulk Petroleum Storage Locations in Process Area (back pocket). The Laboratory supplies analytical data as required in the Waste Analysis Plan (WAP), maintained by CWM in accordance with 6 NYCRR Part 373-2.2(e). Although, the lab in general handles very small amounts of PCB and other waste oil (less than one pint), the waste oils are accumulated in containers on the east side of the laboratory in a metal storage cabinet and then properly disposed.

4.3.1.2 Operation

Small quantities of PCB and other waste oils are accumulated, then transferred by operations personnel to either a vacuum truck and/or directly into tanker trucks, where the oil is accumulated until it can be transferred off-site for disposal.

4.3.1.3 Potential for Spills

Spills are most likely to occur during the handling and transferring phase of the operation. The likelihood for a container to break and leak is also present during this phase. The total quantity of material which could be released from a container which ruptures during handling or storage is approximately 5 gallons. A rupture or leak could occur in the transport vehicle, during the container transfer, or in the laboratory. Released material will be localized and mitigation procedures immediately implemented. Potential for material to be discharged from the Laboratory and related operations is minimal due to the relatively small potential amounts of material which could be released. Preventive measures will be employed to minimize the potential for spills, however mitigative measures are necessary in the event a spill or leak does occur. Section 4.3.1.7 expands upon these measures.

4.3.1.4 Spill Containment

Containment is provided by placing each container inside a slightly larger polyethylene container. There is sufficient containment capacity for a potential release.

4.3.1.5 Run-on and Run-off Control

Because the storage takes place within the confines of the Laboratory, no run-off or run-on storm waters will be generated.

4.3.1.6 Spill Prevention

In general, the transferring occurs in a manner that prevents spillage or damage during transit. The facility and stored containers in the Laboratory are inspected daily on operating days. The Container Storage Inspection Schedule for this operation is included in the Site Inspection Plan (reference Section 9.1).

4.3.1.7 Spill Countermeasure

The Laboratory is checked daily for leaks or spills on operating days. If PCB spills are observed, the cleanup guidelines identified in 40 CFR Part 761, Subpart G - PCB Spill Cleanup Policy will be used.

After the spilled material is removed by the absorbent and the affected area cleaned with an appropriate solvent, all contaminated material, clothing, and disposable tools involved in the cleanup procedure are placed in a drum for disposal.

5.0 TREATMENT AND PROCESS AREAS

5.1 WASTE FUELS TRANSFER

5.1.1 Process Description

The Model City facility receives waste fuels, oils and other organic liquids from off-site generators in drums and bulk containers. Waste fuel in drums is typically pumped out and transferred into a tanker truck for bulking. Tankers of waste fuels may be transferred to other tankers for the purpose of fuels blending and consolidation. Once filled, the outbound tanker is shipped off-site for disposal or for use as an alternate fuel.

5.1.2 Operation

The drum pumping and tanker-to-tanker waste fuel transfer operation is conducted adjacent to the Drum Management Building. Prior to pumping, the level of the outbound tanker is checked to verify that there is sufficient capacity for the fuels to be transferred. During the filling of the outbound tankers, there must be personnel present at all times, monitoring the transfer operation.

5.1.3 Potential for Spills

The types of potential problems which can occur at transfer area are:

- Spills during loading and unloading
- Structural failure of tanker
- Operating equipment (i.e., pumps, valves) failure or malfunction
- Level-monitoring failure, resulting in over-filling

Spills associated with the tanker itself could potentially result in a maximum of 5,500 gallons released. This amount would be contained within the loading/unloading secondary containment area or, when in transit, in facility drainage ditches where it would be held by the SMP system.

5.1.4 Spill Containment

The secondary containment for the waste fuel transfer area is approximately 26 feet by 65 feet, sloped with a perimeter wall 2.25 feet high at the deep end. This size is large enough to accommodate the two tankers that would occupy the containment during tanker-to-tanker transfers. The secondary containment is constructed of reinforced concrete and is sufficiently impervious to prevent discharge of spilled liquids from the secondary containment structure. The physical integrity of the secondary containment structure is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired. This area has sufficient containment for the volume of the largest tanker, including the volume of water produced by a 25 year 24 hour rainfall.

The secondary containment for the waste fuel transfer area is discussed in Section 8.0 and the calculations of available containment capacity are presented in Appendix B of this report.

5.1.5 Run-on and Run-off Control

Run-on and run-off in general is prevented by the curbs and walls of the secondary containment area. All liquids (including precipitation) impounded by the secondary containment structure are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid. Visual observation of the impounded liquid, particularly the presence of any oil, is taken into account as part of subsequent management of the collected liquid.

5.1.6 Spill Prevention

Pursuant to the provisions of 40 CFR 112.7, CWM provides for "other effective spill prevention and containment procedures for the tank loading/unloading areas". All tank truck loading/unloading procedures are implemented in accordance with the minimum requirements and regulations established by the Department of Transportation. At a minimum, standard operating procedures are required of site personnel or truck driver for all tanker material transfers (loading and unloading). These operating procedures include prior verification by responsible site personnel or truck driver that the receiving tanker has sufficient capacity to receive the anticipated liquid volume, set procedures for valving, connecting and disconnecting the transport vehicle, and constant, direct surveillance of the entire liquid transfer activity. During this surveillance, tank fittings, valves and transfer hoses, etc. are constantly monitored for indications of leakage. Also, prior to filling and departure of any tank truck, the lowermost drain and all outlets of such vehicles are closely examined for leakage, and if necessary, tightened, adjusted or replaced to prevent liquid leakage while in transit. This constant surveillance allows for immediate operator response in stopping the material transfer in the event of a spill or overflow incident and provides the opportunity for immediate spill response and communication to other operating personnel, etc. As detailed in the facility's Contingency Plan (reference Section 9.3), sufficient quantities of spill absorbent materials are maintained for use in spill response and containment.

5.1.7 Spill Countermeasures

The waste fuels transfer area is inspected daily on operating days in accordance with the facility Inspection Plan (reference Section 9.1). The inspection checks the secondary containment and associated ancillary equipment. Ancillary equipment is defined as all equipment associated with the operation such as piping, pumps, valves, etc. When the inspection identifies a problem, action is initiated to remedy the problem. In particular, visible oil leaks from piping, gaskets, hoses and ancillary equipment sufficiently large to cause an accumulation of oil within the secondary containment area will be promptly corrected. There are two types of problems that may be identified:

A. Excessive corrosion or damage is identified that could lead to, but has not developed a leak.

B. A system is found to be leaking.

Response to leaks or spills will be performed as follows:

Depending on the quantity, leaked material may be pumped out of the containment area by a vacuum truck and then transferred to a compatible tank or tanker or alternately cleaned up using an absorbent. The remaining material may be removed from the area and also transferred to a compatible tank. The system will not be reused until the leak is repaired. All spills will be retained within the containment area.

5.2 TRANSFORMER BUILDING

5.2.1 Process Description

The transformer building (sometimes referred to as the T.O. Building from its former use in the Thermal Oxidation process) is shown on Sheet 2 of 2 (back pocket) and is located in the Process Area. The interior dimensions of the building are approximately 50 feet by 42 feet. The building is enclosed with a roof and a coated concrete floor. There are two small doors located on the south and east walls to allow personnel access and two overhead doors on the north wall to allow vehicular access. There is a concrete curb around the inside of the building except by the overhead doors where there are ramps to provide containment.

5.2.2 Operation

The building is used to drain and flush transformers and other electrical devices. There are no storage tanks or sumps in the building. A typical operation may involve flushing one or two large transformers or a number of smaller devices. When operating personnel have finished flushing, the liquid is collected and transported off-site for incineration in accordance with 40 CFR Part 761.60. During operations, personal protective equipment is worn as specified by CWM's Safe Job Procedures. Tankers associated with the flushing operation are staged north of the building within a loading/unloading secondary containment area. This secondary containment is also used for the fuel delivery trucks servicing tanks T-27, DF1, LG2, UG1 and G04.

5.2.3 Potential for Spills

Spills are most likely to occur during the handling and transporting phase of the operation. The likelihood for a transformer or other electrical device to rupture or leak could also occur in the transport vehicle, during the transfer or in the storage area. A transformer or other electrical device could hold up to 386 gallons of liquid. If spills or leaks occur during handling or storage, the cleanup guidelines identified in 40 CFR 761, Subpart G - PCB Spill Cleanup Policy will be used. Released material will be localized and mitigation procedures immediately implemented. The potential for material to be discharged from the TO Building is minimal due to the use of metal pans for storage and the relatively large capacity of the containment area in the TO Building.

5.2.4 Spill Containment

Spills or leaks from the operation are unlikely since all equipment and containers with liquid are placed in metal containment pans within the building. In addition, there is a 12 inch high by 12 inch wide concrete curb around the inside walls of the building, except where the ramps are. The west ramp is 12 inches high, however, the east ramp is only about seven inches high. Containment for the Transformer (T.O.) Building is discussed in Section 8.0 and the calculations of available containment volume are presented in Appendix B of this report. However, the containment volume does not include any deductions for potential liquid displacement as caused by the transformers or equipment involved in the flushing process. The containment volume is more than adequate to handle a 386 gallon flushing operation. The building floor and curb are constructed of reinforced concrete, which is sufficiently impervious to prevent discharge of spilled liquids from the secondary containment structure. The physical integrity of the secondary containment is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired.

Secondary containment for the tanker loading/unloading area is provided by a reinforced concrete structure, 26 feet by 80 feet with a wall height of 14 inches. Containment for the loading/unloading area is discussed in Section 8.0 and the calculations of available containment volume are presented in Appendix B of this report. This area has sufficient containment for the volume of the largest tanker, including the volume of water produced by a 25 year 24 hour rainfall. The physical integrity of the floor and curb is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired.

5.2.5 Run-on and Run-off Control

Because all operations take place within the confines of the existing building, no stormwater run-off or run-on waters are generated. Doorways are either ramped or curbed to prevent liquids from escaping and precipitation from entering the building. Since precipitation is precluded from entering the enclosed building and secondary containment structure, precipitation drainage will not be generated within the secondary containment. All liquids collected within the secondary containment structure are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid.

5.2.6 Spill Prevention

Most spills will be prevented by following the operational procedures. The building is checked daily for leaks or spills on operating days.

5.2.7 Spill Countermeasures

Spill countermeasure for the transformer building is provided by the containment pans. Any liquid that is released is contained within the area and pumped to vacuum trucks for off-site disposal. If the spillage is of low volume, the spill is then cleaned up with disposable wipes and absorbent. The material used for the clean-up is then disposed of off-site.

6.0 LEACHATE PROCESS AREAS

6.1 LEACHATE COLLECTION AND OIL/WATER SEPARATION SYSTEM

6.1.1 Process Description, Design and Operation

The leachate generated at secure landfill (SLF) 1-6 is pumped to lift station tank T-105 and then to surge tank T-130. Leachate generated at SLFs 7, 10, and 11 is pumped from the landfills into a wet well tank, T-107, T-110 and T-111, respectively, and then to holding tanks T-108 (SLFs 7 and 11) and T-109 (SLF 10). Mobile tankers then transport the leachate from the holding/surge tanks to an oil/water separator tank T-158. The oil phase is pumped to tanker trucks and the aqueous phase is pumped to the Leachate Tank Farm. Due to the potential for oil carryover from tank T-158, Leachate Tank Farm tanks T-101, T-102 and T-103 are included in the SPCC Plan. The collection tanks are located adjacent to each of the landfills and the oil/water separator is located east of the Leachate Tank Farm. (Sheet 1 of 2, back pocket). Tank T-130 is located outside within a secondary containment dike wall. The other tanks are enclosed in heated buildings providing secondary containment for the system. Concrete secondary containment is provided for the loading/unloading areas at each of the landfills and at tank T-158.

