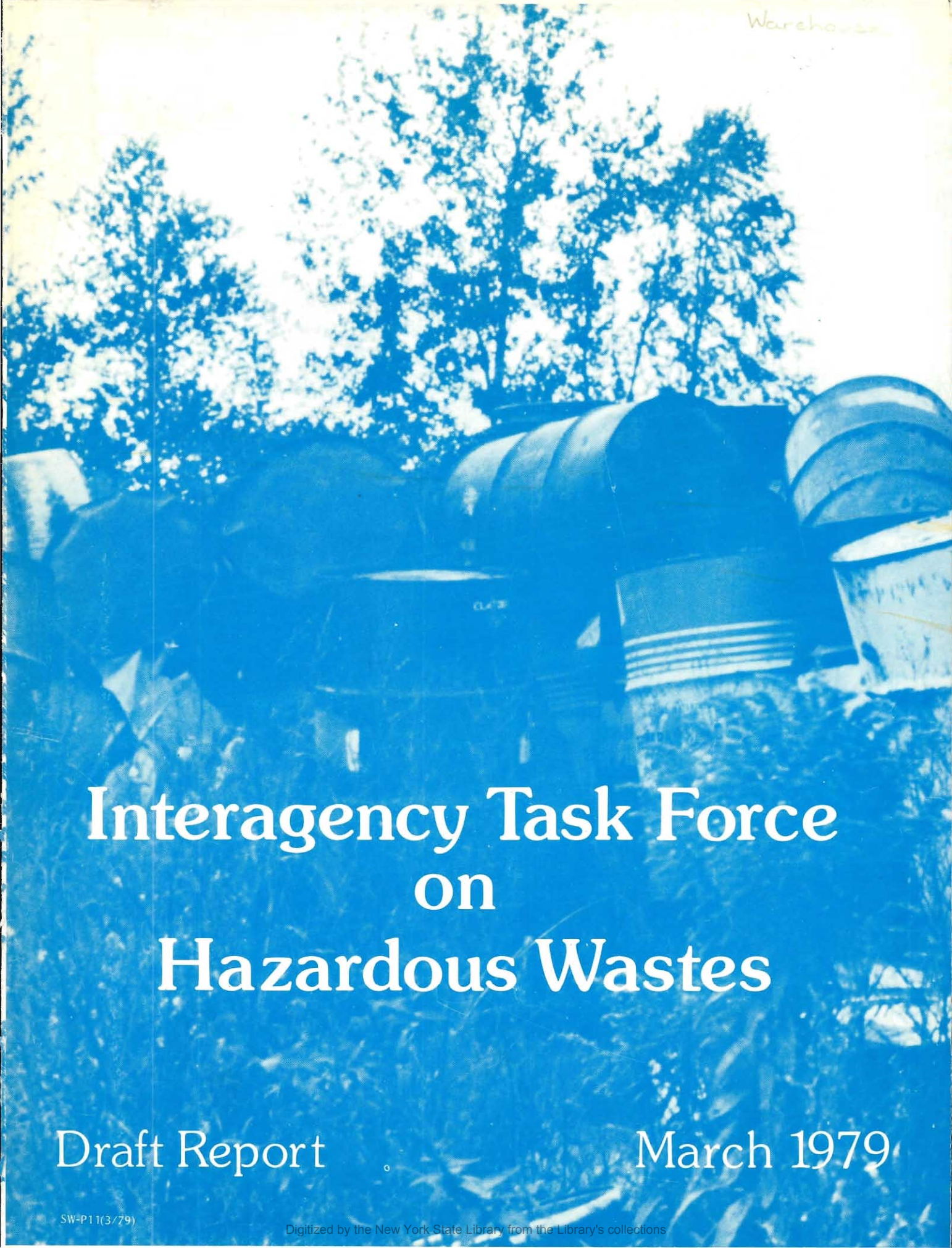


Warehouse



Interagency Task Force on Hazardous Wastes

Draft Report

March 1979

ERRATA

1. The Village of Depew, Ed Ball, Eden Sanitation and Empire Waste sites on page II-38 of the Draft Report should all be in the Priority III category.
2. The two Shanco Plastics disposal sites identified on pages II-15 and II-16 of the Report are located at 2716 Kenmore Avenue, Tonawanda, and not at 111 Wales Avenue, Tonawanda.

New York State Department of Health and the Region II office of the United States Environmental Protection Agency. The Draft Report of the Interagency Task Force is a compilation of the information gathered by and recommendations of the Task Force.

An opportunity to be heard regarding the above five subjects will be given the public at the hearings. Persons need only attend one of the hearing sessions. Each hearing session will continue until all persons wishing to be heard have been heard. Written statements received prior to or at the hearing sessions and oral statements presented at the hearing sessions will be considered part of the official record. In the interest of saving time, it is requested that statements be submitted in writing.

Persons presenting statements at the public hearing will not be asked to testify under oath but may be asked questions by the Hearing Officer and/or by members of the Interagency Task Force.

Copies of the Draft Report on Hazardous Waste Disposal in Erie and Niagara Counties, New York, are available for inspection at the Region 9 Headquarters of the Department of Environmental Conservation, 584 Delaware Avenue, Buffalo, New York, and the Department of Environmental Conservation's Headquarters, 50 Wolf Road, Albany, New York. A copy of the Draft Report may be obtained by writing to: Interagency Task Force on Hazardous Wastes, Room 608, 50 Wolf Road, Albany, New York 12233.

The record of the hearing will remain open until May 16, 1979, for the receipt of additional statements. All statements should be submitted to INTERAGENCY TASK FORCE ON HAZARDOUS WASTES, Room 608, 50 WOLF ROAD, ALBANY, NEW YORK 12233.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Edwin L. Vopelak
Chief Hearing Officer

Dated: April 3, 1979
Albany, New York

State of New York
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Interagency Task Force on Hazardous
Wastes

Public Hearing Notice

Notice is hereby given that, pursuant to Section 3-0301(2)(h) of the Environmental Conservation Law, the New York State Department of Environmental Conservation and the Interagency Task Force on Hazardous Wastes will hold public hearings at the times and places specified below:

Niagara Falls International Convention Center Greek Theater 305 Fourth Street Niagara Falls, New York	May 1, 1979 1:00 p.m. 7:00 p.m.
Kleinhans Music Hall Livingston Hall Porter & Richmond Streets Buffalo, New York	May 2, 1979 1:00 p.m. 7:00 p.m.
Niagara Falls International Convention Center Greek Theater 305 Fourth Street Niagara Falls, New York	May 3, 1979 10:00 a.m.

The purpose of the public hearing is to hear the views of all persons, corporations or civil divisions of the State of New York who appear with respect to the following subjects:

1. The Draft Report of the Interagency Task Force on Hazardous Wastes;
2. Hazardous waste disposal practices in Erie and Niagara Counties, New York;
3. Remedial actions that should be taken with respect to inactive hazardous waste disposal sites in Erie and Niagara Counties;
4. State and federal legislation that should be enacted concerning inactive hazardous waste disposal sites; and
5. The roles of private industry and federal, state and local governments in efforts to deal with inactive hazardous waste disposal sites.

The Interagency Task Force on Hazardous Wastes was created by the New York State Commissioner of Environmental Conservation in August 1978 to help provide detailed information on the extent of the hazardous waste disposal practices in Erie and Niagara Counties. Specifically, the Interagency Task Force was charged with the responsibility for determining the source, nature and location of hazardous waste disposed of in the two counties and for recommending necessary remedial, legal and legislative actions concerning such sites. The Interagency Task Force is composed of representatives of the Department of Environmental Conservation, the

(over)

INTERAGENCY TASK FORCE ON HAZARDOUS WASTES
50 Wolf Road
Albany, New York 12233
(518) 457-6695

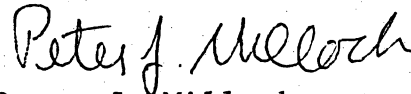
April 4, 1979

Ladies/Gentlemen:

I have enclosed for your review and information a copy of the Draft Report of the Interagency Task Force on Hazardous Wastes. The Report will be issued in Niagara Falls on April 5, 1979.

As indicated in the enclosed notice, the Task Force will be holding hearings in Niagara Falls and Buffalo on May 1, 2 and 3, to present the report and to hear comments on it and on the subject of hazardous waste disposal in Erie and Niagara Counties, New York.

Very truly yours,



Peter J. Millock
Director

Enclosures

INTERAGENCY TASK FORCE ON HAZARDOUS WASTES

DRAFT REPORT

ON

HAZARDOUS WASTE DISPOSAL

IN

ERIE AND NIAGARA COUNTIES, NEW YORK

March 1979

This draft report is a compilation of the information gathered by the Interagency Task Force on Hazardous Wastes concerning hazardous waste disposal practices in Erie and Niagara Counties, New York.

The Task Force invites the public to comment on the report in writing and at a public hearing to be held in western New York. Following the hearing, the Task Force will, in its final report, make appropriate recommendations to the Commissioners of Environmental Conservation and Health and the Administrator of EPA Region II concerning the hazardous waste disposal problems described in this report and discussed at the public hearing. The final report of the Task Force will take into account all written and oral comments on the draft report.

INTERAGENCY TASK FORCE ON HAZARDOUS WASTES

Peter J. Millock (DEC) Director and Counsel

David A. Dooley (DOH)

John E. Iannotti (DEC)

William J. Librizzi (EPA)

Fredrik A. Muller (DOH)

Judith S. Schreiber (DOH)

George Shanahan (EPA)

Peter J. Smith (DOH)

Richard Tisch (EPA)

John S. Tygert (DEC)

ACKNOWLEDGMENT

The Interagency Task Force on Hazardous Wastes gratefully acknowledges the assistance of the Bureau of Hazardous Wastes and the Region 9 (Buffalo) Office of the New York State Department of Environmental Conservation, the Division of Laboratories and Research and the Buffalo Area office of the New York State Department of Health, the Erie County Department of Environment and Planning and the Niagara County Department of Health.

The Task Force also wishes to thank Larry R. Moriarty of EPA's Rochester Field Office and Richard Bedor, Robert Korren and Robert Dunn of SUNY Buffalo for their contributions to the report and Peggy Buchalski, Kathy Khweis, Lori Neal, Joan L. Betts and Carolyn Rauch for their help in preparing it.

SUMMARY OF FINDINGS

The Interagency Task Force on Hazardous Wastes, representing the New York State Departments of Environmental Conservation and Health and the Region II office of EPA, was established in August 1978 to investigate past hazardous waste disposal practices in Erie and Niagara Counties, New York.

The findings of the Task Force presented in detail in this report may be summarized as follows:

a. Disposal Sites

The Task Force identified 215 disposal sites, 109 in Erie County and 106 in Niagara County. 78 of the sites are active sites. 126 of the sites are inactive. The present status of 11 sites is unknown.

Six of the sites are located on property presently or formerly owned by the federal government and connected with federal government activity. 125 sites are or were owned by waste generators. 84 sites are or were owned by state agencies, municipalities or private entities or persons.

The Task Force assigned each of the sites to three categories. Priority I sites have definitely received large quantities of hazardous wastes. Priority II sites may have received significant quantities of hazardous wastes. Priority III sites are unlikely to have received significant quantities of hazardous wastes.

The 215** disposal sites identified in the report are categorized as follows:

		<u>Priority I</u>		<u>Priority II</u>		<u>Priority III</u>	
		Active	Inactive	Active	Inactive	Active	Inactive
Federal -	Erie	0	0	0	1	0	0
	- Niagara	1	1	1	2	0	0
Industrial -	Erie	0	1	16	24(5)*	6	7
	- Niagara	0	31	12	16	4	3
Municipal -	Erie	0	0	12	9(1)*	15	9(2)*
	- Niagara	0	2	6	10(1)*	3	10(2)*
Total		1	35	47	62(7)*	28	29(4)*
Total		36		116		61	

* Numbers in parentheses refer to sites present status of which is unknown.

** Total includes Newco and SCA which are DEC approved commercial hazardous waste management facilities.

b. Waste Generators

The Task Force investigated the waste disposal activities of 90 companies. Summaries of these activities each briefly describing the history of the company's activities in the area, its products, manufacturing processes and principal wastes and the manner of its disposal of such wastes appear in this report.

The report also describes the waste generation and disposal activities of three entities with power generation or transmission facilities, the Power Authority of the State of New York, the Niagara Mohawk Power Corporation and the New York State Electric and Gas Company.

The report describes the waste generation and disposal activities of the Department of Defense and the Department of Energy. Department of Defense waste disposal activities will and are largely concentrated in Air Force facilities, some specialized production facilities and industries working under government contract. Department of Energy waste generation and disposal focused on work done by industry as part of the Manhattan Project and disposal as well as storage of wastes at the Lake Ontario Ordinance Works and that part of it which remains under government control, the Niagara Falls Storage site.

c. Waste Haulers

The report describes the activities of 133 waste haulers each identifying the nature of wastes that have been transported by the hauler, the companies the hauler served and the sites used for the disposal of wastes.

d. Recommendations

The Task Force recommends a series of general actions that may be taken for the control and management of inactive sites including investigation of site conditions, identification of area impacts, initial management and control actions and long term remedial actions. The Task Force strongly recommends that careful consideration be given to the construction of rotary kiln incinerators to destroy combustible organic wastes.

The Task Force also recommends that new state laws be enacted to provide a mechanism both for short term and long term responses to the environmental and health problems posed by inactive sites, funding of governmental programs, reporting of past disposal practices and listing of hazardous waste disposal sites. The Task Force strongly supports the enactment of Federal legislation to provide federal funding for state programs to control inactive disposal sites.

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INTRODUCTION

The control of hazardous substances is one of the most important environmental health issues of our time. In recent years, we have learned that the food we eat, the water we drink and the air we breathe may contain materials harmful to our health. Now, the Love Canal in Niagara Falls has demonstrated that the very homes we live in may be made unsafe by toxic substances.

The Love Canal has also focused the attention of New Yorkers and their government on a specific source of danger, abandoned hazardous waste disposal sites. This growing appreciation of danger has not been matched, however, by detailed information on the extent of the problem.

The Interagency Task Force on Hazardous Wastes was created by the New York State Commissioner of Environmental Conservation in August 1978 to help provide this information by investigating past hazardous waste disposal activities in Erie and Niagara Counties where almost one half of the hazardous waste in the State is generated. Specifically, the Task Force was charged with the responsibility for determining the source, nature and location of hazardous waste disposed of in the two counties and for recommending necessary remedial, legal and legislative actions concerning such sites. The Commissioner's Order, dated November 20, 1978, confirming the establishment of the Task Force is set forth following the introduction.

The Task Force represents a unique attempt to combine the interests and expertise of different state and federal agencies in an effort to address a pressing common problem. The Task Force is composed of three representatives of the New York State Department of Environmental Conservation (DEC), four representatives of the New York State Department of Health (DOH), and three representatives of the Region II office of the United States Environmental Protection Agency (EPA).

The Task Force representatives from DEC and DOH established an office in Niagara Falls, New York, from which to carry on their investigatory activities. This office was open from September through December 1978. Follow-up work and the writing of this report continued in Buffalo and Albany in January, February and March of 1979. The EPA representatives carried on their work from Region II offices in New York City and Edison, New Jersey.