Leachate from the most recent landfills (i.e., SLF 12 and RMU-1), does not contain an oil phase and so the systems that manage this leachate are not included in the SPCC Plan.

6.1.2 Potential for Spills

The types of potential problems that can occur at transfer areas and PCB tanks are:

- Spills during unloading via vacuum tanker
- Structural failure of vacuum tanker
- Operating equipment (i.e., pumps, valves) failure or malfunction
- Level-monitoring failure, resulting in over-filling

- Structural failure of the tank

Spills associated with the tanker itself were discussed previously. Overfilling or a complete structural failure of a tank could potentially result in a release of the entire tank contents to the secondary containment. Each secondary containment is sized for such an occurrence. The leachate collection system tanks all have high level alarms, which are monitored regularly according to the Site Inspection Plan, and where the tank receives leachate directly from the landfill, the high level alarm shuts off the leachate collection pumps to prevent additional liquid from entering the tank.

6.1.3 Spill Containment

The leachate collection and oil/water separation system tanks are all housed inside concrete containment dikes or reinforced concrete buildings, which are designed to act as secondary containment. The loading/unloading stations at SLFs 1-6, 7, 10 and 11 and the oil/water separator building are also provided with concrete secondary containment. Containment provided by each of the areas is discussed in Section 8.0 and the calculations of available containment capacities for such releases as described in 6.1.2 are presented in Appendix B of this report. The floors and curbs are constructed of reinforced concrete which is sufficiently impervious to prevent discharge of spilled liquids from the secondary containment structure. The physical integrity of the floors and curbs is routinely inspected under the facility's Site Inspection Plan (reference Section 9.1). Any deficiency identified by the inspections is promptly repaired.

6.1.4 Run-on and Run-off Control

The leachate tanks and oil/water separation systems are all located within dike walls or buildings, so no run-on or run-off waters are generated. Except for outside tanks T-101, T-102, T-103, and T-130, precipitation is precluded from entering the enclosed buildings and secondary containment structures, so precipitation drainage will not be generated within the secondary containment. All liquids collected within the secondary containment structures are removed by the mobile vacuum tank truck and appropriately managed consistent with the regulatory classification of the liquid.

6.1.5 Spill Prevention

All systems are maintained regularly by on-site personnel and inspections are completed according to CWM's Site Inspection Plan. This inspection satisfies the requirements of integrity inspections presented in 40 CFR Part 112.8. The leachate collection system tanks all have high level alarms, which are monitored regularly according to the Site Inspection Plan, and where the tank receives leachate directly from the landfill, the high level alarm shuts off the leachate collection pumps to prevent additional liquid from entering the tank.

6.1.6 Spill Countermeasures

Each of the landfill leachate collection systems are inspected individually by the site compliance inspector daily for leaks or spills. Problems, discrepancies or potentially hazardous situations are noted on the inspection sheets, with a reference to the particular area.

If PCB spills are observed, the cleanup guidelines identified in 40 CFR Part 761, Subpart G - PCB Spill Cleanup Policy or the Site TSCA Approval will be used.

After the spilled material is removed by the absorbent, the contaminated soil removed if necessary and the affected area cleaned with an appropriate solvent if necessary, all contaminated material, clothing, and disposable tools involved in the cleanup procedure are placed in a drum for disposal.

7.0 MISCELLANEOUS OIL STORAGE EQUIPMENT

7.1 MOBILE EQUIPMENT

As specified in amendments to the SPCC Rule, effective February 26, 2007, all motive power containers (e.g., trucks, automobiles, bulldozers, etc.) are exempt from the SPCC regulations.

CWM's Model City, New York, facility maintains numerous vehicles that contain over 55 gallons of fuel or oil on-site. These vehicles are used for daily facility maintenance and operations. In addition to the CWM vehicles on-site, waste trucks, which contain more than 55 gallons of oil, enter and leave the site during hours when the facility accepts waste. Also, contractor vehicles and equipment, which store over 55-gallons of oil, are on-site during construction activities. CWM requires each of their contractors to inspect their vehicles and maintain them in proper working order. In the case of an oil spill from one of these vehicles, proper spill prevention and control measures will take place. Spill control kits are maintained at the facility to ensure spills are properly and adequately addressed.

Table 7-1 describes typical vehicles that CWM maintains on site, and their fuel and oil capacity. The materials of construction of the fuel storage tanks are compatible with the petroleum products currently being stored. Each vehicle maintains a radio that can be used to notify the appropriate on-site response personnel and to request additional spill containment equipment in the case of a spill. CWM personnel inspect each vehicle daily on operating days to ensure that all measures are taken to prevent spillage or leakage of oil.

As also included in the February 26, 2007, amendments to the SPCC Rule, mobile refuelers (i.e., vehicles equipped with a bulk storage container used to transfer fuel to another vehicle or oil storage container) are exempt from the sized secondary containment provisions. However, mobile refuelers must comply with the SPCC Rule's general secondary containment requirements in 40 CFR 112.7(c). CWM may use mobile refuelers to service equipment within a contained area, such as the landfill.

7.2 OIL FILLED OPERATIONAL EQUIPMENT

There are many pieces of oil filled operational equipment (e.g., electrical transformers, pumps, compressors, etc.) throughout the facility. Oil quantities in these units are generally minor. Based on review of the transformers on site, three have a storage capacity of 55-gallons or greater. Drawings in the back pocket of this document provide the locations of the transformers that contain 55-gallons or greater of oil at the Model City facility. The transformers are located on concrete pads.

As specified in the February 26, 2007, amendments to the SPCC Rule, secondary containment is not required for oil filled operational equipment as long as there are plans established for inspections and oil spill contingencies. CWM will follow the requirements of this SPCC Plan, the Site Inspection Plan (reference Section 9.1) and the Site Contingency Plan (reference Section 9.3) to detect equipment failures and address spills from all oil filled operational equipment.

7.3 MISCELLANEOUS CONTAINER STORAGE

Miscellaneous containers (i.e., 55-gallon drums) are used to store various oils (e.g., hydraulic fluid, etc.) within the Heavy Equipment Building. The drums are all single-walled carbon steel construction and are compatible with the materials being stored. All drums are open to the atmosphere and thus operate at ambient pressure. The concrete building floor and curbs provide secondary containment for the containers. The containers are visually inspected periodically for condition (i.e., integrity) and signs of leakage.

8.0 HYDROLOGIC ANALYSIS

This section of the SPCC Plan presents a hydrologic analysis of the tank containment areas and of the on-site process areas.

8.1 HYDROLOGIC ANALYSIS OF CONTAINMENT

This containment analysis is for tanks and storage areas containing oily wastes and petroleum products on the CWM Chemical Services, LLC facility in Model City, New York. Tank capacities are presented in Table 4-1 and in Table 4-2. The tanks are identified by tank number, capacity and location within the facility and current status of the tank.

The calculations presented are for the tank secondary containment and the hydrologic analysis, which are included in Appendix B. The tanks and their respective areas are shown on both drawings sheet 1 and sheet 2 (back pocket). The purpose of this analysis is to evaluate the existing tank secondary containment areas and determine if the volume of each area is adequate for the tanks contained. The information presented for the secondary containment was extracted from various sources.

Four specific items were investigated relative to each containment area, including:

1. The existing available containment volume.
2. Total volume of the largest tank in the containment area.
3. Volume of rain from a 25 year, 24-hour storm for each of the non-covered containment areas. A 25 year, 24-hour storm is specified by CWM's Part 373 Permit. Such a storm would produce 4.0 inches of rainfall. It was assumed that all rainfall would be converted into run-off with no loss to infiltration.
4. Determine if containment is sufficient, considering existing conditions, minus the volume of the rainfall and 100 percent volume of the largest tank in the area.

For calculation purposes, it was assumed that only one tank would rupture. The largest tank was chosen and its contents would be discharged into the containment area. All the areas have sufficient containment capacity.

8.2 DIRECTION AND RATE OF FLOW FOR POTENTIAL CONTAINMENT FAILURE

Based on the facility's operating experience to-date and the spill prevention features and practices described in this SPCC Plan, the potential for failure of the secondary containment structures and equipment provided for the bulk storage areas is considered minimal. In the rare event that such a failure may occur and petroleum products are released to the facility's SMP system, the potential flow direction is shown in SPCC Plan drawing sheet 1 of 2. Appendix C includes calculations, which estimate the rate of flow for such a petroleum release, corresponding to the potential flow directions shown on sheet 1 of 2. Under normal conditions, SMP gates are closed so flow would be minimal. If, however, a petroleum spill were to occur when the gates are open discharging stormwater, the estimated flows would be as shown in Appendix C. As indicated by these calculations, petroleum flow velocities on the order of 1 to 2 feet per second are estimated. Note that this estimated flow velocity assumes that the typical drainage channel is flowing at a depth of 0.5 feet at the time of introduction of the released petroleum.

The total quantity of petroleum, which could potentially be released under such a failure corresponds to the individual petroleum bulk storage tank capacities.

9.0 PROCEDURES TO PREVENT HAZARDS

9.1 SITE INSPECTION PLAN

In accordance with the regulatory requirements set forth under 6 NYCRR Part 373-2.2(g), a Site Inspection Plan has been previously prepared as a separate document. The procedures set forth in that plan ensure that the Model City facility will be in compliance with all monitoring and inspection requirements of Part 373-2.2(g). A copy of the Site Inspection Plan is available at the facility at all times.

This inspection program is intended to provide a mechanism to prevent and detect system malfunctions, equipment deterioration and operator errors which, if allowed to continue without correction, may ultimately lead to a release of hazardous waste constituents, oily wastes or petroleum products to the environment or create a threat to human health. The inspection program is designed to provide an early warning of the potential for such events in order that corrective and preventive actions may be taken in a timely manner.

The inspection program is divided into individual areas for the purpose of performing routine inspections. These include the general facility and specific process unit inspections, such as the laboratory, container & bulk storage, aqueous waste treatment, fuels blending, stabilization and landfill.

The inspection plan for the treatment and disposal units encompass the process specific monitoring and control systems and associated structures. The inspection program is implemented by qualified individuals assigned the responsibility to detect any unsafe conditions at the facility and prevent adverse consequences. The designated individuals have the training and authority to: (1) implement the required inspections, (2) perform necessary evaluations and hazard assessments, and (3) recommend appropriate corrective or remedial actions.

Inspection is performed according to a pre-determined schedule based on engineering knowledge and operational experience with the systems and processes involved. Each inspection item has the content and frequency necessary to alert facility personnel prior to development of a serious problem. A trained inspector evaluates and assesses each item indicating a potential malfunction, equipment deterioration or operator error through regular observation of the process and procedures. The level of response and its timing is determined by the nature and seriousness of the problem identified with protection of personnel and the prevention of adverse environmental impact being of paramount concern.

In addition to the routine inspections conducted by CWM personnel in accordance with the Site Inspection Plan, each secondary containment associated with hazardous waste tank and container storage areas is inspected annually by a qualified engineer. A full assessment of each hazardous waste tank system is completed at least once every five years by an independent Professional Engineer. Major repairs to hazardous waste tanks are certified by an independent Professional Engineer in accordance with 6 NYCRR Part 373-2.10(g)(6). In addition, all field-constructed aboveground tanks which undergo a repair, alteration, reconstruction, or a change in service which might affect the risk of a discharge, are evaluated for brittle fracture prior to placing the tank back in service.

9.2 SECURITY

All deliveries, personnel and visitors enter the facility via the main entrance off Balmer Road. This entrance is used by plant employees, contractors, waste haulers, suppliers, vendors and visitors. The entrance gate is guarded 24 hours a day by a security guard who stops all vehicles entering and leaving the facility. The guardhouse is equipped with telephone and radio communications. All hazardous waste shipments are stopped at this checkpoint. Unauthorized access to the facility is prevented by the security guard. The entrance/exit gates may be closed and locked if necessary.

In addition to the 24 hour security guard at the main entrance to the facility, the entire Model City facility is enclosed with wire chain link fencing to prevent accidental or unauthorized access to the facility. The security guard maintains an accurate record of who is on-site at any particular point in time.

Warning signs bearing the legend "DANGER - Unauthorized Personnel Keep Out" are posted at the entrance to the facility and on the fencing surrounding the facility. Warning signs are clearly legible from a distance of 25 feet and can be seen from any approach to the facility. A large sign is present at the Balmer Road entrance to the facility which describes the minimum safety precautions which must be followed at all times on the site. Facility buildings are posted with "DANGER - Unauthorized Personnel Keep Out" signs. Required signs are posted on all appropriate tanks. Other warning signs ("No Smoking", emergency directions or safety/health precaution signs) are posted throughout the facility in appropriate locations. Traffic control signs are also posted throughout the facility.

9.3 CONTINGENCY PLAN

In addition to this SPCC Plan, CWM maintains a Contingency Plan to meet RCRA requirements in accordance with 6 NYCRR Part 373-2.4. This Contingency Plan provides explicit descriptions of the response procedures to be implemented in an emergency situation, which are intended to protect the public, facility personnel and the environment. The Contingency Plan contains the evaluation criteria for implementation of the Contingency Plan procedures and the Notification Action Summary. The Notification Action Summary contains the names, home address, telephone numbers and pager numbers of any site personnel that may need to be contacted in an emergency. Reporting requirements under various regulatory programs are included. It also designates one site employee as the Emergency Coordinator, who is responsible for all actions taken in the event of an emergency. The Emergency Coordinator (or his designee) must be available or able to be reached at all times. The Contingency Plan is reviewed at least annually and updated as necessary to reflect physical changes and operational procedures at the facility.

9.4 PERSONNEL TRAINING PROGRAM

In accordance with 6 NYCRR Part 373-2.2(h), CWM developed a Training Plan for the Model City facility to provide training related to hazardous waste management for employees at the treatment, storage and disposal areas. The requirements of the SPCC Plan are also reviewed with these employees. It is CWM policy that all employees be trained to perform in a manner which emphasizes accident prevention to safeguard human health and the environment. Employees are re-trained on an annual basis or more frequently as needed.

10.0 REGULATORY CROSS-REFERENCE

The following presents a cross-reference between the contents of this plan with the recommended sequence presented in 40 CFR Part 112 of the rule.

Regulatory Citation	Citation Description	Location in Plan
112.7	General requirements for SPCC Plans for all facilities and all oil types; management approval	Preface, 1.0
112.7(a)(1)	Conformance with rule requirements	1.0
112.7(a)(2)	Deviation from rule requirements	1.0
112.7(a)(3)	Facility layout, description and diagram	3.0-8.0, Drawings
112.7(a)(3)(i)	Container contents	4.0
112.7(a)(3)(ii)	Discharge prevention procedures	3.0-8.0
112.7(a)(3)(iii)	Discharge controls	3.0-8.0
112.7(a)(3)(iv)	Countermeasures	3.0-8.0
112.7(a)(3)(v)	Disposal of recovered materials	3.0-8.0
112.7(a)(3)(vi)	Response contact list and phone numbers	2.5
112.7(a)(4)	Spill reporting procedures	2.5
112.7(a)(5)	Spill clean up procedures	3.0-8.0
112.7(b)	Fault analysis	3.0-8.0
112.7(c)	Secondary containment	3.0-8.0
112.7(d)	Contingency planning	9.3
112.7(e)	Inspections, tests, and records	9.1
112.7(f)	Employee training and discharge prevention procedures	9.4
112.7(g)	Security (excluding oil production facilities)	9.2
112.7(h)	Loading/unloading (excluding offshore facilities)	4.0-7.0
112.7(i)	Brittle fracture evaluation requirements	9.1
112.7(j)	Conformance with State requirements	Certification Page
112.8	Requirements for onshore facilities (excluding production facilities)	1.0
112.8(a)	General and specific requirements	1.0
112.8(b)	Facility drainage	4.0-6.0
112.8(c)	Bulk storage containers	4.0-6.0
112.8(d)	Facility transfer operations, pumping, and facility process	3.0-8.0

TABLE 4-1

CWM Chemical Services, LLC

Oily Waste Storage and Process Tanks

Tank #	Capacity (Gallons)	Material of Construction	Location*	Content
T-105	3,000	Steel	SLF 1-6	PCB Liquids/Leachate
T-107	350	FRP	SLF 7	PCB Liquids/Leachate
T-108	10,000	FRP	SLF 11	PCB Liquids/Leachate
T-109	3,000	FRP	SLF 10	PCB Liquids/Leachate
T-110	350	FRP	SLF 10	PCB Liquids/Leachate
T-111	350	FRP	SLF 11	PCB Liquids/Leachate
T-130	5,732	Steel	SLF 1-6 Pre-treat	PCB Liquids/Leachate
T-158	17,000	Steel	SLF 1-11 Pre-treat	PCB Liquids/Leachate
T-101	350,000	Steel	Leachate Tank Farm	PCB Liquids/Leachate
T-102	350,000	Steel	Leachate Tank Farm	PCB Liquids/Leachate
T-103	350,000	Steel	Leachate Tank Farm	PCB Liquids/Leachate
T-8008	500	FRP	North of AWT	PCB Liquids/DNAPL

FRP - Fiberglass Reinforced Plastic

AWT - Aqueous Wastewater Treatment

DNAPL - Dense Non-Aqueous Phase Liquids

* Reference Drawing Sheets 1 and 2 for tank locations.

TABLE 4-2

CWM Chemical Services, LLC

Petroleum Bulk Storage Tanks

Tank #	Capacity (Gallons)	Materials of Construction	Location*	Contents	Status
DF1	1,000	Steel	West of T.O. Building	Diesel	Active
DF3	117	Steel	Fire Water Pump Building	Diesel	Active
E03	325	Steel	Inside Heavy Equipment Building	Engine Oil	Active
E04	325	Steel	Inside Heavy Equipment Building	Engine Oil	Active
E05	270	Steel	Inside Heavy Equipment Building	Used Oil	Active
GO4	275	Steel	West of T.O. Building	Kerosene	Active
LG2	1,000	Steel	West of T.O. Building	Gasoline	Active
T20	1,500	Steel	East of Aqueous Treatment Building	#2 Fuel Oil	Active
T27	20,000	Steel	North of Maintenance Shop	#2 Fuel Oil	Active
UG1	1,000	Steel	West of T.O. Building	Gasoline	Active

* Reference Drawing sheets 1 and 2 for tank and locations.

TABLE 7-1

CWM Chemical Services, LLC

Mobil Equipment

Equipment Type	Equipment Brand/ Model No.	Material Stored	Storage Capacity (gallons)
Dozer	CAT D6MLGP	Diesel Fuel/Hydraulic Oil	>55 gallons
Dozer	CAT D6R3306	Diesel Fuel/Hydraulic Oil	>55 gallons
End Dump	CAT D300D3306	Diesel Fuel/Hydraulic Oil	>55 gallons
(2) Excavators	CAT 235C	Diesel Fuel/Hydraulic Oil	>55 gallons
Excavator	CAT 330BL	Diesel Fuel/Hydraulic Oil	>55 gallons
Excavator	Komatsu PC400LC-6LK	Diesel Fuel/Hydraulic Oil	>55 gallons
Excavator	Yutani MD200BLC	Diesel Fuel/Hydraulic Oil	>55 gallons
Loader	CAT 966D	Diesel Fuel/Hydraulic Oil	>55 gallons
Grader	CAT 140G	Diesel Fuel/Hydraulic Oil	>55 gallons
Roller	Ingersol Rand	Diesel Fuel/Hydraulic Oil	>55 gallons
Trash Compactor	REX	Hydraulic Oil	>55 gallons

Appendix A

Petroleum Bulk Storage Registration Certificate

PBS Number
9-073814

New York State Department of Environmental Conservation
PETROLEUM BULK STORAGE CERTIFICATE

625 Broadway, 11th Floor, Albany, NY 12233-7020 Phone: 518-402-9553

Region 9 NYSDEC - PBS Unit
270 Michigan Avenue
Buffalo, NY 14203-2999
(716) 851-7220

TANK NUMBER	TANK LOCATION	DATE INSTALLED	TANK TYPE	CAPACITY (GALLONS)	DATE LAST TESTED	TESTING DUE DATE
DF1	Aboveground on crib, rack, or cradle	04/01/1986	Steel/Carbon Steel/Iron	1,000		*
DF3	Aboveground on crib, rack, or cradle	08/01/1981	Steel/Carbon Steel/Iron	117		*
E03	Aboveground on crib, rack, or cradle	01/01/1990	Steel/Carbon Steel/Iron	325		*
E04	Aboveground on crib, rack, or cradle	01/01/1990	Steel/Carbon Steel/Iron	325		*
EO5	Aboveground on crib, rack, or cradle	01/01/1990	Steel/Carbon Steel/Iron	325		*
G04	Aboveground on crib, rack, or cradle	04/01/1986	Steel/Carbon Steel/Iron	275		*
LG2	Aboveground on crib, rack, or cradle	04/01/1986	Steel/Carbon Steel/Iron	1,000		*
T20	Aboveground on crib, rack, or cradle	10/01/1985	Steel/Carbon Steel/Iron	1,500		*
T27	Aboveground on crib, rack, or cradle	01/01/1976	Steel/Carbon Steel/Iron	20,000		*
UG1	Aboveground on crib, rack, or cradle	04/01/1986	Steel/Carbon Steel/Iron	1,000		*

*** Aboveground tanks require monthly visual inspections and may need documented internal inspections as described in 6 NYCRR Part 613**

OWNER:
CWM CHEMICAL SERVICES LLC
P O BOX 200 1550 BALMER RD
MODEL CITY, NY 14107

SITE:
CWM CHEMICAL SERVICES LLC
P O BOX 200 1550 BALMER RD
MODEL CITY, NY 14107

OPERATOR: CWM CHEMICAL SERVICES
(716) 754-8231

EMERGENCY CONTACT: JILL BANASZAK
(716) 754-8231

MAILING CORRESPONDENCE:

JILL BANASZAK
CWM CHEMICAL SERVICES LLC
P O BOX 200 1550 BALMER RD
MODEL CITY, NY 14107

ISSUED BY: Commissioner Denise M. Sheehan
PBS NUMBER: 9-073814
DATE ISSUED: 03/01/2007
EXPIRATION DATE: 03/24/2012
FEE PAID: $500.00

As an authorized representative of the above named facility, I affirm under penalty of perjury that the information displayed on this form is correct to the best of my knowledge. Additionally, I recognize that I am responsible for assuring that this facility is in compliance with all sections of 6 NYCRR Parts 612, 613 and 614, and applicable sections of 6 NYCRR Subpart 360-14 (used oil tanks only), not just those cited below:

-- The facility must be re-registered if there is a transfer of ownership.
-- The Department must be notified within 30 days prior to adding, replacing, reconditioning, or permanently closing a stationary tank.
-- The facility must be operated in accordance with the code for storing petroleum, 6NYCRR Part 613.
-- Any new facility or substantially modified facility must comply with 6NYCRR Part 614.
-- **This certificate must be signed and posted on the premises at all times.** Posting must be at the tank, at the entrance of the facility, or the main office where the storage tanks are located.
-- Any person with knowledge of a spill, leak or discharge must report the incident to DEC within two hours (1-800-457-7362).