The Task Force focused its efforts on five subjects:

1. Private Generators of Industrial Wastes
2. Federal Government Activity
3. Private and Municipal Landfills
4. Waste Haulers
5. Power Plants and Facilities

The State agency representatives were responsible for investigating private generators, landfills, haulers and power plants. EPA assumed responsibility for reviewing the activities of the federal Departments of Energy and Defense.

This Draft Report is divided into six sections. The first section describes the investigation procedures used by the Task Force. The second section is composed of charts summarizing pertinent information on waste disposal sites in Erie and Niagara Counties and more detailed descriptions of the more important sites. The third section of this report describes the major generators of industrial waste in the two county area, including private companies, the federal government and power generating facilities. The fourth section describes the activities of waste haulers in the area. The fifth and sixth sections include the Task Force's major remedial and legislative recommendations concerning both the waste disposal sites described in the report and the general problem of hazardous waste disposal in the State.

STATE OF NEW YORK : COMMISSIONER OF ENVIRONMENTAL CONSERVATION

IN THE MATTER OF an investigation of
industrial waste disposal sites and
practices in Erie and Niagara Counties
pursuant to Environmental Conservation
Law §§3-0301 and 27-0703

ORDER

WHEREAS, past industrial waste disposal practices at the Love Canal in Niagara Falls, Niagara County, New York have been determined to constitute a present threat to the environment and health of the people of this State;

WHEREAS, a substantial portion of the hazardous waste in New York State is and has been generated in Erie and Niagara Counties, the disposal of which at locations in Erie and Niagara Counties may pose a present threat to the environment and health of the people of this State;

WHEREAS, existing New York State and federal regulatory programs are not specifically designed to regulate hazardous waste disposal facilities which are no longer in use; and

WHEREAS, an inter-disciplinary cooperative investigation by the State and Federal agencies responsible for the environment and health of the people of this State should be initiated to determine the location, nature, extent and origins of industrial waste disposed of at facilities no longer in use or not permitted under applicable law in Erie and Niagara Counties, New York.

1

NOW, THEREFORE, it is hereby ORDERED pursuant to my powers and responsibilities set forth in Sections 3-0301 and 27-0703 of the New York Environmental Conservation Law, THAT an Interagency Task Force on Hazardous Waste be established in cooperation with the New York State Department of Health and the United States Environmental Protection Agency, to:

Determine the location of all facilities, sites or locations at which hazardous industrial wastes have been disposed of in Erie and Niagara Counties which are not currently in operation and, to the extent possible, the exact identity, generator and transporter (if any) of wastes disposed of at such facilities, sites or locations;

Ascertain, to the extent possible, all information relevant to determining whether any hazardous industrial wastes disposed of at such facilities, sites or locations pose a present or imminent threat to the health or welfare of the people of the State of New York;

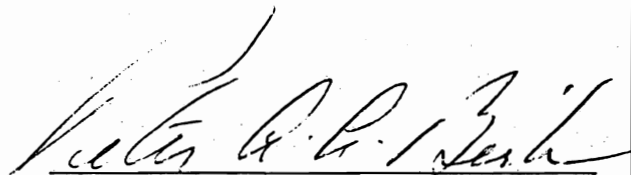
Recommend remedial measures determined to be necessary to prevent injury to public health and/or welfare;

Determine whether and the extent to which persons or entities which have contributed to any hazardous waste problems created by past hazardous waste practices may be liable for the costs of any necessary remedial measures and recommend legal or other action to be taken to ascertain such liability and recover such

costs; and

Present its findings, recommendations and such witnesses as it deems appropriate to the undersigned (through a duly designated representative) at a public hearing.

DATED: Albany, New York
November 20, 1978

A handwritten signature in dark ink, appearing to read "Peter A. A. Berle", is written over a horizontal line.

Peter A. A. Berle, Commissioner
New York State Department of
Environmental Conservation

SECTION I

INVESTIGATION PROCEDURES

The Task Force adopted the following investigation procedures in the five areas on which it focused its efforts.

1. Private Generators of Industrial Wastes

The Task Force formulated a list of 90 private companies which are now operating or have in the past operated in Erie and Niagara Counties and which generated a substantial amount of industrial waste. The Task Force used the results of two earlier DEC studies to determine which private companies would be on this list. These studies are the Industrial Chemical Survey, which included information on toxic substances produced, used or handled by private companies in the period 1971 through 1977, and the Hazardous Waste Inventory, which included information on waste disposal activities of private companies from 1976 through 1978.

The Task Force mailed each of the 90 companies a four page questionnaire requesting data on the company's history, personnel, products, wastes, waste haulers, the location of any waste disposal sites used by the private companies as well as the type, quantity and manner of disposal of wastes at such sites.

The Task Force reviewed the responses to the questionnaire for accuracy and completeness. In addition, the Task Force checked the records of the Niagara County Health Department, the Erie County Department of Environment and Planning, DEC, EPA and the Corps of Engineers and spoke by telephone or in person with former company employees, present company representatives and private citizens and organizations. The results of these investigations are presented in sections two and three of this report.

2. Federal Government Activity

EPA assumed responsibility for investigating federal government activity in Erie and Niagara Counties. EPA representatives met with the Department of Defense (DOD), the Department of Energy (DOE) and the General Services Administration in October and again in November 1978. EPA gave DOD a modified questionnaire requesting information on each DOD site in the two counties. DOD and DOE submitted

reports to EPA in February. EPA reviewed these reports, sent follow-up questions to the two agencies and, on the basis of the information it had gathered, compiled its own report on the two agencies which is included as part of Section III of this report. A chart describing federally owned disposal sites is included in Section II.

3. Municipal, State and Private Landfills

The Task Force began its study of private, state and municipal landfills by reviewing the 1972 Erie and Niagara Counties Comprehensive Solid Waste Study and the records of the Niagara County Department of Health, the Erie County Department of Environment and Planning and DEC. On the basis of these records, the Task Force formulated a list of landfills not owned by waste generators which may have received industrial waste. Most of these sites were visited and their present owners interviewed to ascertain whether industrial wastes had, in fact, been disposed of at the landfills and, if so, the types and quantities of such wastes. Descriptions of all known municipal, state and privately owned sites whether or not such sites are known to have accepted industrial wastes are included in the charts in this report.

4. Waste Haulers

The Task Force began its study of waste haulers with a list of haulers which had registered with DEC pursuant to the requirements of the Environmental Conservation Law and State rules and regulations and a list of known unregistered haulers in Erie and Niagara Counties. The Task Force interviewed these haulers and requested information from them on waste generators served, types of wastes hauled and disposal sites used. The questionnaires completed by private companies included information about many additional haulers not part of the original list of registered and unregistered haulers compiled by the Task Force.

5. Power Plants and Facilities

The Task Force sent questionnaires to the Power Authority of the State of New York, the Niagara Mohawk Power Corporation and the New York State Electric and Gas Company asking for information about wastes generated by such companies and waste disposal sites used. The responses were reviewed and government records on these entities checked.

In addition to the activities described above, each major disposal site in the two counties was visited by the Task Force. The Task Force made an effort to corroborate all information it received about suspected waste disposal sites.

SECTION II

WASTE DISPOSAL SITES

The Task Force has identified 215 waste disposal sites in Erie and Niagara Counties. 109 of these sites are in Erie County; 106 of these sites are in Niagara County. Six of the 215 sites are on property presently or formerly owned by the federal government and connected with federal government activity. 78 of these sites are active sites. 126 are inactive sites. The present status of 11 sites is unknown.

The charts presented in the following pages describe these sites. The charts are divided into the following five parts.

1. Industrial waste disposal sites in Niagara County owned by waste generators (66 sites);
2. Municipal, state and private waste disposal sites in Niagara County (36 sites);
3. Industrial waste disposal sites in Erie County owned by waste generators (59 sites);
4. Municipal, state and private waste disposal sites in Erie County (48 sites); and
5. Disposal sites owned by the federal government in both counties (6 sites).

The industrial waste disposal sites in both counties (1. and 3. above) are generally those sites located on plant premises or on property away from an industrial facility but owned by the waste generator. Most, but not all of these sites, are owned by generators that received questionnaires from the Task Force.

Municipal, state and private waste disposal sites (2. and 4. above) are municipal or state owned landfills, privately owned facilities and other areas where wastes have been dumped.

Many of the more important sites are described in greater detail following the charts.

The disposal sites described in the following pages vary greatly in size, quantity and toxicity of the waste received and in their proximity to homes, public facilities, waterways, wells and places of work. Some of the sites accepted hazardous industrial wastes; some sites have received industrial, but non-hazardous wastes; some sites have received no industrial or hazardous wastes. The sites include landfills, lagoons and waste storage sites as well as active and inactive sites.

The Task Force has attempted to assess the actual and potential impacts of these sites on public health and the environment by assigning to each site a priority rating. These rates have the following meaning:

Priority I: Waste disposal areas that have definitely received large quantities of hazardous wastes; remedial action may be necessary; litigation to ensure that remedial action is taken should be considered.

Priority II: Waste disposal areas that may have received significant quantities of hazardous wastes.

Priority III: Waste disposal areas that are unlikely to have received significant quantities of hazardous wastes or any industrial wastes at all.

The 215** disposal sites identified in the report are categorized as follows:

	<u>Priority I</u>		<u>Priority II</u>		<u>Priority III</u>	
	Active	Inactive	Active	Inactive	Active	Inactive
Federal - Erie	0	0	0	1	0	0
- Niagara	1	1	1	2	0	0
Industrial - Erie	0	1	16	24(5)*	6	7
- Niagara	0	31	12	16	4	3
Municipal - Erie	0	0	12	9(1)*	15	9(2)*
- Niagara	<u>0</u>	<u>2</u>	<u>6</u>	<u>10(1)*</u>	<u>3</u>	<u>10(2)*</u>
Total	1	35	47	62(7)*	28	29(4)*
Total	36		116		61	

* Numbers in parentheses refer to sites present status of which is unknown.

** Total includes Newco and SCA which are DEC approved commercial hazardous waste management facilities.

In determining whether waste received at a particular site was "hazardous", the Task Force used the following general definition of that term which appears in Section 27-0901(3) of the Environmental Conservation Law:

3. "Hazardous waste" means a waste or combination of wastes, which because of its quality, concentration, or physical, chemical or infectious characteristics may:

a. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or

b. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed.

It should be stressed that much of the information on disposal sites is general and tentative. Some of the data on wastes is derived, not from specific company records, but from estimates of past activities and personal recollections. Moreover, even where detailed information is available, it usually describes the quantities and types of wastes placed in an area, and not necessarily the substances there now.

Finally, the disposal sites do not include incinerator sites, except where such sites were also used for land disposal of wastes, water bodies (other than lagoons or settling ponds) which may have received hazardous wastes or air emissions of hazardous substances.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
III	R. P. Adams Company	225 East Park Dr. Buffalo	Active Unknown to present	Waste cutting oil (165 gal/yr).
II	Allied Chemical Corp. Specialty Chemicals Division (Plastics)	Between River Road and Niagara River on property now owned by Tonawanda Coke Tonawanda	Inactive 1952 to 1960	Scrap polyethylene, miscellaneous trash and used ceramic saddle packing; Quantities unknown.
II	Allied Chemical Corp. Specialty Chemicals Division (Plastics)	East of River Road on plant property 3821 River Road Tonawanda	Inactive 1956 to 1960	Scrap polyethylene, scrap chlorinated polyethylene and spent catalyst; Quantities unknown.
II	Allied Chemical Corp. Specialty Chemicals Division (Plastics)	Southeast corner of plant property 3821 River Road Tonawanda	Inactive Unknown to early 1960's	Tar; Quantity unknown.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
III	Allied Chemical Corp. Industrial Chemicals Division	35 Lee Street Buffalo	Inactive 1930 to 1977	Spent vanadium pent oxide catalyst, sulfur drainings, cinder and slag, bricks and other construction materials, polymerized "sulfan", calcium and other salts of sulfuric and nitric acid; Site was closed and waste excavated and hauled to Newco Waste Systems in Niagara Falls.
II	Allied Chemical Corp. Semet-Solvay Division (now Tonawanda Coke)	Southwest part of plant property 3875 River Road Tonawanda	Inactive 1930 to 1978	Tar sludge, fly ash and cinders (4680 tons/yr.) and boiler fly ash (19,760 tons/yr.).
II	Allied Chemical Corp. Semet-Solvay Division (now Tonawanda Coke)	Northwest part of plant property 3875 River Road Tonawanda	Inactive 1930 to 1978	Brick, rubble and demolition material (10 tons total).
II	Allied Chemical Corp. Semet-Solvay Division (now Tonawanda Coke)	Southeast part of plant property 3875 River Road Tonawanda	Inactive 1930 to 1978	Spent iron oxide and wood shavings (728 tons/yr.).

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Aluminum Match Plate Corporation	1500 Military Rd. Kenmore	Active Unknown to present	Molding sand (with phenol binder) and aluminum grindings; Quantities unknown.
III	AMAX Specialty Metals Corporation	Hake Road and Clarence Center Akron	Inactive Unknown to 1978	Three lagoons used for copper nitrate, nitric acid, hydrofluoric acid, zirconium oxide and calcium fluoride; All waste (5670 tons) has been removed to SCA in Porter.
III	The Anaconda Company	446 Military Road Buffalo	Active 1930 to 1970	Spent refractories, coal ash (21,600 tons total) and metal slag (27,000 tons total).
II	Ashland Petroleum Company	One mile east of Ashland Refinery River Road Tonawanda	Active 1957 to present	Spent lime (72 tons/yr.); wood; concrete; scrap metal; spent clay (50 tons/yr.); spend phosphoric acid catalyst (5 tons/yr.); Landfill permit application submitted to DEC.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
III	Ashland Petroleum Company	4545 River Road Tonawanda	Active	Numerous weathering areas for tetraethyl lead sludge from gasoline storage tanks; Several tons per year.
III	Ashland Petroleum Co.	4545 River Road Tonawanda	Active	Concrete pit for storage tank water and sediment, sewer sediment, API separator sludge and plant oil spills (several million gallons/yr.).
II	Ashland Petroleum Co.	4545 River Road Tonawanda	Inactive 1943 to 1945	Uranium ore tailing residues (.54 percent uranium) (5000 tons); DOE has estimated that 48,000 cubic yards of soil may require further disposal.
II 7-11	Bethlehem Steel Co.	3555 Lake Shore Road Lackawanna	Active Before 1930 to present	Blast furnace slag, basic oxygen furnace slag; paper, wood, rubber, metals, garbage, refuse, dredgings, inert materials, sludges, tar sludges and acids. Permit application submitted to DEC.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Bisonite, Inc.	Military Road Tonawanda	Active Unknown to present	Lagoon (1750 sq. ft.) for spent byproducts of water based paints; ten gallon containers of pigment metal dumped on ground; Used spent cleaning solvent for weed control (1800 gal/yr.) dumped on ground. DEC has requested termination of solvent dumping.
II	Buffalo Color Corp. (formerly Allied Chemical Dye Plant)	South Park Avenue Buffalo.	Inactive 1930 to 1963	Two lagoons for iron oxide sludges; Quantities unknown.
II	Buffalo Color Corp. (formerly Allied Chemical Dye Plant)	Plant D South Park Avenue Buffalo	Inactive Unknown	Weathering area for metal sludges and calcium sulfate prior to sale for reclamation or for off-site disposal.
II	Buffalo Color Corp. (formerly Allied Chemical Dye Plant)	South Park Avenue Buffalo	Inactive 1960 to 1963	450 foot deep well for disposal of 40 percent ammonium sulfate solution (3,500,000 gallons total).