[signature] 3/9/07
Signature of Representative/ Owner — Date

MICHAEL MAHAR, DISTRICT MANAGER
Name and Title of Authorized Representative/Owner (Please Print)

Print Date: 3/2/2007

THIS REGISTRATION CERTIFICATE IS NON-TRANSFERABLE

Appendix B

Calculations of Hydrologic Analysis of Containment

* Tanks DF1, UG1, LG2, G04
* Tank T27
* Tank T20
* Tank DF3
* Heavy Equipment Garage - Tanks E03, E04 and E05
* Drum Building and Fuels Transfer Area
* PCB Warehouse
* South Trailer Parking Area
* Transformer Decommissioning (T.O.) Building and Loading/Unloading Area
* Tank T-107 Building
* Tank T-109 / T-110 Building and Loading/Unloading Area
* Tank T-108 / T-111 Building and Loading/Unloading Area
* Tank T-158 Building and Loading/Unloading Area
* Tank T-8008
* SLF 1-6 Lift Station - Tank T-105
* SLF 1-6 Surge Tank - Tank T-130 and Loading/Unloading Area
* Leachate Tank Farm

URS Greiner, Inc.
NYSDEC OHMS Document No. 201469232-00005

PAGE 1 OF 1
SHEET NO. ...... OF ......
PROJECT: CWM-SPCC DESIGN
JOB NO. 35514.00
SUBJECT: CONTAINMENT ENCLOSURE VOLUME – DF1, UG1, LG2, G04
MADE BY: JMR DATE 7/5/9?
CHKD. BY: DWR DATE 9/5/97

REF. PAGE

• VOLUME OF UPGRADED CONTAINMENT ENCLOSURE

HEIGHT OF NEW WALL: H = 1'-0"

WIDTH OF NEW ENCLOSURE: W = 16'-7"

LENGTH OF NEW ENCLOSURE: L = 36'-2"

V_{CE} = H × W × L = 1'-0" × 16'-7...

V_{CE} = 599.8 ft³ – [1'-3" × 4'...

V_{CE} = 599.8 ft³ – 5.2 ft³ ...

V_{CE} = 4,448 gal = V_{ACTUAL}

If UG1 + LG2 are manifolded together:

$V_{RAIN} = \frac{3.9"}{12} \times 16.583' \times 36.167' \times 7.48$

= 1458.0 gal

V_{ACTUAL} = 4448.0 gal

V_{NEEDED} = 1.1 (2000 gal) + 1458 gal

= 3658 gal

$V_{ACTUAL} > V_{NEEDED}$ if piping is connected inside sec. conts.

(If connects piping at gas pump, only need V_{NEEDED} = 1.1 (1000 gal) + 1458 gal = 2558 gal

Per 599.9 (a)(2)

THE VOLUME OF THE ENCLOSURE MUST BE SIZED FOR 1,000 GAL CAPACITY TANK PLUS A 3 INCH FREEBOARD PLUS 4 INCHES OF RAINFALL

V_{TANK} = 1,000 GAL

V_{FB} = 3" × 16'-7" × 36'-2" = 1,121.9 GAL

V_{RAIN} = 4" × 16'-7" × 36'-2" = 1,495.5 GAL

V_{NEEDED} = 1,000 + 1,121.9 + 1,495.5 = 3,617.4 gal

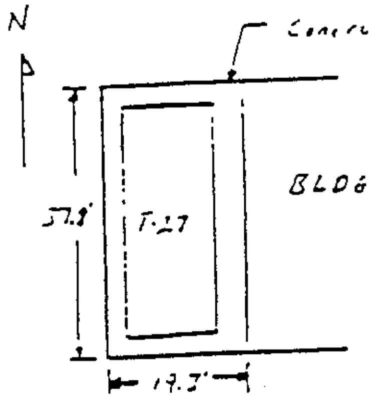
$V_{ACTUAL} > V_{NEEDED}$

∴ CONTAINMENT ENCLOSURE CAPACITY IS ADEQUATE

URSF-116/1 OF 1/GCM

SUBAREA "B" (Site Visit 1-24-89)

Concrete wall with liner, 5.5' high and 0.65' wide



BLDG 8

Measurements are inside dimensions

T-27 - 21,505 gal capacity

Available Containment Volume = 19.3' x 37.8' x 5.5' = 4,012 CF = 30,010 gal.

Rain Volume for 25 year, 24 hour storm, 0.325' = 19.3' x 37.8' x 0.325' x 7.48 = 5774 gal

100% of Volume of Largest Tank = 21,505 = 21,505 gal

Δ Volume (+) 6,731 gal

SIRRINE
ENVIRONMENTAL CONSULTANTS

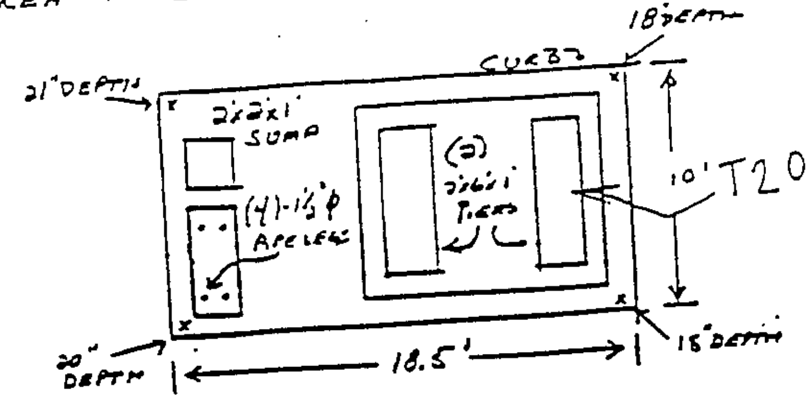
CALCULATION SHEET

CLIENT CWM Chemical Services Inc LOCATION Model City, NY JOB NO. F-1468

SUBJECT SPCC Plan 1991

BY CMA DATE 1/15/92 CHECKED BY NVS DATE 11/15/92

SUBAREA V CONTAINMENT CALCULATION



GROSS VOLUME = (18.5')(10')(1.5') + (½)(2/12)(18.5')(10') + (2')(2')(1') = 297 CF

LESS PIERS = (2)(2')(6')(1') = 24 CF

NET VOLUME = 297 CF − 24 CF = 273 CF × 7.48 GAL/CF = 2042 GAL

RAIN VOLUME OF 3.9" =

$\left(\frac{3.9}{12}\right)(18.5')(10')\left(7.48\,\frac{GAL}{CF}\right)$ = 450 GAL.

+ 1500 GAL TANK

1950 GAL. REQUIRED.

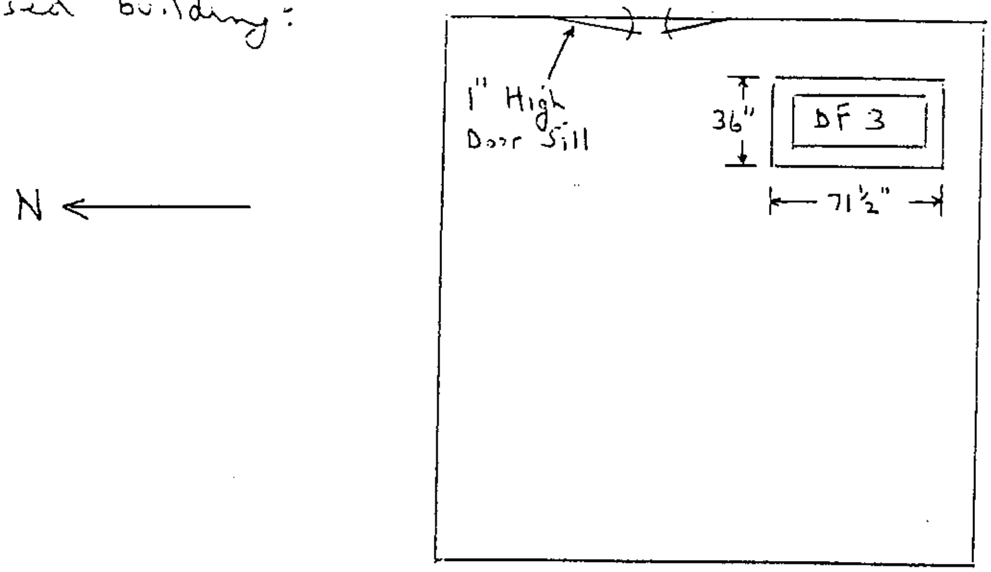
CWM Chemical Services, Inc.
Model City Facility
P.O. Box 200
1559 Balmer Road
Model City, New York 14107

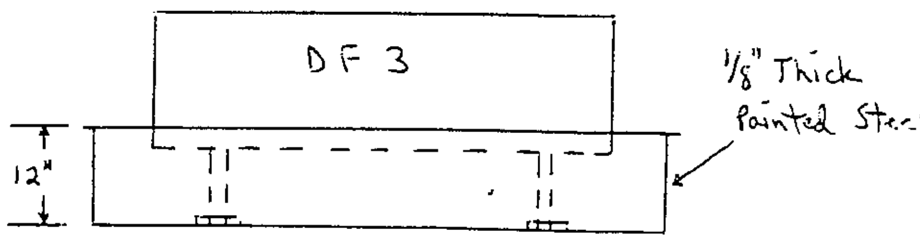
CWM Project No.
Calc. By SJBH Date 1/18/01
App. By Date
Calc. No. Sheet 1 of 1

Calculations
SUBJECT SPCC Plan

Tank DF 3 - Secondary Containment Volume Calculations

Tank is installed within a steel catchment pan inside an enclosed building:





Volume Required = 117 gallons (capacity of DF 3)

Volume Available = (5.96')(3')(1')(7.48 gal/cF) = 133.7 gallons

∴ Containment capacity is sufficient

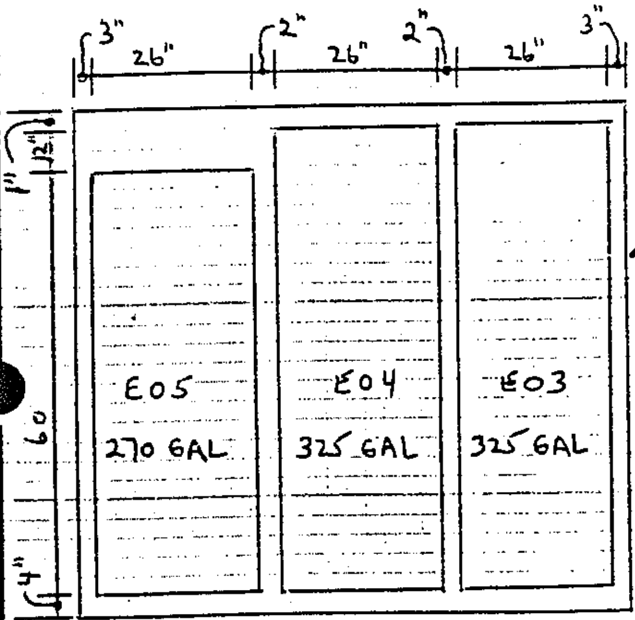
CWM Chemical Services, Inc.
Model City Facility
P.O. Box 200
1559 Balmer Road
Model City, New York 14107

Per. No.	File No.
CWM Project No.	
Calc. By JBH	Date 2/9/99
App. By.	Date
Calc. No.	Sheet 1 Of 1

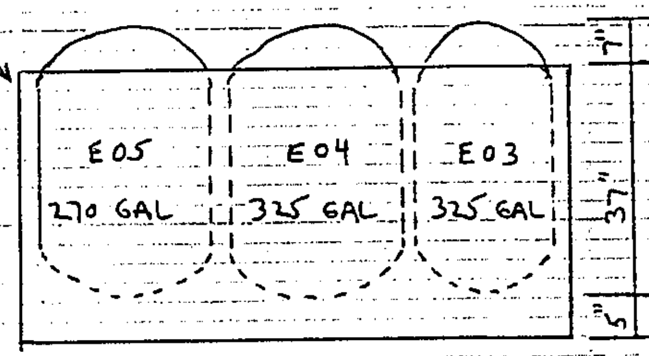
Calculations
SUBJECT: SPCC Plan

Secondary Containment Volume Calculations – Assume largest tank leaks

Tanks E03, E04, E05



STEEL CONTAINMENT



N ← PLAN

ELEV. LOOKING EAST

Volume Available = Steel Containment less volume of 2 remaining tanks inside

= (7.33')(6.42')(3.5')(7.48 GAL/cf) – (0.85)(325 GAL + 270 GAL)

= 726 GAL

Volume Required = 325 GAL

∴ Containment capacity is sufficient

Note: For secondary containment volume provided by Heavy Equipment Building, refer to attached Rust E+I calcs dated 7/1/96.

TASK

To estimate the volume of secondary containment provided by the truck bay floor area within the maintenance building, for hydraulic oil tanks E03 and E04 at CWM's Model City Facility.

REFERENCES

1. 6 NYCRR Part 612 - 614 Petroleum Bulk Storage Regulations

ASSUMPTIONS

1. Pitch of the truck bay floor is toward the floor drain installed at the center of the bay and is 1.0 inches lower in the center than on the edges.

2. As one truck bay is filled with leaking petroleum, the leaking petroleum would overflow into the adjacent bay.

GIVEN

1. Each tank has a capacity of 325 gallons.

2. The required containment volume is 110 percent of any one tank capacity (357.5 gallons).

3. The truck bay floor (containment area) is 20 feet by 50 feet and there are no structures taking up significant floor space (i.e. greater than 10 percent of the secondary containment volume).

CALCULATIONS

Secondary containment volume provided by one truck bay:

Area = ½ base * height * 2 triangles
Area = ½ (10 feet) (1.0 in/12 in/ft) * 2
Area = 0.83 sq ft

Length = 50 feet

Volume = 0.83 sq ft * 50 ft = 41.5 cu ft = 310.4 gallons

Secondary containment volume provided by two adjacent bays:

310.4(gals) * 2 = 620.84 gallons

Conclusion: Sufficient secondary containment volume is provided by the truck bay floor for tanks EO3 and EO4.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING

TASK:

Determine the number of drums that can be stored and calculate the total volume within the secondary containment areas as shown on Permit Drawing Fig. D-1A.

CALCULATIONS:

CORROSIVES AND FLAMMABLES STORAGE AREA: (AREA I)

Dimensions of Storage Area and Number of Drums:

$60'l x 45'w$ (with a portion 36.95' wide)

$60'-4'=56'$
$45'-4'=41'$
$36.95'-4'=32.95'$
The 4 feet is the 2-foot minimum required spacing from the centerline of containment curbing or wall.

$56' \div 6' = 9.33 Sections \cong 9.3 Sections$
The 6 feet incorporates 2 rows of drums, equaling 4 feet, and a 2-foot aisle space.

$41' \div 2' = 20 Drums$
$32.95' \div 2' = 16 Drums$
The 2 feet is a typical drum width.

$$9.3 Sections * 2\frac{Rows}{Section} = 18.6 Rows \cong 18 Rows$$

$$14 Rows * 20\frac{Drums}{Row} + 4 Rows * 16\frac{Drums}{Row} = 344 Drums(SingleStacked) * 2 = \underline{688 Drums}(DoubleStacked)$$

$$688 Drums * 55\frac{gallon}{Drum} = 37,840 gallons$$

Required Secondary Containment:

$$37,840 gallons * 10\% = 3,784 gallons \cong 506 ft^3$$

Dimensions of Storage:

$(45' x 60') - (7.30' * 12.35')$
Total Area – Area of Unused Section

Modified: 10/06

EnSol, Inc.
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PROJECT NO.: 05-7007

ENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
JECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING (continued)

Area of Storage:

$$(45' x 60') - (7.30' * 12.35') = 2{,}609 ft^2$$

Minimum Curb Height Required:

$$506 ft^3 \div 2{,}609 ft^2 = 0.194 ft \cong 2.32"(ASSUME: 3")$$

Available Secondary Containment:

$$VolumeofCurbing = \tfrac{1}{2} * (1.5') * (.25') * (146') = 27 ft^3$$

$$2{,}609 ft^2 * 0.25' = 652 ft^3 - 27 ft^3 \cong \underline{4{,}675 gallons}$$

NCLUSIONS:

This area has sufficient secondary containment for the storage capacity of 688 55-gallon liquid or solid drums.

Modified: 10/06

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

NT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
JECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING

CORROSIVES STORAGE AREA: (AREA II)

Dimensions of Storage Area and Number of Drums:

$26'l x 45'w$

$26' - 4' = 22'$
$45 - 4' = 41'$
The 4 feet is the 2-foot minimum required spacing from the centerline of containment curbing.

$22' - 6' = 16'$ (The 6' accounts for the 3 aisles times the 2' aisle spacing)

$16' \div 4' = 4 Sections$
The 4 feet incorporates 2 rows of drums, equaling 4 feet.
A typical drum width is equal to 2 feet.

$41' \div 2' = 20 Drums$
The 2 feet is the drum width.

$$4 Sections * 2 \frac{Rows}{Section} = 8 Rows$$

$$8 Rows * 20 \frac{Drums}{Row} = 160 Drums (SingleStacked) * 2 = \underline{320 Drums} (DoubleStacked)$$

$$320 Drums * 55 \frac{gallon}{Drum} = 17,600 gallons$$

Required Secondary Containment:

$$17,600 gallons * 10\% = 1,760 gallons \cong 235 ft^3$$

Dimensions of Storage:

$45' x 26'$

Area of Storage:

$$45' * 26' = 1,170 ft^2$$

Minimum Curb Height Required:

$$235 ft^3 \div 1,170 ft^2 = 0.2008 ft \cong 2.41" (ASSUME: 3")$$

Modified: 10/06

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PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING (continued)

Available Secondary Containment:

$$VolumeofCurbing = \frac{1}{2}*(1.5')*(.25')*(142') = 26.62 ft^3$$

$$45'*26'*0.25' = 292.5 ft^3 - 26.62 ft^3 \cong \underline{1,989 gallons}$$

CONCLUSIONS:

This area has sufficient secondary containment for the storage capacity of 320 55-gallon liquid or solid drums.

EnSol, Inc.
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PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

OXIDIZERS STORAGE AREA: (AREA III)

Dimensions of Storage Area and Number of Drums:

$8' l x 22.5' w$

$8' - 4' = 4'$
$22.5' - 4' = 18.5'$
The 4 feet incorporates the 2-foot containment spacing; therefore a 2-foot perimeter.

$4' \div 2' = 2 Rows$
The 2 feet is equivalent to a typical drum width.

$18.5' \div 2' = 9 Drums$

$$2 Rows * 9 \frac{Drums}{Row} = 18 Drums(SingleStacked) * 2 = \underline{36 Drums}(DoubleStacked)$$

$$36 Drums * 55 \frac{gallons}{Drum} = 1980 gallons$$

Required Secondary Containment:

$$1980 gallons * 10\% = \underline{198 gallons \cong 26.46 ft^3}$$

Dimensions of Storage Area:

$22.5' x 8'$

Area of Storage:

$22.5' * 8' = 180 ft^2$

Minimum Curb Height Required:

$$26.46 ft^3 \div 180 ft^2 = 0.147' \cong 1.76" \cong 2" (ASSUME : 3")$$

DRUM MANAGEMENT BUILDING (continued)

Available Secondary Containment:

$$VolumeofCurbing = \frac{1}{2} * (1.5') * (.25') * (61') = 11.44 ft^3$$

$$22.5'*8'*0.25' = 45 ft^3 - 11.44 ft^3 \cong \underline{251 gallons}$$

CONCLUSIONS:

This area has sufficient secondary containment for storage capacity of 36 55-gallon liquid or solid drums.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

POISONS STORAGE AREA: (AREA IV)

Dimensions of Storage Area and Number of Drums:

$8' l x 22.5' w$

$8' - 4' = 4'$
$22.5' - 4' = 18.5'$
The 4 feet incorporates the 2-foot containment spacing; therefore a 2-foot perimeter.

$4' \div 2' = 2 Rows$
The 2 feet is equivalent to a typical drum width.