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
III	Columbus-McKinnon Corporation	Freemont Street Tonawanda	Inactive 1930 to 1965	Water soluble cutting oils (27,000 gallons total).
II	Dresser Industries	West of Transit Rd. Depew	Active Unknown to present	Temporary staging area for sludge disposed of elsewhere.
II	Dunlop Tire and Rubber Company	West of plant Sheridan Drive Tonawanda	Active 1923 to present	Masonry rubble and dirt (200 tons/yr.).
II	Dunlop Tire and Rubber Company	West of plant Sheridan Drive Tonawanda	Active 1923 to present	Solids only including fly ash, tire beads, scrap rubber, sulfur, plastic, amines and general refuse; Quantities unknown.

INDUSTRIAL WASTE DEPOSITS

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Dunlop Tire and Rubber Company	East of plant Sheridan Drive Tonawanda	Inactive 1923 to 1973	Cinders (4000 tons/yr.).
II	E.I. DuPont de Nemours & Co., Inc.	Six areas on premises River Road and Sheridan Drive Tonawanda	Inactive 1921 to 1978	Cellulosic-viscose, rayon, cellophane and sponges (80,000 tons total); dry "Corian" waste (5000 tons total); polyvinyl alcohol film (100 tons total); wet "Corian" (1500 tons total); "Vexar" netting (1500 tons total); dry "Tedlar" polyvinyl fluoride film (750 tons total); "Tedlar" with dimethylacetamide (1000 tons total); nylon shutters and water based paint (75 tons total); miscellaneous laboratory chemicals (1 ton total) and foundry sand from Chevrolet.
II	Ernst Steel Corp.	1746-1784 Walden Avenue Cheektowaga	Active Unknown to present	Metal shavings, dust, wood debris and iron oxide (2600 gal./hr.); dried paint sludge (250 gal./yr.).
II	Exolon Corporation	100 East Niagara Street Tonawanda	Unknown	Unknown.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	FMC Corporation	Four pits on premises Sawyer Avenue Tonawanda	Inactive 1964 to 1976	Floor sweepings, scrap products including persulfates, perborates, sodium carbonate peroxide, hydrogen peroxide, peracetic acid, calcium and zinc peroxide, magnesium, urea, pyrophosphate, dipicolinic acid; Waste placed in four pits each 4000 cubic feet in size; Approximately 100 tons of wastes has been placed in pits.
III	Fedders Automotive Component Corp.	57 Tonawanda St. Buffalo	Active Unknown to present	Waste oil dumped on ground for weed control (165 gal./yr.).
II	Ferro Corporation Electro Division	Willet Road Lackawanna	Unknown	Dump site on old Lackawanna pistol range used for chemical disposal.
II	Gold Bond Division National Gypsum Co.	Roll Road Clarence Center	Active Unknown to present	Washdown sludge (6 tons/yr.); gypsum board and waste gypsum (400 tons/yr.).

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Hanna Furnace Corp.	1818 Fuhrmann Blvd Buffalo	Active Unknown to present	Blast furnace slag (200,000 tons/yr.); dry flue dust (10,000 tons/yr.); wet flue dust (7000 tons/yr.) and general plant waste (5000 tons/yr.).
II	I.N.S. Equipment Corp.	River Road Tonawanda	Unknown	Foundry sand and pit sludge; Quantities unknown.
III	Lucidol Division Pennwalt Corporation	Military Road Tonawanda	Inactive 1956 to 1970	Phosphorous acid sludge and limestone (62.5 tons/yr.).
III	Macnaughton-Brooks, Inc.	11 Bolton Place Buffalo	Inactive 1960 to 1966	Waste solvents (600 gallons total) poured on brick rubble in back of plant.

INDUSTRIAL AND WASTE SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Madison Wire Company	Indian Church Road Buffalo	Inactive Unknown	Annealing salts and sodium hydroxide sludge; Quantities unknown.
II	Manzel Division Houdaille Industries	Babcock Street Buffalo	Active Unknown to present	Small site (1750 sq. ft.) used for water soluble cooling compounds (3850 gallons).
II	Mobil Oil Corporation	635 Elk Street Buffalo	Inactive Unknown to 1976	Cooling water silt, construction and demolition debris; air flotation unit sediments, gravity separator sediment, gasoline tank sediment, sludge from lube manufacture, soil contaminated with asphalt and fuel oil, catalytic cracking and reforming catalysts, sewer sediment, spent caustic sludge, alumina and miscellaneous rubbish; Quantities unknown.
III II-13	Mollenberg-Betz Machine	300 Scott Street Buffalo	Active Unknown to present	Waste oil dumped on ground for dust control (150 gal./yr.).

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	O-Cel-O Products	Sawyer Avenue Tonawanda	Active Unknown to present	Lagoon containing sulfur sludge (75,000 gal./yr.).
II	Otis Elevator	Dutton and North- land Avenues Buffalo	Unknown	Foundry sand molding cores from Buffalo Elevator Ordinance Plant operated by U.S. Army 1942 to 1946.
II	Polymer Applications, Inc.	River Road Tonawanda	Inactive 1976 to 1977	2000 gallon submerged tank for organic solvents with phenols (125,000 gallons/yr.); and unreacted phenols and resin sludge (440 gallons/yr.).
II	Pratt & Letchworth Division of Dayton Malleable, Inc.	189 Tonawanda Buffalo	Inactive 1949 to 1965	Sand (1200 tons/yr.); slag (1000 ton/yr.); paper and wood (3000 cubic yds./yr.) and lubrication and hydraulic oil (14,000 gal./yr.).

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Ramco Steel, Inc. (formerly Bliss and Laughlin Industries)	110 Hopkins Street Buffalo	Active Unknown to present	Spent pickle liquor (75,000 gal./yr.); rinse water and lime (6,050,000 gal./yr.) and waste lubricating oil (7000 gal./yr.) to lagoon.
II	Republic Steel Corporation	Marillo and Hopkins Streets Buffalo	Active 1958 to present	Clarifier sludge (48,420 tons/yr.); spent pickle liquor (10,577 tons/yr.); slag (126,900 tons/yr.); iron oxide scale (22,800 tons/yr.); carbon dust (100 tons/yr.); flue dust (15,500 tons/yr.), and iron oxide dust (11,200 tons/yr.). Landfill permit application has been submitted.
II	Roblin Steel	Old Wickwire- Spencer Steel property 4000 River Road Tonawanda	Unknown	Spent sulphuric acid pickle liquor (1,000,000 gallons) disposed of here in 1969 and 1970.
II II-15	Shanco Plastics and Chemicals, Inc.	111 Wales Avenue Tonawanda	Inactive Early 1950's	Drummed chemical wastes land disposed on site where warehouse now exists; Quantity and composition unknown.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Shanco Plastics and Chemicals, Inc.	111 Wales Avenue Tonawanda	Inactive Unknown to 1976	Phenols discharged on soil. Soil was removed to secure landburial facility in 1976.
III	Snyder Tank Company	3773 Lake Shore Road Buffalo	Inactive Unknown to 1970	Spent pickle liquor and precipitated iron salts; Quantities unknown.
II	Spaulding Fibre Co.	310 Wheeler Street Tonawanda	Inactive 1930 to 1972	Several lagoons for fabrication grindings containing phenolics and zinc chloride; Quantity unknown; All material excavated and lagoons filled in.
II	Spaulding Fibre Co.	310 Wheeler Street Tonawanda	Inactive 1978	More than 750 drums of waste varnishes; Test wells dug; Further evaluation of site in progress.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Spaulding Fibre Co.	310 Wheeler Street Tonawanda	Inactive 1977 to 1978	Asbestos and glass dust (20 tons); Permit application submitted to DEC.
II	Spencer Kellogg Research Division Textron, Inc.	Genesee Street Cheektowaga	Active Unknown to present	Settling ponds for small quantity of grease and oil.
III	Strippit Division Houdaille Industries (formerly owned by Buffalo Arms)	12975 Clarence Rd. Akron	Inactive Before 1955 to 1975	Machine gun parts; culting oil compounds, solvents, water with paint contamination (20,000 gallons/yr.); heat treat sludge (3 tons/yr.); coolants (20,000 gallons/yr.) and combustible waste.
I II-17	Union Carbide Linde Division	East Park Drive Tonawanda	Inactive 1942 to 1948	Radiation contaminated soil (72,000 cubic yds.) and building material (19,000 cubic yds.) in and around five buildings involved in uranium ore processing.

INDUSTRIAL WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Westinghouse Electric Corporation	4454 Genesee St. Cheektowaga	Inactive 1950's	Cyanide salts; Quantities unknown.
II	J. H. Williams Div. TRW, Inc.	400 Vulcan Street Buffalo	Active 1914 to present	Industrial wastes; Quantities and composition unknown.
II	Winsmith Division UMC Corporation	172 Eaton Street Springville	Inactive 1930 to 1968	"Kolene" heat treating cyanide sludges; neutralized hydrochloric acid (with some iron in solution) and sodium hydroxide, Quantities unknown but presumed small.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Airco Alloys Division of Airco, Inc.	Witmer Road. Niagara Falls	Active Unknown date to present	Ferrochrome silicon slag (21,000 tons total); ferromanganese slag (6,000 tons total); ferro silicon dust (10,000 tons total); ferrochrome silicon dust (39,200 tons total) and calcium hydroxide; Large amounts of slag and refuse were also disposed of at the site by the Vanadium Corporation of America; Permit application has been submitted to DEC.
II	Airco Speer Carbon- Graphite Division of Airco, Inc.	4861 Packard Road Niagara Falls	Inactive 1930 to 1954	Carbonaceous furnace insulation, spent refractories and sand (28,800 to 144,000 cu.yds.); carbon materials; obsolete or non-repairable mechanical and electrical equipment; linseed oil; tar; castable insulation containing asbestos fiber (7 tons) and asbestos tape.
II	Allied Chemical Corp. Elberta Works	Ransomville	Active Unknown to present	Lagoons containing sump water with traces of aluminum chloride (50,000 gallons/yr.); refractory material containing traces of aluminum chloride (12 tons/yr.).
II 61-19	Basic Carbon Company (now under different ownership)	West of Connecting Road, North of Pine Ave. Niagara Falls	Inactive 1951 to 1960	Scrap paper, wood, graphite (including 30 percent coal tar pitch), carbon and garbage; The Basic Carbon Company was acquired by Carborundum in 1965, but Carborundum has indicated that it never owned this site.

INDUSTRIAL WASTE DISPOSAL SITESNIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Bell Aerospace Textron	Route 62 Niagara Falls	Active 1960's to present	Rocket fuels, nitric acid and sodium hydroxide neutralizer (hundreds of gallons/yr.) disposed of in a small lagoon.
III	Buffalo Pumps Division Buffalo Forge Company	874 Oliver Street North Tonawanda	Inactive Unknown to 1971	Incinerator ash; Quantity unknown.
II	Carborundum Company	South of Building 89 Buffalo Avenue Niagara Falls	Inactive 1972 to 1978	Coolant containing 50 parts water and one part of an alkaline concentrate known as Norton Wheelmate (containing citride amine, steel chips and abrasive sludges) (5200 gallons/yr.).
III	Carborundum Company	Behind Building 82 Between Buildings 30 and 32 and other sites Buffalo Avenue Niagara Falls	Active	Storage sites for sand, fly ash, fire brick, dust collector fines, kiln furniture, wood, broken carborundum wheels, alumina- silica shot and fiber used prior to disposal elsewhere.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Carborundum Company	Walmore Road Wheatfield	Inactive 1968 to 1976	Partially solidified and solidified resins, floor sweepings, waste fillers including calcium carbonate, clays and animal glue (400 tons total) with free phenols (800 to 1600 lbs. total).
III	Carborundum Company	Northeast corner of Globar Plant Hyde Park Blvd. Niagara Falls	Inactive Unknown	Temporary storage site for graphite, dust and garbage used prior to on-site incineration or off-site disposal; Quantities unknown.
III	Chisholm-Ryder Company, Inc.	College and Highland Avenues Niagara Falls	Active Unknown to present	Water soluble coolant, grease and oil (170 gallons/yr.).
III	Diversified Manufac- turing, Inc.	410 Ohio Street Lockport	Active Unknown to present	Dirty oil and solvent (160 gallons/yr.).

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Dussault Foundry	2 Washburn Street Lockport	Active Unknown to present	Foundry sand treated with furfural alcohol (50 tons/yr.) and scrap iron.
I	E.I. duPont de Nemours & Co., Inc.	Necco Park Pine Avenue & 56th Street Niagara Falls	Inactive 1930 to 1977	Sodium salts, floor sweepings, sodium cell brick and rubble, other furnace brick and rubble, graphite scrap and butts, fiberglass insulation, lime slaking grits, brine storage residues, brine sludge, filter charcoal, copper residues, scrap "Elvanol" (granular polyvinylalcohol), zinc sulfite residues, chlormethane and chlorethylene filter dumpings, chlorinolysis residues, catalyst fines, sewer and pipe cleanings, coal screenings, carbon dust, incinerator ash, chlorinated liming residues, lubrication and hydraulic oil, organic mixtures, high boilers, vinyl acetate residues, acetic acid residues, glycol scrap, scrap polyvinyl chloride emulsions, other scrap chlorinated organics, furfural and furan residues, spent resin, fly ash, scrap rubble and demolition debris, scrap metal, alumina pellets, scrap frit, asbestos insulation and insulation and misc. waste; Total quantity = >93,000 tons.
I	E.I. duPont de Nemours & Co., Inc.	West Yard weathering dump Niagara Falls	Inactive Late 1940's to 1950's	Sodium cyanide residue (500 tons total).
I	E.I. duPont de Nemours & Co., Inc.	East of Building 301 Niagara Falls	Inactive 1950 to 1961	Cyanide residue solids containing carbon, ash, cyanide and iron complexing agent (500 tons total).