$18.5' \div 2' = 9 Drums$

$$2 Rows * 9 \frac{Drums}{Row} = 18 Drums(Single Stacked) * 2 = \underline{36 Drums}(Double Stacked)$$

$$36 Drums * 55 \frac{gallons}{Drum} = 1980 gallons$$

Required Secondary Containment:

$$1980 gallons * 10\% = \underline{198 gallons \cong 26.46 ft^3}$$

Dimensions of Storage Area:

$22.5' x 8'$

Area of Storage:

$22.5' * 8' = 180 ft^2$

Minimum Curb Height Required:

$$26.46 ft^3 \div 180 ft^2 = 0.147' \cong 1.76" \cong 2" (ASSUME: 3")$$

NYSDEC OHMS Document No. 201469232-00005

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING (continued)

Available Secondary Containment:

$$VolumeofCurbing = \frac{1}{2} * (1.5') * (.25') * (61') = 11.44 ft^3$$

$$22.5' * 8' * 0.25' = 45 ft^3 - 11.44 ft^3 \cong \underline{251 gallons}$$

CONCLUSIONS:

This area has sufficient secondary containment for storage capacity of 36 55-gallon liquid or solid drums.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
BJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

MISC. COMPATIBLES STORAGE AREA: (AREA V – Within Trench Area)

Dimension of Solid Storage Area:

$87.2' l x 49.7' w$

Drum Capacity Determination:

$49.7' \div 6' = 8 Sections$

The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$$8 Sections * 2 \frac{Rows}{Section} = 16 Rows$$

$87.2' \div 2' = 43 Drums$

The 2 feet is equivalent to a typical drum width.

$$16 Rows * 43 \frac{Drums}{Row} = 688 Drums(SingleStacked) * 2 = \underline{1{,}376 Drums}(DoubleStacked)$$

CONCLUSIONS:

This area has a solids storage capacity of 1,376 55-gallon drums. Secondary containment is not required for solids storage.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

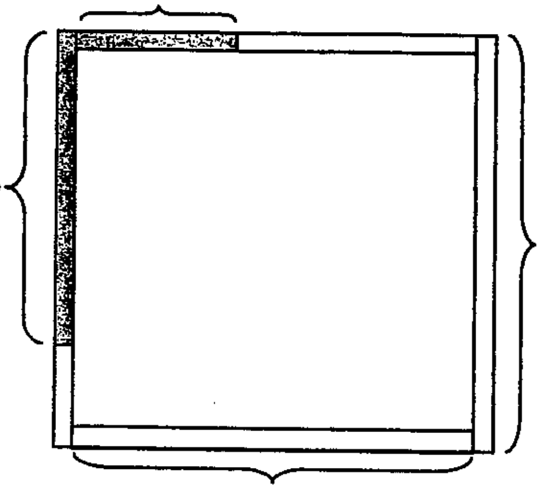
CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING (continued)

MISC. COMPATIBLES STORAGE AREA: (AREA V) – LIQUID STORAGE CAPACITY

Dimensions: (Floor Trench System Volume)

$$100' x 89' x 0.75'(wide) x 0.428'(deep)$$



- Shaded area is closed.

Floor Trench Volume:

$$89' - 62' = 27'$$
$$98' - 42' = 56'$$

$$(27' + 56' + 89' + 98') * 0.75' * 0.428 = 86.67 ft^3 \cong 648.34 gallons$$

AREA V:

Maximum Liquid Drum Storage Capacity:

$$648.34 gallons \div 10\% = 6{,}483 gallons \div 55 \frac{gallons}{Drum} = \underline{117 Drums}$$

CONCLUSIONS:

The Drum Handling Building Floor (Trench) Sump System allows for a liquid storage capacity of 117 55-gallon Drums in Area V.

Modified: 10/06

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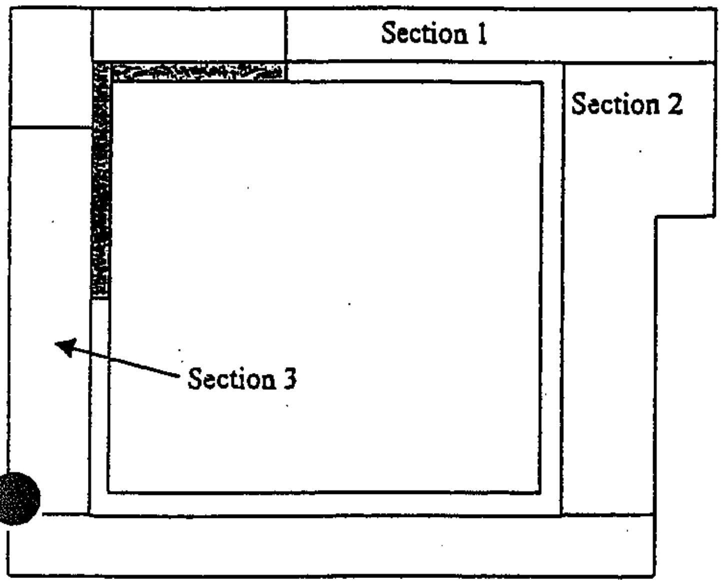
PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

SOLID STORAGE AREA: AREA VI (Outside Trench Area)

Area VI is the area within the Drum Management Building outside Areas I – V



Dimension of Solid Storage Area: (Section 1)

$89.3' l x 10.35' w$

Drum Capacity Determination:

$(10.35') \div 6' = 1 Section$

The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$$1 Section * 2 \frac{Rows}{Section} = 2 Rows$$

$(89.3' - 4') \div 2' = 42 Drums$

The 4 feet incorporates 2 feet minimum required isle space at end of each row.
The 2 feet is equivalent to a typical drum width.

$$2 Rows * 42 \frac{Drums}{Row} = 84 Drums (Single Stacked) * 2 = \underline{\underline{168 Drums}} (Double Stacked)$$

Dimension of Solid Storage Area: (Section 2)

$32.55'l x 37.1'w$
$22.85'l x 52'w$

Drum Capacity Determination:

$37.1' \div 6' = 6 Sections$
The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$52' - 16' = 36'$ (The 16' accounts for the 8 aisles times the 2' aisle spacing)
$36' \div 4' = 9 Sections$
The 4 feet incorporates 2 rows of drums

$$6 Sections * 2 \frac{Rows}{Section} = 12 Rows$$
$$9 Sections * 2 \frac{Rows}{Section} = 18 Rows$$

$(32.55' - 4') \div 2' = 14 Drums$
$(22.85' - 4') \div 2' = 9 Drums$
The 4 feet incorporates 2 feet minimum required isle space at end of each row.
The 2 feet is equivalent to a typical drum width.

$$12 Rows * 14 \frac{Drums}{Row} + 18 Rows * 9 \frac{Drums}{Row} = 330 Drums (SingleStacked) * 2 = \underline{\underline{660 Drums}} (DoubleStacked)$$

Dimension of Solid Storage Area: (Section 3)

$68'l x 9.0'w$ (Approximate minimum available area between ramps)

Drum Capacity Determination:

$(9.0) \div 6' = 1 Section$

The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$$1 Section * 2 \frac{Rows}{Section} = 2 Rows$$

$(68.0' - 4') \div 2' = 32 Drums$
The 4 feet incorporates 2 feet minimum required isle space at end of each row.
The 2 feet is equivalent to a typical drum width.

$$2 Rows * 32 \frac{Drums}{Row} = 64 Drums (SingleStacked) * 2 = \underline{\underline{128 Drums}} (DoubleStacked)$$

CONCLUSIONS:

This area has a solids storage capacity of at least 956 55-gallon drums. Actual arrangement and layout within area varies provided that the minimum requirement of 2-foot isle spacing and 2-drum maximum rows and maximum double stacking height is satisfied. Secondary containment is not required for solids storage.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
'ECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

FUELING TRANSFER AREA/DRUM BUILDING WEST RAMP:

Dimensions:

$28' x 66' x 3.2' (DeepEnd)$

Available Secondary Containment:

$0.50 * (28' * 66' * 3.2') = 2{,}956.8 ft^3 \cong 22{,}118.4 gallons$

Required Secondary Containment:

2 tankers, 5,500-gallon each.
Largest single container equals 5,500 gallon.

25 Year, 24 Hour Precipitation Event:

$28' * 66' * 0.333' = 615.40 ft^3 \cong 4{,}603.5 gallons$
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

$5{,}500 gallons + 4{,}603.5 gallons = 10{,}103.5 gallons$

CONCLUSIONS:

The Fueling Transfer Area/Drum Building West Ramp has sufficient secondary containment capacity for 2 5,500-gallon tankers.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

TRUCK LOADING/UNLOADING AREA & RAMP:

Dimensions:

$50' x 134.4'$

Solids Storage Capacity Determination:

$$134.4' \div 10' = 13.4 Trucks \cong 13 Trucks$$

The 10 feet is equivalent to a typical truck width of 8 feet and the 2-foot required aisle spacing.

$$13 Trucks * 80 \frac{Drums}{Truck} = 1{,}040 Drums$$

The 80 drums per truck is provided by CWM.

CONCLUSION:

The Truck Loading/Unloading Area & Ramp has a solids storage capacity of 1,040 55-gallon drums.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 04/20/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 04/20/2001

PCB WAREHOUSE BUILDING

TASK:

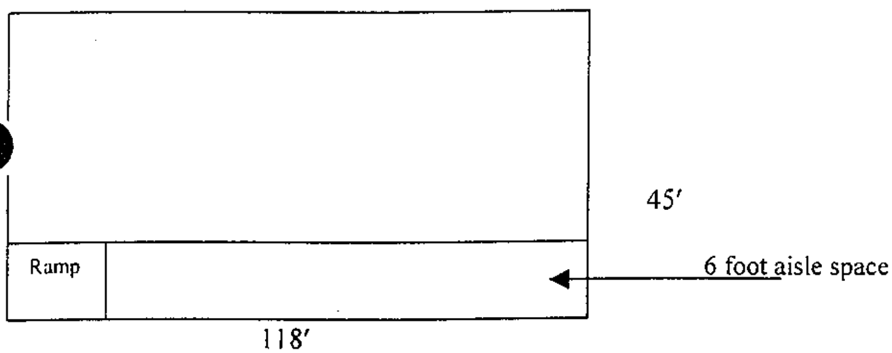
Calculate the total volume within the secondary containment area.

CALCULATIONS:

AREA 1 - SOLID STORAGE AREA:

Dimensions:

$118' x 45'$



$118' - 4' = 114'$
$45' - 2' = 43'$

The 4-foot perimeter is the required 2-foot spacing from the wall.
The 2-foot is the required 2-foot spacing from the wall.

$114' \div 6' = 19 Sections$

A section is defined as 2 drums side by side (4 feet total) and the 2-foot required aisle space.
Therefore, a section is 2 rows of drums.

$43' - 6' AisleSpace = 37' \div 2' = 18.5 Drums \cong 18 Drums$

The 2 feet is equivalent to a typical drum diameter.

$$19 Sections * 2 \frac{Rows}{Section} = 38 Rows * 18 \frac{Drums}{Row} = 684 Drums(SingleStacked) * 2 = 1,368 Drums(DoubleStacked)$$

CONCLUSIONS:

Area 1 - Solid Storage Area has a solids storage capacity of 1,368 55-gallon drums.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 04/20/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 04/20/2001

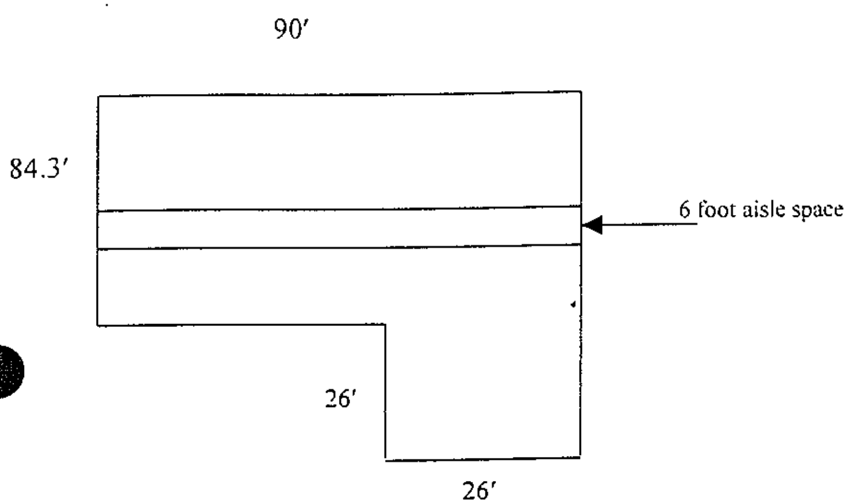
PCB WAREHOUSE BUILDING (continued)

AREA 3/6 – LIQUID STORAGE AREA:

Dimensions:

$84.3' x 90'$

$26' x 26'$



$90' - 4' = 86'$

$84.3' - 4' = 80.3' - 6' = 74.3'$

$26' - 4' = 22'$

$26' - 2' = 24'$

The 4 foot perimeter is the required 2-foot spacing from the wall.