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	E.I. duPont de Nemours & Co., Inc.	Southeast of Building 117 to south boundary line fence (C-2 process area) Niagara Falls	Inactive 1925 to 1972	Trichlorethylene and perchloroethylene process tank heel cleanouts; Quantities unknown; Solvent leaks occurred around B84 and B107 tank farms; Soil may be contaminated with high boilers.
II	E.I. duPont de Nemours & Co., Inc.	Southern boundary of plant immediately west of Gill Creek Niagara Falls	Inactive 1930 to 1956	Copper sludge from copper and zinc cyanide process stored in drums; After 1956, sold for scrap; Quantities unknown.
II	E.I. duPont de Nemours & Co., Inc.	Area west of Hyde Park Blvd. south of Buffalo Avenue Niagara Falls	Inactive Unknown to 1948	Possibly sodium cell bricks, metal parts, sludge, rubble and demolition debris; Quantities unknown.
I	FMC Corporation	100 Niagara Street Middleport	Inactive Prior to 1940 to 1970	Arsenical wastes (250 tons); sulfur compounds, sludge from dithiocarbamate wastewater lagoon; carbofuran, DDT, benzene hexachloride; organic phosphates; off-grade products and incinerator ash.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Frontier Bronze Corp.	Packard Road Niagara Falls	Active Unknown to present	Foundry sand with phenolic binders, slag and aluminum bronze grinding; Quantities unknown.
II	Great Lakes Carbon Corporation	5600 Pine Avenue Niagara Falls	Inactive 1939 to 1966	Carbon graphite and coal dust, brick, concrete solid pitch, coke, sand, carbon fines, charred wood, carbon cathodes, electrodes, block graphite and mold stocks; Quantities unknown.
II	Harrison Radiator Div General Motors Corp.	Upper Mountain Road Lockport	Active Unknown to present	Metal hydroxide sludge (containing calcium fluoride, oils and greases) in lagoons.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site I North Tonawanda	Inactive 1950's	Phenol tar containing chlorinated benzenes; Quantities unknown.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site II North Tonawanda	Inactive 1940's to 1950's	Phenol tar containing chlorinated benzenes, phenolic resins and rubbish; Quantities unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site III North Tonawanda	Inactive Unknown	"Ring washing" area and dumping area for calcium aluminum oxide and calcium phosphate; Quantities unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site IV North Tonawanda	Inactive Unknown	"Drumming" area for phenol tar containing chlorinated benzenes; Leaks and overflow have occurred; Soil is contaminated; Quantities unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site V North Tonawanda	Inactive Unknown	Phenol bearing materials deposited as fill; Quantities and composition unknown.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site VI North Tonawanda	Inactive Unknown	Tank farm area where overflows of styrene and liquid phenol resin have occurred.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site VII North Tonawanda	Inactive Unknown	Open dump for waste liquids and solids including phenolic resins and molding compounds; Quantities and composition unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site VIII North Tonawanda	Inactive 1940's to 1950's	Phenol wash dumped on ground; Quantities and composition unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site IX North Tonawanda	Inactive Unknown	Calcium aluminum oxide and calcium phosphate; Quantities unknown.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site X North Tonawanda	Inactive Unknown	Open dumping area for all types of phenolic bearing materials and rubbish; Quantities and composition unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site XI North Tonawanda	Inactive Early 1950's	Liquid phenolic resin; Quantities unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site XII North Tonawanda	Inactive Unknown	Dumping area for phenolic resins, phenolic molding compounds and rubbish; Quantities unknown.
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site XIII North Tonawanda	Inactive Unknown	A "fire hole" where rubbish and off-specification phenolic resin were burned and buried; Quantities unknown; Closure plan tentatively approved by DEC.

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INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation Durez Division	Plant Site XIV North Tonawanda	Inactive Unknown	Drums of scrap phenolic resin; Quantities and composition unknown; Closure plan tentatively approved by DEC.
I	Hooker Chemicals and Plastics Corporation (now owned by Board of Education of City of Niagara Falls, City of Niagara Falls and private person)	Love Canal 97th-99th Street Niagara Falls	Inactive 1942 to 1952	Miscellaneous acid chlorides (400 tons); thionyl chloride (500 tons); miscellaneous chlorinations (1000 tons); DDM (2400 tons); trichlorophenol (200 tons); benzoyl chloride (800 tons); metal chlorides (400 tons); LDS/MCT (700 tons); bentene hexachloride (6900 tons); chlorobenzenes (2000 tons); benzyl chloride (2400 tons); sulfides (2100 tons); miscellaneous quantities of above wastes (2000 tons); Total quantity = 21,800 tons.
I	Hooker Chemicals and Plastics Corporation	Hyde Park Site Hyde Park Blvd. Niagara Falls	Inactive 1953 to 1975	Calcium fluoride (400 tons); mercury brine sludge (more than 100 tons); C-56 derivatives (4500 tons); organic phosphates (4400 tons); hypo mud (1000 tons); miscellaneous acid chlorides (1200 tons); inorganic phosphates (more than 100 tons); dechlorane (200 tons); BTC's (1700 tons); chlorotoluenes (1700 tons); HET acid (2100 tons); miscellaneous chlorinations (1600 tons); BTF derivatives (2900 tons); DDM (4500 tons); TCP (3300 tons); BTF's (5600 tons); benzoyl chloride (6200 tons); LDS/MCT (900 tons); metal chlorides (100 tons); C-56 (1000 tons); benzene hexachloride (2000 tons); chlorobenzenes (16,500 tons); benzyl chloride (3400 tons); thiodan (1000 tons); sulfides (6600 tons); miscellaneous quantities of above wastes (7300 tons). Total quantity = 80,200 tons.
I	Hooker Chemicals and Plastics Corporation	102nd Street Site Buffalo Avenue Niagara Falls	Inactive Prior to 1943 to 1971	Organic phosphates (more than 100 tons); sodium hypophosphate (20,000 tons); inorganic phosphates (900 tons); benzene hexachloride (300 tons); chlorobenzenes (100 tons); miscellaneous quantities of above wastes including other chlorinated organics (2,100 tons); Total quantity = more than 23,500 tons. In addition, brine sludge, fly ash, cell parts and cell equipment in unknown quantities were dumped at this site.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation	S and N Plant Areas Buffalo Avenue Niagara Falls	Inactive 1947 to 1975	Organic phosphates (200 tons); miscellaneous acid chlorides (400 tons); phenol tars (800 tons); thionyl chloride (4,200 tons); HET acid (500 tons); miscellaneous chlorinations (400 tons); DDM (8,100 tons); TCP (200 tons); benzoyl chloride (3,300 tons); LDS/MCT (2,200 tons); metal chlorides (900 tons); C-56 (17,400 tons); benzyl chlorides (1,600 tons); chlorobenzenes (18,900 tons); thiodan (700 tons); sulfides (4,200 tons); miscellaneous amounts of above wastes (6,400 tons); Total quantity = 74,400 tons; Slag, fly ash and gypsum were also disposed of at this site.
I	Hooker Chemicals and Plastics Corporation	D Area Buffalo Avenue Niagara Falls	Inactive 1930 to 1942	Miscellaneous acid chlorides (200 tons); thionyl chloride (400 tons); miscellaneous chlorinations (500 tons); benzoyl chlorides (800 tons); LDS/MCT (800 tons); metal chlorides (100 tons); benzyl chloride (800 tons); sulfides (200 tons); Miscellaneous amounts of above wastes (400 tons); Total quantity = 4,200 tons.
I	Hooker Chemicals and Plastics Corporation	F Area Buffalo Avenue Niagara Falls	Inactive 1930 to 1946	DDM (more than 100 tons); chlorobenzenes (1,400 tons); Total quantity = 1,500 tons.
II-29	Hooker Chemicals and Plastics Corporation	V-80 Area Buffalo Avenue Niagara Falls	Inactive 1968 to 1978	Phosphorus pentachloride (250 tons); phosphorus trichloride (25 tons); phosphorus pentasulfide, scrap phosphorus, THCP, THPS, benzoyl peroxide, aluminum phosphide, carbon disulphide, hepta sulphide and phosphoric acid (100 tons); Total quantity = 400 tons.

INDUSTRIAL WASTE DISPOSAL SITESNIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation	V-56 Area Buffalo Avenue Niagara Falls	Inactive 1930 to unknown	Phosphorus liquid and solid (200 tons).
II	Hooker Chemicals and Plastics Corporation	V-64 Area Buffalo Avenue Niagara Falls	Inactive Unknown	Ground level dewatering area; Quantities and composition unknown.
I	Hooker Chemicals and Plastics Corporation	U-Area Buffalo Avenue Niagara Falls	Inactive Unknown	Brine sludge, caustic, trichlorethylene and asbestos; Quantities unknown.
II	Hooker Chemicals and Plastics Corporation	W-107 Area Buffalo Avenue Niagara Falls	Inactive Unknown	Ground level dewatering area; Quantities and composition unknown.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
I	Hooker Chemicals and Plastics Corporation	Fine chemicals waste lagoons (where Buildings D-11 and D-21 now stand) Buffalo Avenue Niagara Falls	Inactive 1930's to 1940s	Liquid benzoyl chloride and other liquid residues; Quantities unknown.
III	National Grinding Wheel	Walck Road North Tonawanda	Inactive 1974 to 1977	General refuse and grinding wheels; Quantities unknown; Site is approximately 3500 square feet in area.
I	NL Industries, Inc.	4511 Hyde Park Boulevard Niagara Falls	Inactive 1930 to 1976	Iron-carbon-titanium alloy (500 tons); uncalcined titanium oxide (386 tons); ammonium zirconia carbonate solution (3.6 tons); magnesium chloride with zirconium impurity (43 tons); zirconium sodium potassium chloride mixture as a fused salt (3.3 tons); aluminum oxide with titania impurity (2000 tons); silica fume with motor oil (50 tons) and "Ivex" lotion (ammonium zirconium carbonate) (less than 1 ton). Site is approximately 30 to 50 acres in size.
II	Norton Laboratories, Inc.	Mill Street Lockport	Active Unknown to present	Lubricating oil (250 gallons/yr); Plastic waste compacted and used for fill.

INDUSTRIAL WASTE DISPOSAL SITESNIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Noury Chemical Corporation	Behind Building 20 Route 78 Burt	Inactive 1974 to 1975	Paste wastes, benzoic acid sludge, oxylite waste, starch, DCP contaminated with peroxide and phosphoric acid sludge; Wastes at this site are being excavated now and stored on site.
II	Noury Chemical Corporation	Sludge pit between Buildings 14 and 19 Route 78 Burt	Inactive 1955 to 1972	Methyl ethyl ketone peroxide, phthalates, calcium carbonate, sulfuric acid, phosphorous acid sludge, benzoic acid solids contained in five pits the total volume of which is 12,800 cubic feet.
II	Noury Chemical Corporation	Behind Building 20 Route 78 Burt	Active Unknown to present	Soil, benzoic acid sludge, benzoyl peroxide sludge and dicalcium phosphate sludge (350 tons total) and crushed 55 gallon drums.
I	Olin Corporation	102nd Street Site Buffalo Avenue Niagara Falls	Inactive Unknown to 1970	"Black cake" (20,000 tons); graphite (692 tons); concrete (15,900 tons); fly ash; benzene hexachloride and trichlorophenol mixture (65 tons); trichlorobenzene (150 tons); alpha or beta BHC cake (1250 tons); hexchlorobenzene (60 tons); trichloroanisole; v-tetrachlorobenzene (1100 tons); lime sludge (23,900 tons); brine sludge (20,000 tons); Total quantity = approximately 66,000 tons; Scrap materials from Carborundum were disposed of at this site from 1930 to 1971 and iron catalyst salts, accelerator sewer sumps, pvc emulsion berries and skins from Goodyear were disposed here from 1948 to 1967.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Olin Corporation (now owned by Industrial Welding Corporation)	Niagara Falls	Inactive 1947 to 1956	Brine sludge (with mercury) (175 tons).
II	Olin Corporation	Parking lot on Buffalo Avenue Niagara Falls	Inactive 1947 to 1956	Brine sludge (with mercury) (175 tons).
II	Olin Corporation	Buffalo Avenue Niagara Falls	Inactive 1957 to 1960	Brine sludge (with mercury) (275 tons).
II	Roblin Steel Company	101 East Avenue North Tonawanda	Active 1961 to present	Iron oxide scale, phosphate sludges and miscellaneous trash; Quantities unknown.

INDUSTRIAL WASTE DISPOSAL SITESNIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Simonds Steel Division Guter Special Steel Corporation	Ohio Street Lockport	Active Unknown to present	Slag (3480 tons/yr.); casting sand (69 tons/yr.); grinding dust (65 tons/yr.); baghouse dust (230 tons/yr.) and oil and grease (3200 gallons/yr.); Some radioactive contamination of plant found in 1976.
II	Stauffer Chemical Company	Upper Mountain Rd. Lewiston	Inactive 1930 to 1952	Asbestos, graphite, concrete cell parts, reactor linings, scrap sulfur scrap metal, silicon, zirconium and titanium oxides and cinders; Quantities unknown.
II	Stauffer Chemical Company (now owned by State of New York)	Lewiston Quarry "Artpark" Lewiston	Inactive 1953 to 1969	Asbestos, graphite, concrete cell parts, reactor linings, scrap sulfur, scrap metal, silicon, zirconium and titanium oxides and cinders; Quantities unknown.
III	Union Carbide Corp. Carbon Products Division	Hyde Park Blvd. Town of Niagara	Active Unknown to present	Carbonaceous material (3250 tons/yr.); firebrick waste (625 tons/yr.); scrap wood (500 tons/yr.) and machine oil (1200 gallons/yr.); Company recently received DEC approval for continued use of this site.

INDUSTRIAL WASTE DISPOSAL SITES

NIAGARA COUNTY

Priority	Owner	Site Location	Present Status & Dates of Use	Description of Wastes and Comments
II	Van de Mark Chemical Company, Inc.	North Transite Rd. Lockport	Active 1968 to present	Drummed silicon tetrachloride still bottoms in limestone lined pits (131 tons/yr.). Company has permit to operate site.
II	Varcum Chemical Corporation Division of Reichhold Chemicals, Inc.	Packard Road Niagara Falls	Active Unknown to present	A settling pond for phenolic resins; sludge containing phenol (10 tons/yr.) is excavated from pond.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS
ERIE COUNTY

Locality	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Altift Altift Realty	Tiftt Street Buffalo	Active	None	Allied Chemical Dye Plant Chevrolet F.N. Burt	Waste inks, process sludges and foundry sand; Accepted mixed refuse until 1972; Evidence that sludge was dumped in early 1970's; Now receiving shredded wastes, fly ash and core sand.
III	Town of Amherst	Hopkins Road Amherst	Inactive	Town of Amherst Village of Williamsville	None	Mostly hard fill and leaves.
III	Bernard Cope	Buell Street Akron	Inactive Unknown to October 1978	Various areas of Erie County	None directly	Mostly demolition material; Was a gravel pit.
III	Town of Brant	North Collins Road Brant	Active	Town of Brant Village of Farnum	None	Only takes residential and commercial refuse. Has had leachate problems.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Chaffee Landfill Chaffee Landfill, Inc.	Hand Road Sardinia	Active	Serves independ- ent and municipal collectors from southern Erie County.	WinSmith Division of Houdailles Industries and other companies	Steel grinding fines, kolene heat treatment spillage, hydro- chloric acid, waste oils and paint filters; Mostly residential and commercial refuse; Industrial waste probably limited now; Leachate samples taken by Erie County show high phenol levels.
II	Chemical Leaman Tank Lines	470 Fillmore Avenue Tonawanda	Active	None	Chemical Leaman	Lagoon for flocculation of waste from cleaning bulk tank trailers.
II	Chem-Trol Pollution Services, Inc.	Lake Road Blasdell	Inactive 1966 to 1972	Unknown	Macnaughton-Brooks Allied Chemical Dye Hooker Roblin Steel Niagara Mohawk	Slags, solvents, paint powders, pickle liquor; C-56 (200 tons), calcium arsenate (44,000 gallons), waste capacitors with PCBs and miscellaneous industrial wastes.
III	Town of Collins	Route 62 near Lennox Road Collins	Active	Town of Collins (excluding village of Gowanda)	None	Residential and commercial refuse Has had some operational problems