$86' \div 6' = 14.3 Sections$

A section is defined as 2 drums side by side (4 feet total) and the 2-foot required aisle space.

$74.3' \div 2' = 37.15 Drums \cong 37 Drums$

The 2 feet is equivalent to a typical drum diameter.

$$14.3 Sections * 2 \frac{Rows}{Section} = 28.6 Rows \cong 29 Rows$$

$$29 Rows * 37 \frac{Drums}{Row} = 1{,}073 Drums(SingleStacked) * 2 = 2{,}146 Drums(DoubleStacked)$$

$$22' \div 6' = 3.67 Sections \cong 4 Sections$$

PCB WAREHOUSE BUILDING (continued)

$24' \div 2' = 12\,Drums$

The 2 feet is equivalent to a typical drum diameter.

$$4\,Sections * 2\,\frac{Rows}{Section} = 8\,Rows * 12\,\frac{Drums}{Row} = 96\,Drums(SingleStacked) * 2 = 192\,Drums(DoubleStacked)$$

Total Drum Storage Capacity (Double Stacked):

$$2{,}146\,Drums + 192\,Drums = 2{,}338\,DrumsTotal$$

Required Secondary Containment:

$$2{,}338\,Drums * 55\,\frac{gallons}{Drum} = 128{,}590\,gallons * 10\% = 12{,}859\,gallons$$

Available Secondary Containment:

Dimensions:

$90'x84.3'x0.7083'$

$26'x26'x0.7083'$

$$90' * 84.3' * 0.7083' = 5{,}373.9\,ft^3$$
$$26' * 26' * 0.7083' = 478.8\,ft^3$$

Total Available Secondary Containment:

$$5{,}373.9\,ft^3 + 478.8\,ft^3 = 5{,}852.7\,ft^3 \cong 43{,}781.2\,gallons$$

CONCLUSIONS:

Area 3/6 has sufficient secondary containment for the liquid storage capacity of 2,338 55-gallon drums.

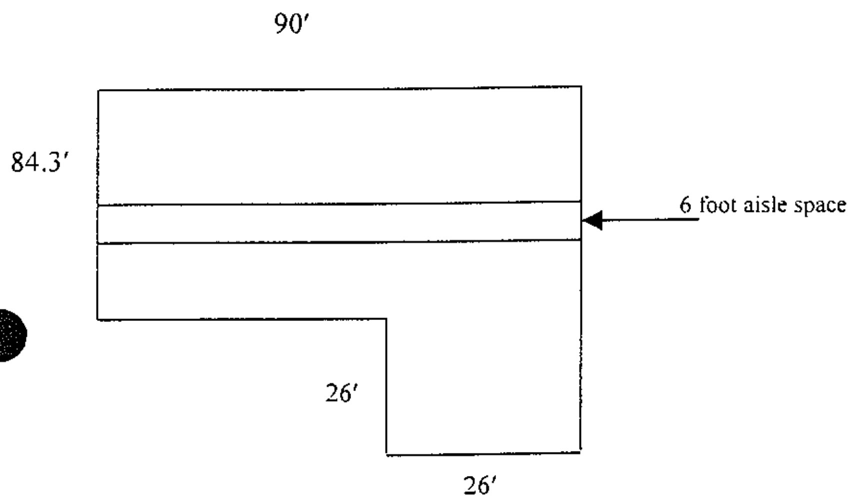
PCB WAREHOUSE BUILDING (continued)

AREA 3/6 - SOLID STORAGE AREA:

Dimensions:

$84.3' x 90'$

$26' x 26'$



$90' - 4' = 86'$

$84.3' - 4' = 80.3' - 6' = 74.3'$

$26' - 4' = 22'$

$26' - 2' = 24'$

The 4 foot perimeter is the required 2-foot spacing from the wall.

$86' \div 6' = 14.3 Sections$

A section is defined as 2 drums side by side (4 feet total) and the 2-foot required aisle space.

$74.3' \div 2' = 37.15 Drums \cong 37 Drums$

The 2 feet is equivalent to a typical drum diameter.

$$14.3 Sections * 2 \frac{Rows}{Section} = 28.6 Rows \cong 29 Rows$$

$$29 Rows * 37 \frac{Drums}{Row} = 1{,}073 Drums(Single Stacked) * 2 = 2{,}146 Drums(Double Stacked)$$

$22' \div 6' = 3.67 Sections \cong 4 Sections$

PCB WAREHOUSE BUILDING (continued)

$24' \div 2' = 12\,Drums$

The 2 feet is equivalent to a typical drum diameter.

$$4\,Sections * 2\,\frac{Rows}{Section} = 8\,Rows * 12\,\frac{Drums}{Row} = 96\,Drums(SingleStacked) * 2 = 192\,Drums(DoubleStacked)$$

Total Drum Storage Capacity (Double Stacked):

$2{,}146\,Drums + 192\,Drums = 2{,}338\,Drums\,Total$

CONCLUSIONS:

Area 3/6 has a solids storage capacity of 2,338 55-gallon drums.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 04/02/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 04/02/2001

SOUTH TRAILER PARKING AREA

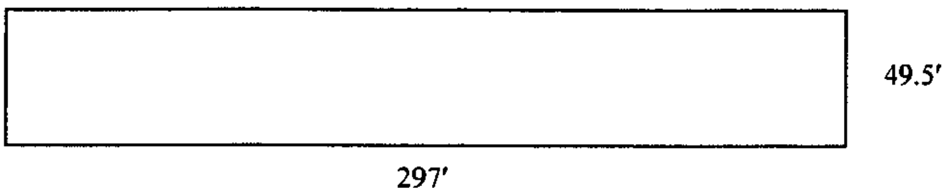
TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Dimensions:

$49.5' x 297' x 1.5'$



Available Secondary Containment:

$$(0.50) * 1.5' * 49.5' * 297' = 11{,}026.13 ft^3 \cong 82{,}481.2 gallons$$

Required Secondary Containment:

Largest single liquid container is expected to be 5,500 gallons.

25 Year, 24 Hour Precipitation Event:

$$297' * 49.5' * 0.333' = 4{,}895.6 ft^3 \cong 36{,}621.6 gallons$$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

$$5{,}500 gallons + 36{,}621.6 gallons = 42{,}121.6 gallons$$

CONCLUSIONS:

The South Trailer Parking Area has secondary containment capacity of 82,481 gallons. The maximum number of liquid containers is limited only by the available physical space, and the ability to contain the volume of the largest container or 10% of the total liquid stored including precipitation. Secondary containment is sufficient for liquid containers equal to or less than 45,860 gallons.

CALCULATION SHEET

SOUTH TRAILER PARKING AREA (continued)

CALCULATIONS:

Available Secondary Containment:

82,481.2 *gallons*
(From Page 1)

Required Secondary Containment:

$$58\ Tankers * 5{,}500\ \frac{gallons}{Tanker} = 319{,}000\ gallons * 10\% = 31{,}900\ gallons$$

25 Year, 24 Hour Precipitation Event:

36,621.6 *gallons*
(From Page 1)

Required Secondary Containment Including Precipitation Event:

$$31{,}900\ gallons + 36{,}621.6\ gallons = 68{,}521.6\ gallons$$

CONCLUSIONS:

The above calculations confirm that the South Trailer Parking Area's secondary containment capacity of 82,481 gallons is adequate to contain 10% of the liquid stored including precipitation.

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal
SUBJECT: Secondary Containment Calculations
Prepared By: CBT Date: 04/02/2001
Reviewed By: AGL Date: 04/02/2001

SOUTH TRAILER PARKING AREA (continued)

Number of Rolloffs:

2 foot perimeter: $297' - 4' = 293'$

2 foot perimeter: $49.5' - 4' = 45.5'$

$293' \div 10' = 29.3 Rolloffs \cong 29 Rolloffs$

The 10 feet incorporates the 8-foot width of the rolloff and the 2-foot aisle space.
The rolloffs will be place end-to-end with 2-foot aisle spacing.

$45.5' \div 22' = 2.07 Row \cong 2 Rows$

The 22 feet is equivalent to a typical rolloff length.

$$2 Rows * 29 \frac{Rolloffs}{Row} = 58 Rolloffs$$

CONCLUSIONS:

The South Trailer Parking Area can store up to 58 rolloffs.
The rolloffs will be stored end-to-end in 2 rows and will be stored with the required 2-foot perimeter, and the 2-foot aisle space.

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 04/03/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 04/03/2001

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

TRANSFORMER CONTAINMENT PAN: (Determined on an individual basis.)

Dimensions:

$11'x7'x0.667'$

Available Secondary Containment:

$11' * 7' * 0.67' = 51.59 ft^3 \cong 385.92 gallons$

CONCLUSIONS:

The individual transformer containment pans have secondary containment capacity of 385.92 gallons. The total number of containment pans may vary to a maximum of 11 pans.

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING (continued)

Dimensions:

50' x 31'

Number of Pans:

2 foot perimeter: 50' - 4' = 46'
2 foot perimeter: 31' - 2' = 29'

$29' \div 9' = 3.22 Rows \cong 3 Rows$

The 9 feet incorporates the 7-foot width of the pan and the required 2-foot aisle space.

$46' \div 11' = 4.18 Pans \cong 4 Pans$

$$3\ Rows * 4\ \frac{Pans}{Row} = 12 Pans$$

CONCLUSIONS:

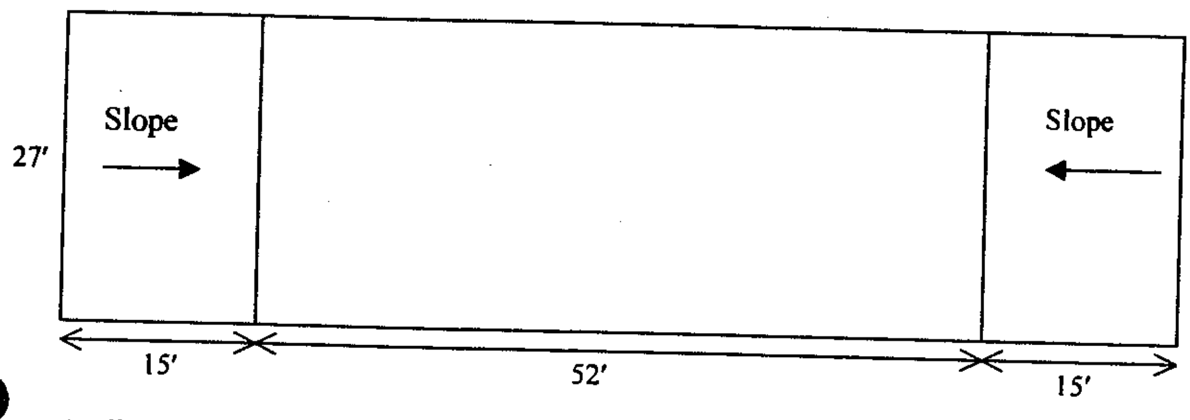
The Transformer Decommissioning (T.O.) Building can accommodate the storage of up to 11 pans, with the largest transformer in each pan having a liquid capacity of no greater than 385 gallons.

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING (continued)

TRANSFORMER DECOMMISSIONING (T.O.) LOADING RAMP:

Dimensions:

$82' x 27' x 1.35'$



Available Secondary Containment:

$(0.50)*15'*27'*1.35'*2 = 546.8 ft^3 \cong 4,090.3 gallons$

$52'*27'*1.35' = 1,895.4 ft^3 \cong 14,178.6 gallons$

$4,090.3 gallons + 14,178.6 gallons = 18,268.9 gallons$

Required Secondary Containment:

Two tankers with a total capacity of 12,000 gallons will be located in the unloading area.

25 Year, 24 Hour Precipitation Event:

$82'*27'*0.333' = 737.26 ft^3 \cong 5,515.10 gallons$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment:

$12,000 gallons + 5,515.10 gallons = 17,515.1 gallons$

CLUSIONS:

The Transformer Decommission Loading Ramp has secondary containment capacity of 18,269 gallons. Secondary containment is sufficient for liquid containers equal to or less than 12,754 gallons.

TANK T-107

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

14.1′ x 11.4′ x 2.3′ = 369.7 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as steel saddles, FRP stairway and carbon can will only account for a very small volume and will not be included in the net containment volume.

T...l Available Volume:

369.7 CF x 7.48 gal/CF = 2,765.4 gallons

Required Volume:

Volume of Largest Tank:

Tank T-107 = 350 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

TANKS T-109 AND T-110

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

28.6′ x 20.8′ x 3.6′ = 2,141.6 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as tank legs, FRP stairway and carbon can will only account for a very small volume and will not be included in the net containment volume.

Corner Piers:

4 (1.2′ x 1.8′ x 3.6′) = 31.1 CF

Side Piers:

2 (1.2′ x 1.2′ x 3.6′) = 10.4 CF

Total Available Volume:

2,141.6 CF - 31.1 CF - 10.4 CF = 2,100.1 CF = 2,100.1 CF x 7.48 gal/CF = 15,708.7 gallons

Required Volume:

Volume of Largest Tank:

Tank T-109 = 3,000 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

SLF 10 LEACHATE LOADING/UNLOADING PAD

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

$(^1/_2(55.0' \times 1.7' \times 13.0')) = 607.8$ CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

(607.8 CF x 7.48 gal/CF) = 4,546.3 gallons + 15,708.7 gallons = 20,255 gallons

The Truck Ramp is connected to the Leachate Collection Building by a 3" pipe. A valve in the pipe is opened whenever transferring liquids to a tanker located in the Truck Ramp. Therefore, an additional 15,708.7 gallons of secondary containment is available within the building.

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

$(55.0' \times 13.0' \times 0.33') = 238.1$ CF = 238.1 CF x 7.48 gal/CF = 1,781.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Volume:

5,500 gallons + 1,781.0 gallons = 7,281.0 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

TANKS T-108 AND T-111

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

28.6′ x 20.8′ x 3.6′ = 2,141.6 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as tank legs, FRP stairway and carbon can will only account for a very small volume and will not be included in the net containment volume.

Corner Piers:

4 (1.2′ x 1.8′ x 3.6′) = 31.1 CF

Side Piers:

2 (1.2′ x 1.2′ x 3.6′) = 10.4 CF

Total Available Volume:

2,141.6 CF - 31.1 CF - 10.4 CF = 2,100.1CF = 2,100.1CF x 7.48 gal/CF = 15,708.7 gallons

Required Volume:

Volume of Largest Tank:

Tank T-108 = 10,000 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

SLF 7/11 LEACHATE LOADING/UNLOADING PAD

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(0.50(55.0′ x 1.7′ x 13.0′)) + (8.9′ x 2.0′ x 1.7′) = 638.0 CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

(638.0 CF x 7.48 gal/CF) = 4,772.2 gallons + 15,708.7 gallons = 20,480.9 gallons

The Truck Ramp is connected to the Leachate Collection Building by a 3" pipe. A valve in the pipe is opened whenever transferring liquids to a tanker located in the Truck Ramp. Therefore, an additional 15,708.7 gallons of secondary containment is available within the building.

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

(55.0′ x 13.0′ x 0.33′) + (8.9′ x 2.0′ x 0.33′) = 241.8 CF = 241.8 CF x 7.48 gal/CF ≒ 1,808.7 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain)
This assumes that the rain gutters for tanks fail.

Required Volume:

5,500 gallons + 1,808.7 gallons = 7,308.7 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

TANKS T-158 AND T-159

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

35.6′ x 27.8′ x 3.4′ = 3,364.9 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Corner Piers:

4 (1.2′ x 1.8′ x 3.4′) = 29.4 CF

Side Piers:

2 (1.2′ x 1.2′ x 3.4′) = 9.8 CF

Total Available Volume:

3,364.9 CF - 29.4 CF - 9.8 CF = 3,325.7 CF = 3,325.7 CF x 7.48 gal/CF = 24,876.2 gallons

Required Volume:

Volume of largest tank:

Tank T-158 = 17,000 gal

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

SLF I-11 OWS BUILDING LOADING/UNLOADING PAD

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

$(\frac{1}{2}(55.0' \times 1.7' \times 13.0')) = 607.8$ CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

(607.8 CF x 7.48 gal/CF) = 4,546.3 gallons + 24,876.2 = 29,422.5 gallons

The Truck Ramp is connected to the Leachate Collection Building by a 3" pipe. A valve in the pipe is opened whenever transferring liquids to a tanker located in the Truck Ramp. Therefore, an additional 24,876.2 gallons of secondary containment is available within the building.

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

(55.0' x 13.0' x 0.33') = 238.1 CF = 238.1 CF x 7.48 gal/CF = 1,781.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

5,500 gallons + 1,781.0 gallons = 7,281.0 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

TANKS T-100, T-125, AND T-8008

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

$(48.0' \times 95.0' \times 7.3') + (50.0' \times 153.0' \times 7.3') = 89{,}133.0$ CF

Subtractions:

Note:
Additional volume of sump and displacements such as tank supports, FRP stairway, piping and pumps will only account for a very small volume and will not be included in the net containment volume.

Tank T-100 Pad and Tank:

$\pi \times 18.0'^2 \times 7.25' = 7{,}379.6$ CF

Tank T-125 Pad:

$\pi \times 41.0'^2 \times 1.0' = 5{,}281.0$ CF

Concrete Pads:

$4(1.0' \times 1.0' \times 0.7') = 2.8$ CF

Concrete Pads:

$2(1.5' \times 4.5' \times 0.7') = 9.5$ CF

Concrete Pads:

$2(1.83' \times 0.83' \times 0.96') = 2.9$ CF

Concrete Pad:

$2.0' \times 2.0' \times 0.54' = 2.2$ CF

Concrete Pad:

$6.0' \times 5.0' \times 0.8' = 24$ CF

TANKS T-100, T-125, AND T-8008 (continued)

Concrete Pad:

0.25′ x 10.2′ x 0.48′ = 50.2 CF

Total Available Volume:

89,133.0 CF - 7,379.6 CF - 5,281.0 CF - 2.8 CF - 9.5 CF - 2.9 CF - 2.2 CF - 24 CF - 50.02 CF = 76,380.8 CF
= (76,380.8 CF x 7.48 gal/CF) = 571,328.4 gallons

Required Volume:

Volume of largest tank:

Tank T-125 = 394,271 gallons

25 Year, 24 Hour Precipitation Event:

(48.0' x 95.0' x 0.33') + (50.0' x 153.0' x 0.33') = 4,029.3 CF x 7.48 gal/CF = 30,139.2 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Secondary Containment:

394,271 gallons + 30,139.2 gallons = 424,410.2 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank interconnections.

TANK T-105

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

24.8′ x 20.8′ x 1.1′ = 567.4 CF

Subtractions:

Note: Additional volume displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Concrete Foundations:

$\pi \times 3.3'^2 \times 0.33' = 11.3$ CF

Column Foundations (4):

1.2′ x 1.2′ x 0.4′ x 4 = 2.3 CF

Total Available Volume:

567.4 CF - 11.3 CF - 2.3 CF = 553.8 CF = 553.8 CF x 7.48 gal/CF = 4,142.6 gallons

Required Volume:

Volume of Largest Tank:

Tank T-105 = 3,000 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

CALCULATION SHEET

TANK T-130

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

20.6' x 20.6' x 2.6' = 1,103.3 CF

Sump:

2.0' x 2.0' x 2.1' = 8.4 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Concrete Pad:

4(1.8' x 1.8' x 0.9') = 11.7 CF

Total Available Volume:

1,103.3 CF + 8.4 CF - 11.7 CF = 1,100 CF x 7.48 gal/CF = 8,228 gallons

Required Volume:

Volume of Largest Tank:

Tank T-130 = 5,732 gallons

25 Year, 24 Hour Precipitation Event:

(20.6' x 20.6' x 0.33') = 141.3 CF = 141.3 CF x 7.48 gal/CF = 1,057.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

5,732 gallons + 1,057.0 gallons = 6,789.0 gallons

TANK T-130

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

TANK T-105 & T-130 LOADING/UNLOADING RAMP

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(0.50(55.0′ x 3.7′ x 13.0′)) = 1,322.8 CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

(1,322.8 CF x 7.48 gal/CF) = 9,894.5 gallons

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

(55.0′ x 13.0′ x 0.33′) = 238.1 CF = 238.1 CF x 7.48 gal/CF = 1,781.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Volume

5,500 gallons + 1,781.0 gallons = 7,281.0 gallons

Conclusions:

Available volume exceeds required volume; therefore, containment volume is acceptable.

LEACHATE TANK FARM

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

75.0′ x 231.0′ x 5.1′ = 88,357.5 CF (at lowest wall height)

Sump:

2.0′ x 5.0′ x 4.0′ = 40.0 CF

Subtractions:

Note:
...ional volume displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Tanks (2):

$\pi/4 \times d^2 \times h = \pi/4 \times 44.5'^2 \times (5.1'$ (wall height) - 1.5′ (tank pad height)) = 5,599.0 CF = 11,198.0 CF

Tank Foundations (3):

(48.0′ x 19.9′ x 1.48′) + 2((0.5(19.9′ + 48.0′) 14.1′) 1.48) = 1,411.9 CF + 1,416.4 CF = 2,828.3 CF = 8,484.9 CF

Frac Tank #3:

8.3′ x 38.9′ x 5.12′ = 1,646.6 CF (at lowest wall height)

Concrete Pump Pads (3):

5.5′ x 2.0′ x 1.8′ = 19.8 CF = 59.4 CF

Concrete Pipe Bridge (2):

3.0′ x 3.0′ x 3.0′ = 27.0 CF = 54.0 CF

Total Available Volume:

88,357.0 CF + 40.0 CF - 11,198.0 CF - 8,484.9 CF - 1,646.6 CF - 59.4 CF - 54.0 CF = 66,954.6 CF
= 66,954.6 CF x 7.48 gal/CF = 500,820.4 gallons

LEACHATE TANK FARM (continued)

Required Volume:

Volume of Largest Tank:

Tank T-101 = 350,000 gallons

25 Year, 24 Hour Precipitation Event:

75.0′ x 231.0′ x .33′ = 5,717.3 CF = 5,717.3 CF x 7.48 gal/CF = 42,765.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain)
This assumes that the rain gutters for tank fail.

Required Volume:

350,000 gallons + 42,765.0 gallons = 392,765.0 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank's interconnections.