MUNICIPAL, STATE AND FEDERAL WASTE SITES

ERIE COUNTY

City	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
I	Village of Depew	315 Borden Road Depew	Inactive Unknown to 1977	Village of Depew	Arcata Graphics	Paper, paper dust, wood and general refuse; mainly residential refuse.
II	Ed Ball	Holland Road Town of Evans	Active	Town of Evans (maybe small amount from Towns of Brant and No. Collins)	None	Only receives wastes from a few trucks owned by Ed Ball.
II	Eden Sanitation Eden Sanitation Service, Inc.	Town Line Road Town of Eden	Active	Town of Eden	None	Household refuse only; No bulky items; Has had leachate problems; Located near wetlands.
II	Empire Waste	Opposite 55 Skillen Road Buffalo	Unknown	Unknown	Chevrolet-Metal Casting	Received slag from Chevrolet in 1977.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Erie Lackawanna Railroad	1221 Clinton Street Buffalo	Inactive	None	Erie Lackawanna Railroad	Wastes from cleaning of railroad cars.
III	Town of Evans	Town Line Road Town of Evans	Active	Town of Evans	None	Trash and rubbish only; Put- rescible material excluded. Operational problems; Scheduled to close June 1978; Has had groundwater problems.
III	Town of Evans	Holland Road Town of Evans	Inactive Unknown to 1978	Town of Evans	None	Poor operation since 1964.
III II-39	George Schreiber Site Donald Schreiber, Operator	Feddick Road Boston	Inactive Unknown to about 1972	Unknown	Unknown	Considered a good operation.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	Village of Gowanda	Cemetery Hill Road Village of Gowanda	Active	Village of Gowanda	None	Residential refuse from Village pickup; Considered a good operation.
III	Town of Hamburg	Lakeview Road Town of Hamburg	Active	Town of Hamburg	None	Old Nike site; Now used for trash, brush and leaves; Formally, town landfill accepting mixed refuse.
II	Hopkins Street	Hopkins Street Buffalo	Inactive Unknown to 1973	Unknown	Unknown	Illegal dumping site.
II	Houghton Park Buffalo City of Buffalo	Houghton Park Spann and Casmir Streets Buffalo	Inactive Unknown to 1973	City of Buffalo	Worthington Compressor	Foundry sand, wood, paper and trash from Buffalo parks.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Huntley Power Station Niagara Mohawk Power Corp	Tonawanda	Inactive Late 1950's	Unknown	Hooker-Durez	Phenol tars containing chlorinated benzenes (625 tons).
III	James Fox	North Side of Gowanda Road Angola	Active	Village of Angola	None	Only takes refuse from own trucks. Residential and commercial refuse only.
III	Kelly Island City of Buffalo	Kelly Island Buffalo	Inactive	None	Lebis Contracting Anthony Bodam	Brick and broken concrete only.
II 14-II	Lackawanna City of Lackawanna	1938 Abbot Road Lackawanna and W. Seneca Town Line	Active	City of Lackawanna	None	Takes incinerator residue only; Has cover problems periodically.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Lancaster Sanitary Landfill Lancaster Sanitary Landfill, Inc.	Gunnville Road Lancaster	Active 1961 to present	Northern Erie County	Allied Chemical Dye Plant Wilson Greatbatch Strippit Curtiss-Wright Corp. Arcata Graphics DuPont Ford Motor Co. Westinghouse Chevrolet Trico Products Harrison Radiator Snyder Tank F. N. Burt	Mostly residential and commercial refuse; Some demolition debris. Until recently, accepted septage; Has accepted some liquid waste, "Corian", "Tedlar", "Vexar" netting, filtration sludges, waste colors and solvents.
II	Lancaster Reclamation Ferry Concrete Company, Inc.	403 Pavement Road Lancaster	Active	None	Dresser Industries Chevrolet Allied Chemical Dye Plant Buffalo Color	Foundry sand and dye wastes.
II	Land Reclamation Land Reclamation, Inc.	Broadway and Indian Road Cheektowaga	Active	Village of Depew Town of Cheektowaga	Ford Motor Co. F.N. Burt Allied Chem. Dye Anaconda Trico Chevrolet Arcata Graphics American Optical Pratt & Litchworth	Pine tar pitch, inks, laboratory sample bottles, waste colors, foundry sand, slag, spent refractories, paper and wood, sulfur drainings, calcium and other salts of sulfuric acid and nitric acid, solid polymerized sulphur, spent vanadium pentoxide, sulfur drainings, cinder; Probably only accepts residential and commercial waste now.
III	La Salle Reservoir City of Buffalo	East Aurora and Park Ridge Streets Buffalo	Inactive	City of Buffalo	None	Mostly non-combustible materials. Some illegal refuse.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Lehigh Valley Railroad	Tifft Street Buffalo	Unknown	Unknown	Chevrolet	Fly ash, pit sludge, foundry sand and sand slurry.
III	Town of Marilla	Eastwood Road Marilla	Active 1951 to present	Town of Marilla	None	Takes residential wastes only.
III	Morris & Reiman Wrecking Orval C. Morris	Off Rensch Road Amherst	Inactive	Town of Marilla	Unknown	Demolition material and asphalt contaminated soil.
III	Town of Newstead	Sand Hill Road Newstead	Active	Town of Newstead	None	Town trash only; Has had operational problems; May close soon.

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MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	New York State Department of Transportation	Indian Road Cheektowaga	Active	None	None	Scrap wood and old road signs from state roads.
III	New York State Thruway Authority	At Exit 52 of N.Y.S. Thruway Cheektowaga	Active	None	None	Road litter only.
II	Niagara Frontier Port Authority	910 Fuhrman Blvd. Buffalo	Inactive	None	Chevrolet Ford Motor Co. Army Corps of Engineers	Site now receives casting sands from Chevrolet. Garbage, wood, cardboard, paper paint sludges and combustible were formerly burned on site by Ford Motor Co., former owner of site. Materials dredged from Lake Erie by Army Corps of Engineers also dumped on site.
III	Town of North Collins	Ketchum Road Near Sterns Road North Collins	Active	Town and Village of North Collins	None	Operates two days per week; Has had burning and cover problems; Only used for house- hold and commercial refuse.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL SITES

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Fox Road Site Town of North Collins	Between Langford and Shirley Roads North Collins	Inactive	Town of North Collins	None	Had operational problems; Closed in 1975, but some legal dumping after 1975.
II	Pfohl Brothers	Aero Drive near Buffalo Airport Cheektowaga	Inactive	Unknown	Westinghouse Hooker - Durez American Optical	Fuller's earth contaminated with oil; waste oil; waste paints and thinners; scrap glass, metal, silicon and emery; rouge; pine tar pitch, phenol tar with chlorinated benzenes (125 tons); Some evidence of wetlands in area.
III	Procknal & Katra Procknal & Katra Trucking, Inc.	Electric Avenue Blasdell	Active	Village of Blasdell City of Lackawanna	None	Trash from Village of Blasdell; Bulky items from Lackawanna which can not go to incinerator.
II	Seaway Industrial Park Seaway Industrial Park Development Co., Inc.	River Road Tonawanda	Active	None	Most industries in Erie and Niagara Counties either directly or through haulers.	Foundry sand, pretreatment sludge filter sludges, pit sludge, foundry core, dry rubbish and demolition debris; some commercial putrescible waste; some evidence of liquid and hazardous wastes; radioactively contaminated soils transported to site in 1974 from nearby Haist property.

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MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Village of Springville	Mill Street Springville	Active	Village of Springville	None	Took residential waste only until 1967; Officially closed but operated illegally until 1978; Now takes brush only.
II	Squaw Island City of Buffalo	Squaw Island Buffalo	Active	City of Buffalo	Pratt & Letchworth Chevrolet Western Electric	Now takes incinerator residue only. Much of decomposed material taken to Tift Farm. May be closed soon and site used as a transfer station. Waste sand accepted.
III	William Strassman Property (now Consolidated Freightway)	River Road Tonawanda	Unknown	Unknown	Chevrolet - Metal Casting	Foundry sand.
II	Stock's Pond Frank Stock	Southeast corner of Broadway and Transit Roads Depew	Inactive 1961 to 1976	Unknown	Dresser Industries	Lubricating oil, brick, bentonite clay, sand, slag and phenolic binders.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

ERIE COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Tifft Farm City of Buffalo	Tifft Farm Nature Preserve Buffalo	Inactive	City of Buffalo	Unknown	Material from Squaw Island hauled to this site; Leachate and soil erosion problems.
II	City of Tonawanda	Wales Avenue Tonawanda	Active	City of Tonawanda	None directly	Takes incinerator residue and bulky itmes which incinerator will not take; Still accepts sewage sludge.
III	Veterans Park Tonawanda	Niagara Street Tonawanda	Inactive	Unknown	Unknown	Park developed on fill; Contents of fill unknown but may include dredging and demolition material.
III	Town of Wales	Fish Hill Road Wales	Active	Town of Wales	None	Accepts trash only and putres- cibles; Continuous operation problems.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
I	Frontier Chemical Waste Process, Inc.	Townline and Loveland Roads Pendleton	Inactive Unknown to 1975	None	Union Carbide Linde Pratt & Lambert Roblin Steel Shanco Plastics Twin Industries Mobil Oil DuPont Allied Chemical Arcata Graphics Bell Aerospace Columbus McKinnon Ford Motor Co. General Electric	Waste oil, air flotation skimmings and sediments, spent sulphuric acid pickle liquor, waste slurry resinous oil and other wastes; Area was used to neutralize chemicals and for drum storage; Up to 25,000 drums were removed in 1976.
II	Gratwick Park	River Road North Tonawanda	Inactive	City of North Tonawanda	Hooker-Durez Bell Aerospace	Phenolic resin (25,000 tons); phenolic molding compound (25,000 tons); oil and grease drippings (50 tons) and rubbish (50,000 tons).
III	J. T. Salvage	1209 Blamer Road Youngstown	Active	Unknown	Carborundum	Fly ash, fire brick, dust collector fines, kiln furniture and broken wheels.
III	Town of Hartland	End of Ryan Road off Ditch Road between Hartland and Hosmer Roads Hartland	Inactive Unknown to 1974	Town of Hartland	None	Mostly residential waste; Operating problems include burning and lack of cover.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Harvey Newman	Shawnee Road Wheatfield	Active	None	Roblin Steel	Iron and zinc phosphate sludge and solid iron oxide scale.
II	Holiday Park City of North Tonawanda	100 feet west of intersection of Walck Road and Old Falls Boulevard North Tonawanda	Inactive 1972 to 1974	North Tonawanda	Hooker-Durez	Phenolic resin (125 tons), phenolic molding compounds (500 tons) and mixed refuse (500 tons).
III	LaSalle Expressway	Niagara Falls	Inactive 1969 to 1974	Unknown	Spaulding Fibre	Vulcanized fibre and fibre sheet, thermosett- ing plastic and trimmings (approximately 20,000 tons total).
II 67-II	Town of Lewiston	Harold and Pletcher Roads Lewiston	Inactive Unknown to 1972	Village and Town of Lewiston	None	Mostly household refuse hauled by Niagara Sanita- tion; Burning and leach- ate problems.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	City of Lockport	Off Oakhurst Road near 18 Mile Creek Lockport	Inactive Unknown to 1976	City of Lockport	Harrison Radiator Noury Chemicals Lockport Felt	Cardboard, waste paper, steel barrels, plastics, glass, wood starch contaminated with peroxide, waste peroxide past and keetox and oxylite waste; Operational problems include burning and lack of cover; Accepted sewage sludge in 1976.
II	Lynch Park Stanley Brzezinski	Williams and River Roads Wheatfield	Active Prior to 1930 to present	None	Carborundum Bell Aerospace	Fly ash, sand, fire brick, dust collector fines, kiln furniture, carborundum wheels, alumina silica shot and fiber, scrap globars, incinerator ash, solid abrasive grain and plastic molds.
II	Modern Disposal Services, Inc.	4746 Model City Rd. Model City	Active	Town of Lewiston, Niagara and Porter Village of Lewiston City of Niagara Falls	NL Industries Carborundum Goodyear Great Lakes Carbon Airco Speer	Carbon, graphite, tar, linseed oil, alumina silica sand, shot and fiber, furnace insulation, thiazole polymer blends, iron catalyst salts, accelerator sewer sumps, polyvinyl chloride emulsion berries and skins, polyvinyl chloride floor sweepings, fumed silica, flint pebbles, zircon-zirconia sludge; Application for approval of site submitted to DEC.
*	Newco Waste Systems, Inc. (Niagara Recycling)	Between Packard Rd. and I-190 in City of Niagara Falls and Town of Niagara	Active 1897 to present	City of Niagara Falls	Most industries in Erie and Niagara Counties either directly or through haulers	Wide variety and large quantity of industrial wastes. *DEC approved commercial hazardous waste management facility.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	New York State Power Authority	South of Upper Mountain Road 300 yards north of PASNY storage reservoir Lewiston	Inactive Unknown to early 1970's	None	PASNY Stauffer Chemical	Asbestos, graphite, concrete, reactor linings, sulfur, silicon, zirconium and titanium oxides and water intake debris; Had operational problems.
II	Niagara County Refuse Disposal District Lockport Site	Off Richfield St. Lockport	Active	All towns and villages in Niagara County except City of Niagara Falls and Towns of Wilson, Cambria, Newfane and Niagara	Roblin Steel Goodyear Vanchlor Harrison Radiator Ferree Plastics Milward Alloys Van de Mark NL Industries FMC	Fumed silica, zircon-zirconin sludge, metal oxide sludge, sewage treatment sludge but, generally, little industrial waste; Operations considered good.
I	Niagara County Refuse Disposal District Wheatfield Site	Witmer Road Wheatfield	Inactive Unknown to 1976	All towns and villages in Niagara County except Towns of Wilson, Cambria, Newfane and Niagara	Hooker Chemicals Carborundum NL Industries DuPont Goodyear Bell Aerospace Roblin Steel Booth Oil and others	Wide variety and large quantity of industrial wastes; Had operational difficulties including leachate and cover problems; Leachate still a problem; Site now owned by Town of Wheatfield
II 16-51	Adams Generating Plant City of Niagara Falls	On Niagara River Buffalo Avenue at 13th Street Niagara Falls	Inactive Early 1960's	City of Niagara Falls	Unknown	The City filled forebay and two old penstocks (vertical shafts 444 cubic yards in size) with layers of incinerator residue and clean hard fill in early 1960's pursuant to agreement with Niagara Mohawk.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS
NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	Buffalo Avenue City of Niagara Falls	Between Buffalo Avenue and Niagara River, 52nd Street to 60th Streets Niagara Falls	Inactive 1930 to 1950	City of Niagara Falls	Unknown	Used for non-combustibles and .. incinerator residue; Site was formerly a wetland which was filled; Part of land is present site of Niagara Falls Water Treatment Plant.
II	Cayuga Island City of Niagara Falls	Cayuga Island Niagara Falls	Inactive	City of Niagara Falls	Carborundum Union Carbide Hooker Chemicals Pittsburgh Metallurgical (now Airco Alloys)	Mostly hard fill brought in to reclaim land on downstream (west) and river side (south) of island.
III	Griffon Park City of Niagara Falls	Between River Road and Niagara River 95th to 97th Streets Niagara Falls	Inactive	City of Niagara Falls	None	Used mostly for leaves and forestry materials; Some domestic wastes may have been dumped.
II	Hydraulic Canal Niagara Mohawk Power Corp. (Now City of Niagara Falls and private parties)	Between Buffalo Avenue and 2nd St. Niagara Falls	Inactive Late 1950's	City of Niagara Falls	Unknown	Following the collapse of the Schoellkopf Power Generating Station in mid-1950's, the Hydraulic Canal was filled in; Canal was filled by City of Niagara Falls with domestic refuse and for demolition material and clean fill from State Power Authority Project; Industrial wastes may have been disposed of there, but type and quantity is unknown.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	New Road City of Niagara Falls	New Road north of Porter Road Niagara Falls	Inactive 1950's	City of Niagara Falls	Unknown	Mostly non-combustibles and incinerator residue; Fishkill in Gill Creek in 1954 or 1955 attri- buted to leachate from this site.
II	64th Street City of Niagara Falls	North and South of Pine Avenue at 64th Street Niagara Falls	Inactive	City of Niagara Falls	Unknown	City garbage and refuse was placed here; Site is now in right-of-way of Niagara Express- way (Rte. I-190); May also have been used for industrial waste.
III	Whirlpool Site City of Niagara Falls	Along Niagara River Downstream of Whirlpool Rapids Bridge Niagara Falls	Inactive	City of Niagara Falls	None	Mostly street sweepings and leaves; May have been used for domestic refuse prior to 1940.
III	Witmer Road City of Niagara Falls	Witmer Road at Maryland Avenue Niagara Falls	Inactive	City of Niagara Falls	None	Incinerator residue and some municipal refuse; May have been used as burning site in 1960's.

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MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	Town of Niagara	Off Lockport Road Town of Niagara	Active	Town of Niagara	Unknown	Mostly residential and commercial refuse. Has had regular burning and cover problems.
II	Niagara Frontier Transportation Authority	Impounding reservoir north of Carborundum plant Wheatfield	Active Unknown to present	Unknown	Carborundum	Settling basin for stormwater, cooling tower blowdown and, in the past, boiling tower blowdown; Phenol spills have also gone into this area.
II	Nash Road Site Niagara Sanitation Co., Inc.	Off Nash Road between Niagara Falls Boulevard and Forbes Road Wheatfield	Inactive 1964 to late 1960's	Towns of Wheat- field, Niagara and Porter Village of Youngstown	Niagara Falls A.F. Base Bell Aerospace Carborundum Frontier Chemical Graphite Special- ties Continental Can Greif Brothers.	Caustics, plating tank sludge and other industrial waste; Protruding refuse still apparent; Area subject to flooding.
III	Niagara River Site (Once owned by a Mr. Belden, now deceased)	East of Olin's 102nd Street Site City of Niagara Falls	Inactive	Unknown	Goodyear	Solid fill and thiazole polymer blends.

MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
III	Old Creek Bed Edward DiBacco	Porter and Tuscarora Roads Niagara Falls	Unknown	Unknown	Carborundum Hooker Chemicals	"Fiberfrax" insulation, silica grinding wheels, alumina silicon carbide, "Inconel" metal, stainless steel and fly ash.
II	Robert Moses Parkway	200 yards west of PASNY intake structure between Niagara River and Robert Moses Parkway City of Niagara Falls	Inactive About 1963	Unknown	Hooker Chemicals	200 or 300 drums of chemical waste; Quantities unknown.
II	Ross Steel Company Inc.	4237 Pine Avenue Niagara Falls	Unknown	Unknown	Olin Chemicals	Fly ash; building materials, carbon dust (12 tons); hexachlorobenzene (0.2 tons); pentachloronitrobenzene (0.2 tons)
III	Town of Royalton	Griswald Road One half mile south of Roch- ester Road Royalton	Active	Town of Royalton	None	Residential waste only.

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MUNICIPAL, STATE AND PRIVATE WASTE DISPOSAL AREAS

NIAGARA COUNTY

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
*	SCA Services, Inc.	Porter	Active	None	Most industries in Erie and Niagara Counties either directly or through haulers.	Wide variety and large quantity of industrial wastes. *DEC approved commercial hazardous waste management facility.
III	Silbergeld Junk Yard (Now City of Niagara Falls)	South end of 14th Street Niagara Falls	Inactive Unknown to mid 1960's	Unknown	Hooker Chemicals Olin Chemicals	Received scrap metals from Hooker and Oldbury Electrochemical from mid-1930's to mid-1950's; Received scrap metals from Olin.
III	Walmore Road	Walmore Road and Erie Lackawanna Railroad Wheatfield	Unknown	Unknown	Bell Aerospace	Scrap wood, fly ash and clay.
II	Wilson Cambria Newfane Site Town of Wilson	South of Chestnut Street One and one-half mile from intersection of Chestnut Street and Beebee Road Wilson	Active	Towns and villages of Cambria and Wilson Town of Newfane	Allied Chemical (Elberta Works) Noury Chemical	Cardboard and wood (some contaminated with peroxides), starch contaminated with peroxides, waste peroxide pastes, keetox and oxylite wastes and aluminum chloride; Has leachate problems.

FEDERAL WASTE DISPOSAL AREAS

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	Air Force Plant 38 (Owned by Air Force; operated by Bell Aerospace)	Porter and Balmer Roads Porter	Active 1950 to present	None	Bell Aerospace	Probable burial of ash from open pit burning and incineration of rocket fuel.
II	Air Force Plant 40 (Formerly owned by Air Force and operated by Bell Aerospace; Since 1960, owned by General Motors)	2450 Kenmore Ave. Tonawanda	Inactive 1955 to 1959	None	Bell Aerospace	Wastes of unknown composition and quantities.
I	Air Force Plant 68 (Formerly owned by Air Force and operated by Olin Corporation; Since 1966 owned by Fort Conti Corporation)	Lutts Road Model City	Inactive 1958 to 1960	None	Olin Corporation (under contract with Air Force and Navy)	Lithium chloride (13 tons); potassium chloride (14.6 tons); lithium chloride contaminated with kerosene, oil, process residuals and decontamination solutions (8 tons); salt contaminated with methanol (20,000 gallons) and lithium chloride (25 tons).
II II-57	Air Force Plant 68 (Formerly owned by Air Force and operated by Olin Corporation; Since 1966 owned by Fort Conti Corporation)	Lutts Road Model City	Inactive 1958 to 1960	None	Olin Corporation (under contract with Air Force and Navy)	Burning pits for off-specification borane compounds and other combustible wastes; Quantities unknown; When burning ceased residue in pits covered over.

FEDERAL WASTE DISPOSAL AREAS

Priority	Name of Site & Operator	Site Location	Present Status & Dates Used	Communities Using Site	Industries Using Site	Descriptions of Wastes Accepted and Comments
II	763rd Radar Squadron Lockport Air Force Base	Lockport	Active 1950 to present	None	None	Three acre area used primarily for domestic refuse but may have received contaminated transformer oil (probably with PCB's).
I	Niagara Falls Storage Site U.S. Department of Energy	Lewiston and Porter	Active 1944 to present	None	African Metals Corp. Union Carbide Linde Division Mallinckrodt Chemical Works (St. Louis) University of Rochester	Uranium oxide (10.7 tons) and contaminated soil, gravel and rubble (15,000 to 20,000 cubic yards) stored on ground; Uranium oxide (29.4 tons) and radium (2 pounds) stored in buildings.

E.I. du PONT de NEMOURS & CO., INC.
Necco Park

Necco Park is an inactive 25 acre waste disposal site located west of I-190 and north of Pine Avenue in Niagara Falls and the Town of Niagara. It is bounded on the north, south and east by property owned by Newco Waste Systems. The nearest residences are located approximately one-half mile to the south. Pike's Creek originates just east of Necco Park and flows in a southerly direction toward Pine Avenue.

Necco Park was purchased by DuPont in 1930. Before 1930, the site was used as a dump site by its former owners, Niagara Electro Chemical Company (1911 to 1925) and Roessler and Hasslacher Chemical Comapny (1925 to 1930). The site was closed in 1977.

From 1930 to 1977, DuPont disposed of the following estimated tonnage of industrial waste at Necco Park:

Sodium salts	20,000 tons
Floor sweepings and dismantlement salts	1,300 tons
Sodium wash tank residues	
Sodium cell brick and rubble	12,000 tons
Scrap fiberglass insulation	--
Graphite scrap and butts	1,100 tons
Lime slaking grits	--
Sludge from brine plant salt dissolver	25,000 tons
Filter charcoal	--
Furnace brick and rubble	5,000 tons
Solid residues from copper reduction tower	--
Scrap "Elvanol"	3,300 tons
Residues from zinc sulfite solution tank	525 tons
Residue from brine storage	--
Filter dumpings from chlormethanes process and chlorethylenes	--
Chlorinolysis residues	1,800 tons
Catalyst fines	--
Carbon dust	--
Incinerator clean-up	50 tons
Coal screenings	--
Sewer and pipe cleanings	--

Scrap Tri-Per	--
Tri-Per Liming residues	--
Scrap oil	--
Scrap organic mixtures	2,000 tons
M-152 still residues	550 tons
Vinyl acetate residues	2,200 tons
Acetic acid residues and close boilers	--
Scrap polyvinyl acetate emulsions	--
Glycol scrap and glycol filter press cloth and sludge	7,000 tons
Furfural residues	11,000 tons
Furan residues	--
Spent resin	70 tons
Fly ash	--
Scrap rubble from building dismantlement	--
Process equipment demolition waste	--
Plastic process equipment demolition waste	--
Scrap drums	--
Scrap frit	1 ton
Alumina pellets	80 tons
Asbestos insulation and transite materials	--
Asbestos packing	35 tons
Sodium perborate, hydrogen peroxide, methanol and polyvinyl acetate beads	--

TOTAL Greater than 93,000 tons

The major health and environmental problem created by Necco Park has been the pollution of groundwater with barium. The groundwater barium concentration below the site is in the 2000 mg/liter range. South of the site, Niagara Mohawk wells have shown concentrations of 0.6 percent (January 1978) and 13 mg/liter (April 1978).

Four sets of monitoring wells have been installed. On the basis of the data from these wells, a control plan is to be submitted by DuPont to DEC. It is likely to involve discharges to the Niagara Falls sewer system and subsequent isolation of barium in sewage treatment sludge. DuPont will seed Necco Park this spring.

Also of concern is the large quantities of chlorinated hydrocarbons (e.g., hexachlorobenzene) which may cause groundwater contamination and the potential cross contamination between Necco Park and Newco.

FMC CORPORATION
Middleport Site

Starting prior to 1940 and ending in 1970, FMC disposed of bulk quantities of industrial waste in on-site trenches. These trenches are located in the southeast portion of the plant. The total disposal area comprises about 15 acres.

The following wastes have been disposed of in the on-site trenches:

<u>Wastes</u>	<u>Estimated total tons</u>
Arsenical wastes	250 tons
Sulfur compounds	Unknown
Sludge from dithiocarbamate waste water lagoon	Unknown
Carbofuran	Unknown
DDT	Unknown
Benzene hexachloride	Unknown
Organic phosphates	Unknown
Off-grade products	Unknown
Incinerator ash	Unknown

Several major environmental problems have been identified at the FMC site. Arsenic has been picked up by surface run-off and carried to nearby streams. The property has been regraded to divert run-off to impoundments where it can be treated,

In 1975, Carbofuran pesticide escaped into an on-site lagoon used to store ammonia containing wastes. Migrating ducks and geese using the lagoon were killed. Netting was placed over the lagoon. The lagoon has since been drained.

The major health problems involve contamination of nearby wells and groundwater. Because of the nature of wastes disposed at the site, its improper closure and the lack of hydrogeologic data about the site, immediate attention should be given to this site.

FRONTIER CHEMICAL WASTE PROCESS, INC.
Pendleton Site

Frontier Chemical's Pendleton site, also known as Quarry Lake, is a former clay borrow area located adjacent to Bull Creek and an indentified wetland near the intersection of Town Line Road and Beach Roads in the Town of Pendleton. Bull Creek is a tributary of the Tonawanda Creek which is, in turn, a tributary of the Niagara River.

Quarry Lake has a surface area of 22 acres and is 15 feet deep.

From 1959 to 1976, Quarry Lake was filled with partially neutralized chemicals. The lake now has a pH of about 3 and concentrations of the following chemicals:

Copper	9 mg./liter
Iron	60 mg./liter
Cadmium	1 mg./liter
Nickel	3 mg./liter
Zinc	1 mg./liter
Ammonia	30 mg./liter

The nature of bottom sludge in the lake has not been determined.

The major problem at the site is the potential overflow of the lake from accumulated overflow and Frontier Chemical's failure to provide adequate treatment for such overflow. A three to six foot berm around the lake and neutralization of wastes in the lake will not be sufficient to control overflow and resulting impacts. Odors also are a problem at the site.

HOOKER CHEMICAL AND PLASTICS CORPORATION
Durez Division

The Durez Division has operated 14 separate disposal sites at its plant in North Tonawanda from prior to 1930 until approximately 1973. Sites 1 through 4 are located near Walck Road. Sites 5 through 9 and 13 and 14 are located near the Penn Central Railroad. Sites 8, 10 and 11 are located near a parcel controlled by Niagara Mohawk Power Corporation. Site 9 is approximately 100 yards east of Farnsworth Avenue at the north end of the plant. The home nearest the site is approximately opposite Site 1 on Walck Road while a private residence is located about 200 yards west of Site 9. The following types of materials have been landfilled at these sites:

<u>Type of Waste</u>	<u>Physical State</u>	<u>Estimated Total Tonnage</u>	<u>Container</u>
Phenol tar (containing chlorinated benzenes)	Liquid	250	Drums
Phenol bearing material (e.g., phenolic resins and molding compounds)	Solid	28,000	Drums
Calcium aluminum oxide and calcium phosphate	Solid	<u>250</u>	Drums
	Total	28,500 tons	

A description of each site is below:

Site I. This site was used in the 1950s. Phenol tar containing chlorinated benzenes was buried in this area. The phenol tar was put into drums, placed in an open excavation and covered periodically. The quantity of phenol tar buried at this site is not known.

Site II. This site was used in the 1940s and 1950s. Wastes disposed of include phenol tar containing chlorinated benzenes, phenolic resins and rubbish. The quantity of each waste type is not known.

Site III. This site was used as a "ring-washing" area for many years as well as a dumping area for spent catalyst (calcium aluminum oxide and calcium phosphate). The period of operation of this site is not known.

Site IV. This site was used as a staging area for phenol containing chlorinated benzenes. The phenol tar was "drummed off". A Hooker document indicates that, on numerous

occasions, these drums overflowed. The residue seeped into the ground and there is current evidence of tar surfacing. The years of operation of this site are not known.

Site V. This site is below the existing shipping room addition. The years of operation for this site are not known. However, an internal Hooker document indicates that various wastes including phenol bearing materials were deposited as fill at this site.

Site VI. This area was formerly used as a tank farm. The tanks overflowed occasionally and evidence of styrene and liquid resin exists in the subsurface.

Site VII. This site was used as an open dump for many years. The period of operation is not known. Hooker has indicated to the Task Force that waste liquid and solid phenolic resins and molding compounds are buried in this area. The quantity of waste disposed is not known.

Site VIII. This site was used during the late 1940s and 1950s to wash rail cans that contained phenol. The phenol wash was dumped on the ground and allowed to seep into the earth.

Site IX. Hooker has indicated to the Task Force that a substantial amount of spent catalyst (calcium aluminum oxide and calcium phosphate) was buried in this area. However, the quantity of material disposed and the period of operation of this site are not known.

Site X. This site was formerly used as an open dumping area for rubbish and phenol-bearing materials. The quantity of waste disposed and the period of operation of this area are not known.

Site XI. This site contains liquid resin that was buried in the early 1950s. An internal Hooker document indicates that there is evidence of leaching in the electrical manhole in this area.

Site XII. This site exists at the northern boundary of the plant and is a very large dumping area. All forms of waste were deposited at this site including phenolic resins, phenolic molding compounds and rubbish. However, the quantity of materials disposed and the period of operation of this site are not known.

Site XIII. This site was used as a burning area for many years. Most of the waste burned was rubbish. However, Hooker has indicated to the Task Force that drummed quantities of off-specification phenolic resin was buried at this site. The quantity of materials disposed and period of operation of this site are not known.

Site XIV. An unknown quantity of drummed scrap phenolic resin which was buried at this site. The years of operation of this area is not known.

Sites XIII and XIV are being closed according to a plan tentatively approved by the State Department of Environmental Conservation.

The major environmental and health effects of these sites is as follows:

The phenol-bearing materials such as the phenolic resins and molding compounds can cause leachate problems. However, the primary concern is the wastes which contain chlorinated benzenes. An internal Hooker document indicates that the chlorinated benzenes are slowly leaching into the plant waste water systems. In addition, the off-site disposal areas used by Durez to dispose of phenol tars containing chlorinated benzenes, phenolic resins and molding compounds (Gratwick Park, Niagara County Wheatfield site, Holiday Park, Pfohl Brothers and Huntley Power Station) if not properly closed, could present similar leachate problems.

No other major health or environmental problems exist at or near the Durez plant. However, because of the nature and quantity of wastes disposed, the number of sites used and the problems described above, the Task Force recommends that an immediate further review of these sites be initiated.

HOOKER CHEMICALS AND PLASTICS CORPORATION
Hyde Park Landfill

Hyde Park Landfill was operated by Hooker Chemical Company from about 1953 until about August 1975. The disposal site is roughly triangular in shape with dimensions of approximately 1750 feet by 600 feet and a surface area of approximately 15 acres. This site, which is still owned by Hooker Chemical, was used to dispose of the following types of chemical wastes:

<u>Type of Waste Category</u>	<u>Physical State</u>	<u>Estimated Total Tonnage</u>	<u>Container</u>
Calcium flouride	S	400	B
Mercury Brine Sludge	S	100	D
C-56 Derivatives	L, S	4,500	D, B
Org. Phosphates	L, S	4,400	D, B
Hypo Mud	S	1,000	B
Inorg. Phos.	L, S	100	D
Misc. Acid Chlorides	L, S	1,200	D
Dechlorane	S	200	D
BTC's	L, S	1,700	D, B
Chlorotoluenes	L	1,700	D, B
HET Acid	L, S	2,100	D, B
Misc. Chlorinations	L, S	1,600	D, B
BTF Derivatives	L, S	2,900	D, B
DDM	L, S	4,500	D
TCP	L, S	3,300	D
BTF's	L, S	5,600	D, B
Benzoyl Chloride	L, S	6,200	D, B
LDS/MCT	L, S	900	D, B
Metal Chlorides	S	100	D
C-56	L, S	1,100	D
BHC	S	2,000	D
Chlorobenzenes	L, S	16,500	D, B
Benzul Chloride	L, S	3,400	D
Thiodan	L, S	1,000	D, B
Sulfides	S	6,600	D
Misc. 10% of above		<u>7,300</u>	
	TOTAL	80,200	

L = Liquid

D = drum

S = Solid or semi-solid

B = Bulk

Material was buried at the site by dumping truck loads of drums into open pits which were eventually covered.

The waste extends from several feet below the surrounding surface grade to a height of over 15' above the surrounding grade. The landfill has a relatively flat top and very steep sides which extend right up to the property lines. The site is situated in the extreme northwest corner of the Town of Niagara in a small industrial complex on the fringe of a residential area. It is immediately bounded by the National Lead Company, Niagara Steel Finishing Co., Grief Brothers, Inc. and a New York Power Authority right-of-way.

Until the early 1970's, this site was operated rather carelessly and large amounts of chemical wastes undoubtedly drained from the site to the surrounding area. In August of 1972, the Department of Environmental Conservation and the Niagara County Health Department approved closure plans for this site. These plans involved construction of containment berms, installation of drainage systems and sealing the site with cover material.

There are three main problems at this site: (1) the contamination of the bottom sediments in Bloody Run Creek and its tributaries, (2) containment movement in surface water from the site caused by breaking of the external berm and malfunctioning of the leachate collection system and (3) the likely contamination of groundwater under and adjacent to the site.

Samples taken during 1977 of the sediments from Bloody Run Creek show high concentrations of chlorinated toluene and benzene as well as other compounds. Information received from Hooker Chemical indicates that Bloody Run Creek may be contaminated with organic compounds from Hyde Park Landfill to a point near Niagara University, where the Creek goes into an underground conduit and then out to the Niagara River.

Leachate from the peripheral collection system flows to a large holding lagoon. It is then hauled by Ohio Liquid Disposal to Freemont, Ohio for deep well disposal. On two separate occurrences during the past year the external berm system was breached during periods of high runoff. Contaminated water flowed from the landfill into the Bloody Run Creek drainage system. The adequacy of the leachate collection system and the site closure are thus questionable.

Groundwater beneath the site is, in all likelihood, contaminated. Installation of the series of properly designed and located wells was initiated on September 6, 1978.

The most significant health problems at this site would be caused by chemicals leaving the area by Bloody Run Creek which flows into Niagara River and ultimately Lake Ontario. Both the Niagara River and Lake Ontario are used as public water supplies and recreational fisheries.

During 1977, Hooker conducted a study of the hydrogeology of the site and leachate movement from the site. After DEC reviewed the plan in early 1978, additional information was requested from Hooker.

Additional remedial work may have to be done at the site. Hooker has reconstructed the peripheral leachate collection system, eliminated the peripheral berm by adding compacted clay to the side slopes and increased the depth of cover material on tip of the site. The excavation and proper disposal of contaminated soils near the Power Authority Road, the lagoon cover and the pump station have not been completed.

In addition, Hooker may be required to dredge the entire drainage system and the contaminated section of Bloody Run Creek and transport these materials to a proper disposal site. Finally, long term monitoring and maintenance of the site must be done in order to insure the integrity of any remedial measures undertaken.

HOOKER CHEMICALS AND PLASTICS CORPORATION
102nd Street Site

The 102nd Street disposal site (also referred to by Hooker as the River Road or LaSalle site) is located on Buffalo Avenue in Niagara Falls. It is bounded on the west by Griffon Park, on the east by a disposal site owned by the Olin Corporation and on the south by the Niagara River. The site drains to the Niagara River. The depth to bedrock near the site is approximately 27 feet below natural grade. The nearest homes are located about 100 yards to the northeast.

Hooker used this site from prior to 1943 until 1971. The site comprises approximately 20 acres and consists of two parcels which were owned by Oldbury Electrochemical, one parcel owned by Niagara Alkali and one parcel owned by Hooker. Hooker acquired the Oldbury and Niagara Alkali parcels when it acquired those companies in 1956 and 1955 respectively.

Hooker has indicated to the Task Force that the following wastes were disposed of at the 102nd Street site.

<u>Waste Category</u>	<u>Physical State</u>	<u>Total Estimated Quantity - Tons</u>	<u>Container</u>
Organic phosphites	L	100	D
Sodium hypophosphite	S	20,000	B
Inorganic phosphates	L,S	900	D
BHC cake (including Lindane)	S	300	D
Chlorobenzenes	S	100	B
Misc. 10% including other chlorinated organics	L,S	<u>2,100</u>	D,B
	Total	23,500	

L = Liquid

S = Solid or semi-solid

D= Drummed

B = Bulk

In addition, brine sludge, fly ash, cell parts and cell equipment in unknown quantities were dumped at this site.

Wastes were dumped in pits or trenches which were later covered.

A Hooker document indicates that the Hooker parcel of the 102nd Street site was used prior to the Love Canal for disposal of solid and drummed residues consisting of benzoyl-chloride, thionyl chloride, chlorinated waxes, antimony chloride, benzoic acid, benzoate of soda and caprylyl chloride. Hooker, however, has indicated to the Task Force that this site was not used prior to Love Canal.

The site has had a history of health and environmental problems: Prior to the placing of additional soil cover at the site, children were known to handle BHC cake. Fires and explosions were caused by the mixture of phosphorus and chlorate wastes at the site.

Serious problems relate to the leaching of wastes from the site into the Niagara River and the potential consequent contamination of drinking waters taken from the River. In addition, the overall integrity of the site has been questioned. In 1970, the Army Corps of Engineers issued an order to Hooker to cease operations, cover the site with clay soil and erect a bulkhead. This closure design was directed in part to control leachate, but the primary thrust of the design was to prevent the wastes from being washed away by the River.

Hooker conducted a hydrogeological and water quality investigation of the site in 1977. A report was then submitted to DEC in early 1978. After review, DEC requested additional data and information. Monitoring wells have been placed at the site and analysis of samples taken from these wells show contamination. Additional remedial work is needed at the site in order to insure the protection of the Niagara River from migrating chemicals. In addition, any such program must involve long term monitoring and maintenance in order to establish the effectiveness and integrity of such a control program.

HOOKER CHEMICALS AND PLASTICS CORPORATION
"S" Area

The "S" Area disposal site or "River Dump" is located in the southeast corner of Hooker's Niagara Falls plant. It is bounded on the south by the Robert Moses Parkway, on the east by 53rd Street and on the north and west by Hooker plant property. The disposal site is located approximately 200 yards from the Niagara Falls Water treatment plant to the east and a similar distance to the Niagara River to the south. The nearest homes are about one-quarter mile to the northwest.

The "S" Area was under water at least as late as 1924 when maps indicate the Niagara River shoreline extended close to Buffalo Avenue to the north. It was reclaimed sometime between 1938 and 1947 by the disposal of cinders, stone, slag, dirt and carborundum abrasives.

The water table is approximately four feet below existing grade. The water level below the site is subject to Niagara River influence and may vary several feet in one day.

Hooker acquired the "S" Area in 1947 from the Niagara Power and Light Company and used until 1975 as a disposal site. Major use of the site was phased out after 1961. Hooker has indicated to the Task Force that the following wastes were disposed of at the "S" and at the adjacent "N" Areas.

<u>Waste Category</u>	<u>Physical State</u>	<u>Total Estimated Quantity - Tons</u>	<u>Container</u>
Org. Phosphates	L, S	200	D, B
Misc. Acid Chlorides	L, S	400	D, B
Phenol Tars	L	800	B
Thionyl Chloride	L	4,200	D
HET Acid	L, S	500	D, B
Misc. Chlorinations	L, S	400	D, B
DDM	L, S	8,100	D
TCP	L, S	200	D
Benzoyl Chloride	L, S	3,300	D, B
LDS/MCT	L, S	2,200	D, B
Metal Chlorides	S	900	D
C-56	L, S	17,400	D, B
Chlorobenzenes	L, S	18,900	D, B
Benzyl Chlorides	L, S	1,600	D, B
Thiodan	L, S	700	D, B
Sulfides	S	4,200	D
Misc. 10% of above		6,400	
		TOTAL	74,400

L = liquid
S = solid

D = drummed
B = in bulk

Phenol tars were generated by Hooker's Durez plant in North Tonawanda. The other wastes came from Hooker's Niagara Fall's plant. The "S" Area was also used as a staging area for drummed materials taken to the Love Canal between 1947 and 1952.

Wastes were disposed of in parallel trenches dug 15 to 18 feet deep in the "S" Area. Liquid waste was transported to the site in trailers and emptied from the trailers into the trenches. Drums were punctured, their contents emptied into trench and the drums themselves then placed in the trench.

The trenches have now been covered and two treatment lagoons for flouride waste have been constructed above grade and are now in operation.

The major health and environmental problems associated with the "S" Area are the (a) possible leaching of wastes to the Niagara River and (b) the possible impacts of the wastes on the Niagara Falls Water Treatment plant.

Leaching to the Niagara River may have occurred because of the porous nature of the fill at the "S" Area, the high water table and tidal impacts on the site. In addition, nearby Hooker waste water discharge liner may serve as conduits to the River.

With the building of the embankment for the Robert Moses Parkway in the early 1960's, the natural flow of groundwater south to the River may have been impeded and an eastward groundwater flow parallel to the River encouraged.

In the summer of 1978, samples of sediments in abandoned water intake structures of the water treatment plant and in the forebays and shor shaft sections of the operating areas of the plant indicated the presence of the same kind of substances known to have been disposed of by Hooker at the "S" Area.

No connections between the "S" Area and the sediments has as yet been established. No impact on finished drinking water has been found. The State Department of Health has found the finished drinking water to be within acceptable standards.

Hooker has recently installed five monitoring wells on the boundary of its plant property east and south of the "S" Area. Seven monitoring wells are soon to be installed on the property of the Water Treatment Plant. No plan has been proposed for a remedial program at the "S" Area.

LANCASTER SANITARY LANDFILL

The Lancaster Sanitary Landfill is located in the northeast corner of the Town of Lancaster. It is bounded by the Clarence town line on the north, Shisler Road on the east, the New York State Thruway on the south and the Lancaster Speedway on the west. The landfill is entered from Gunnville Road.

There are no homes in the vicinity of the landfill. A marsh area and a stream are located in the extreme northern area of the site. There is no flood hazard area in the vicinity of the landfill.

The site is operated by Landcaster Sanitary Landfill, Inc. which began the disposal site in 1961.

When the operation began, approximately 100 acres were devoted for land disposal and an additional 80 or more acres have since been incorporated for landburial uses. Residential waste materials are accepted from many municipalities in northern Erie County including the Towns of Tonawanda, Grand Island, Amberst and Clarence.

The following companies are among those that disposed of wastes at the landfill:

<u>Company</u>	<u>Wastes</u>
Ford Motor Company	Oil sludge, waste oil
Westinghouse	General refuse
Chevrolet Metal Casting Plant	Waste sand
Chevrolet Motor Plant	Fly ash
Trico Products	Plastic purgings
Harrison Radiator (Buffalo)	Kolene sludge, drums, cans, bands and wire, cardboard, garbage, paper, wood, rubber, plastics, other solids
Wilson Greatbatch	Liquid waste
E. I duPont (Tonawanda)	Wet "Corian"
F. N. Burt	Paperboard, cellophane, gold leaf, scrap wood, plastic, garbage, waste adhesive (animal glue, polyvinyl, acetate, dextrans) waste ink, waste cans and metal
Arcata Graphics	Paper, paper dust, wood, general refuse

Strippit

Heat treat sludge, cutting oil compounds, chlorinated solvents, water with paint contamination, paint thinners and filters, cutting coolants, garbage

Snyder Tank

Paper, wood, plastics, metal

Curtiss Wright Corp.

Paper, rags and sweepings

(Air Force Plant 49)

Allied Chemical Dye Plant

Filtration sludges, waste colors and solvents

NYS Electric and Gas

Obsolete hardware

Rubbish

Motor Oil

Capacitors (with PCBs)

The following haulers have used the Lancaster Sanitary Landfill:

Buffalo Sanitation

Joe Ball Sanitation

CID Refuse Service

Clinton Disposal Service

Continental Transfer

Downing Container

Ferry Concrete

Georgi Sanitation

Niagara Sanitation

Rapid Disposal

Rural Sanitation

San Way Service

Ken Staub Trucking

Booth Oil

Minor problems at the landfill concerning fly ash, fumes from drums, small fires and gas seepage have been reported. The site maintains good cover and operates test wells for monitoring purposes.

LOVE CANAL

Love Canal is located in the southeast corner of the City of Niagara Falls. The site is bounded by 97th Street on the west, 99th Street on the east, Colvin Boulevard on the north and Frontier Avenue on the south.

The site, 16 acres in size, is approximately three-eighths of a mile from the Niagara River. Private homes abut the canal on the east and west.

The site was excavated in the 1890s as part of a proposed power canal bypassing Niagara Falls. A section of the canal, now also filled, was excavated along what is now Upper Mountain Road in Lewiston. Financial problems suffered by the canal developers and technological advances making possible the long range transmission of electrical energy forced the abandonment of the canal project.

The Love Canal filled with water from rainwater and, possibly, other sources, and was used as a local swimming hole in the 1930s. In 1942, Hooker Electrochemical Corporation entered into a letter agreement with the Niagara Power and Development Company, the owner of the Canal, under which Hooker was permitted to dispose of wastes in the Canal. In 1947, Hooker purchased the property.

From 1942 to 1952, Hooker disposed of a wide variety of chemical wastes, identified in the description of Hooker in this report, at the Love Canal. The City of Niagara Falls also disposed of solid waste in the canal. No other source of waste disposed of at the Canal has been identified.

Wastes brought to the Love Canal were transported and dumped as liquids, solids or semi-solids in metal or fibre drums. Material was placed in the site in drums and emptied into the Canal from the drums largely, according to Hooker, at the northern and southern ends of the Canal. The drums were later transported from the site or placed in the Canal empty of wastes. Bulk quantities of liquid and solid industrial wastes were deposited directly into the Canal.

In 1953, Hooker conveyed the site to the Board of Education of the City of Niagara Falls. Hooker has alleged that, prior to its sale of the property, it placed a soil cap on top of the drummed and bulk wastes it had dumped in the canal. However, Hooker could not confirm that such a cover had been placed on top of the wastes.

The Board of Education built an elementary school on top of the central section of the canal. As early as 1938, private residences existed adjacent to the southeast corner of Love Canal. Homes were built around the canal after 1953. The canal is presently owned by the City of Niagara Falls, the Board of Education of the City of Niagara Falls and a private party.

At some time after dumping began at the Love Canal, the water entering the site mixed with the chemical wastes and migrated into adjacent property and around the basement walls of many homes. The chemicals, carried by the migrating waters, were drawn into basement sump pumps and chemical vapors entered the basements or the contaminated water permeated the basement walls directly through cracks and pores. The contaminated water from the sumps was pumped into the storm sewer system where it is conveyed to the Niagara River.

Measurement of the air in selected basements has indicated the presence of numerous chlorinated organic chemicals and benzene. Ambient outside air near the landfill has been found to have levels of certain chlorinated hydrocarbons 80 times that in downtown Niagara Falls. It is also possible that chemical wastes were discharged directly from the canal to the Niagara River through a conduit running south from the canal.

DOH has carried out epidemiological studies of Love Canal area residents as well as extensive analysis of air in basements of homes around the canal. The evidence of a significant excess of miscarriages near the canal and other health-related findings led the Commissioner of Health to proclaim a health emergency on August 2, 1978.

The primary environmental concern is the extent and pathways of leachate escape from the canal. In addition to bearing on the extent of health-related problems in the Love Canal area, leachate leaving the site either through natural or man-made paths such as sewers, culverts, or road beds, will eventually end up in the Niagara River and chemicals could accumulate in the Lake Ontario biota.

Since the issuance of the order of August 2, 1978, the following actions have taken place:

1. Most of the residents have been evacuated from the houses around the canal and relocated;
2. The area has been fenced;

3. An extensive soil and sump sampling program was carried out to define more precisely the extent of leachate migration from the site;
4. A portable activated carbon treatment unit was at the site to treat leachate collected during construction operations; a permanent on-site carbon treatment unit is to be built.
5. The groundwater levels in the three deep wells will continue to be monitored, and a fourth well will be placed so that groundwater movement under the site can be better defined.
6. A clay cover has been placed on top of the southern third of the dump site and leachate collection trenches have been dug on either side of the disposal site.

NEWCO WASTE SYSTEMS, INC.

The Newco disposal site is located in the Town of Niagara and the City of Niagara Falls. The 385 acre site is bounded by Packard Road and the Niagara Junction Railroad on the west, the Great Lakes Carbon Company on the south and Interstate 190 on the east and north.

The nearest residences are a mobile home development across I-190, 0.5 miles to the east, and motels and private homes across Pine Avenue, 0.5 miles to the south. Marshy lowland has been located in the central portion and northeastern parts of the site. These are also federal flood hazards areas. Pike's Creek rises in the center of the landfill and flows south toward Pine Avenue.

The Newco landfill has been used as a disposal site since 1897 when it was first used as an industrial fill area by a predecessor company of Union Carbide's Metals Division. Newco Waste Systems acquired the site in 1976.

The site currently accepts the following wastes:

- Halogenated hydrocarbon residues
- Halogenated still bottoms
- PCB contaminated solids
- Aromatic hydrocarbon residues
- Halogenated organic residues
- Pesticide residues
- Tar residues
- Substituted aromatic residues
- Asbestos containing wastes
- Laboratory chemical waste
- Paint sludge
- Solids containing cyanide
- Organic residues and sludges
- Oil sludges
- Acid solutions containing heavy metals and organics
- Waste ferric chloride
- Alkaline solutions
- Heavy metal sludges
- Alkaline sludges
- Acidic sludges
- Oil/water waste
- Wastewater treatment plant sludges
- Inorganic wastes containing sulfur, nitrogen, etc.
- Fly ash
- Contaminated sand and soil
- Spent activated carbon
- Wastewaters contaminated with organics

Phenol containing wastewaters
Wastewaters contaminated with halogenated organics
Alkaline contaminated with heavy metals and organics
Brine solutions

As described in a recent submission to DEC by Newco, the following waste management systems have been in operation at the Newco site:

1. Recycling of Waste Lime

Lime waste from an acetylene generation process was pumped to large ponds on site and now, solidified, occupies approximately 150 acres of the property. The lime deposits are actively recovered, screened and sold. Lime waste is also used in many on site operations.

2. Scrap Metal Salvage Operations

The scrap metal salvage operation occupies about 12 acres on the northwest perimeter of the site. The operations involve the sorting, cutting and crushing of large scrap items such as boilers and industrial machinery for removal and eventual recycling off-site.

3. Dry Lime Acid Neutralization System (Discontinued)

This operation was located near the center of the site. This operation consisted of the neutralization with lime of concentrated acids.

4. Sanitary Landfill

The sanitary landfill covers 35 acres along the southeast border of the site. The landfill is composed of several lifts of municipal, demolition and industrial waste. The cover material includes clay, excavated soils, soil from demolition projects, processed sand waste and lime residuals from the lime reclamation process. This landfill is operated by Niagara Recycling which has a formal corporate connection with Newco Waste Systems, Inc.

5. Foundry Sand (Metal Recovery)

Two areas occupying approximately 16 acres are used for metal recovery operations which consist of screening sands for metal derived from industrial metal-casting operations. The metal is then transported off-site for recycling. The screened sand is used as intermediate cover in the sanitary landfill, to stabilize sludges in the intermediate landfill and as fill material in the secure landfill.

6. Hydrochloric Acid Neutralization System

The hydrochloric acid neutralization system located in the northeast corner of the site is leased by Hooker Chemical and Plastics Corporation for neutralizing hydrochloric acid during periods when sale of this industrial by-product is not possible. After mixing with lime in the neutralization ponds, the effluent enters the retention pond where it discharges to the groundwater.

7. Secure Landfills 1 and 2

The secure landfills cover eight acres of the site along the southern perimeter. The secure landfills are constructed with compacted clay over native, in-place clay, with an artificial liner and underdrain system for collection of any leachate generated above the liner. Clay and chemical covers are used as cover materials. A drum-handling area has recently been constructed for the handling of wastes. There is an underground sump-system to treat any accidental spills during handling as well as of contaminated rainwater, melted snow, and washwater from normal operations of this facility.

8. Industrial Fill Area

Slag, fly-ash, brick, carbon and similar materials have been dumped in about 17 acres in the southwest corner of the property. Specific examples of industrial fill include mercury brine sludge (consisting of sand, graphite, and sodium chloride), electro-metallurgical slag and radioactive slag. The radioactive slag is a by-product of niobian separation of Columbia ore and contains small amounts of uranium, thorium, radium-224, and radium-228 (see description of Union Carbide Metals Division).

Newco Waste Systems proposes to construct a third secure landburial facility and is seeking final approval of a 10 acre intermediate landfill and wastewater treatment operation.

Problems that have been identified at the Newco site include the mixing of hazardous wastes with refuse before the construction of the secure landburial facilities and odor complaints. EPA has recently cited Newco for allowing leachate in one of its secure landfills to exceed approved levels. This landfill is authorized to accept solids containing PCB's and other wastes.

NIAGARA COUNTY REFUSE DISPOSAL DISTRICT
Wheatfield Landfill

The Niagara County Refuse Disposal District occupies approximately 50 acres west of Witmer Road and north of River Road in the Town of Wheatfield contiguous to the City of North Tonawanda. The site is immediately west of the Forbes Terrace residential area. Black Creek which flows to the Niagara River via Bergholz Cayuga Creeks rises in the northern section of the disposal site. The Niagara River itself is less than one-half mile to the south.

The land disposal area began operating in 1968, and was officially closed in 1976. The site is now owned by the Town of Wheatfield. The upper ten feet of material is a sandy clay which changes abruptly to a blue clay below ten feet and then becomes quite wet at twelve feet. The site is virtually flat.

The following companies were among those that disposed of wastes at the Wheatfield site:

<u>Company</u>	<u>Wastes</u>
Carborundum	Empty Containers Abrasive grain Scrap sandpaper Scrap resins
Bell Aerospace	Heat treatment salts Plating tank sludge Scrap wood
Goodyear	Thiazole polymer blends Iron catalyst salts Accelerator sewer pumps PVC floor sweepings
E.I. DuPont, Niagara Falls Plant	Off-grade polyvinyl alcohol
Hooker (Durez)	Oil and grease drippings Phenolic molding compound Phenolic resin Rubbish
Olin Chemicals	Graphite Lime sludge Brine sludge (with mercury)

Hooker (Niagara Falls)	Hypo Mud Soil and miscellaneous chemical wastes from southern section of Love Canal	
NL Industries	Fumed silica Zircon-zirconia sludge Paper bags (which may contain traces of heavy metal dusts)	Wood pallets Flint pebbles Fiber drums Steel drums Brick
Roblin Steel	Miscellaneous trash	

Residue from the Niagara Falls incinerator was also landfilled along the western property line. The following haulers disposed of wastes at the Wheatfield landfill:

Booth Oil
Hasley Trucking
Modern Disposal
Ray F. Morningstar
Niagara Sanitation
Rapid Disposal
J. Vitulo Trucking

The ramp method was used to refill excavations made by the scrapers. Refuse was dumped on the top surface and pushed to the ramp where it was compacted and covered.

Reports of insufficient cover, odors, leachate contamination, and pooled chemical wastes are on file with county and state agencies. The area is subject to flooding and some of the waste materials have been known to protrude from the burial site. Surface leachate run-off may be seen at the site now.

NL INDUSTRIES, INC.
Hyde Park Boulevard Site

The Hyde Park Boulevard disposal site of NL Industries is located in the Town of Niagara. It is bordered on the north by railroad tracks, on the south by Pennsylvania Street, on the east by Witmer Road and on the west by the NL Industries plant. To the north of the railroad tracks is Hooker's Hyde Park landfill.

The surface water nearest to the site is the Niagara River, 0.4 miles to the west. There are no wells close to the site.

The site, 30 to 50 acres in size, was probably used by NL Industries for the disposal of wastes as early as 1906. From 1930 to 1976 when the site was closed, the following amounts of wastes were disposed of there:

Iron carbon titanium alloy	500 tons
Uncalcined titanium oxide	386 tons
Ammonium zirconia carbonate solution	3.6 tons
Magnesium chloride with zirconium impurity	43 tons
Zirconium sodium potassium chloride mixture	3.3 tons
Aluminum oxide with titania impurity	2000 tons
Silica fume with motor oil	50 tons
Ammonia zirconium carbonate	1 ton

The wastes were disposed of in steel drums, steel shells, plastic bottles or, in the case of uncalcined titanium oxide, aluminum oxide and the silica fume, in bulk.

The major health and environmental problem posed by the NL Industries site is the potential cross contamination of groundwater with the adjacent Hyde Park landfill owned by Hooker and the migration of leachate which may contaminate sediments already contaminated by leachate from the Hooker site. In addition, this site has not been properly closed.

OLIN CORPORATION
102nd Street

The 102nd Street landfill is located on Buffalo Avenue. It is bounded on the south by the Niagara River, on the west by a disposal site owned by Hooker and on the east by property formerly owned by a Mr. Belden. The nearest homes are located across Buffalo Avenue to the north. No wells are located near the site. The site comprises about seven acres and was used from 1948 to about 1970 to dispose of the following wastes:

<u>Waste Category</u>	<u>Physical State</u>	<u>Total Estimated Quantity - Tons</u>	<u>Container</u>
"Black Cake"	S	20,000	B
Graphite	S	692	B
Benzene hexachloride and trichlorophenol mixture	L, S	65	D
Trichlorobenzene	L	150	D
Alpha and Beta BHC Cake	S	1,250	B, D
v-Tetrachlorobenzene	L	1,100	D
Lime sludge	S	23,900	B
Brine sludge with mercury	S	20,000	B
Hexachlorobenzene	L	60	D
Trichloroanisole	L	<u>No Data</u>	D

TOTAL APPROX. 66,000 tons

L = liquid
S = solid or semi-solid

D = drummed
B = bulk

Also, over 16,000 tons of concrete, empty containers, fly ash, boiler ash and trash from Olin were also disposed at this site. In addition, scrap materials from Carborundum were disposed of at this site from 1930 to 1971 and iron catalyst salts, acelevator sewer sumps and polyvinyl chloride emulsion berries and skins from Goodyear were disposed here from 1948 to 1967.

Wastes were dumped as solids, semi-solids or liquids in bulk or drum quantities. The material was placed in pits which were eventually covered or desposited directly onto the ground.

The major health and environmental problems associated with this site are possible leaching of wastes into the Niagara River and the potential consequent contamination of drinking waters taken from the River. Furthermore, the integrity of the site is not known. In 1970, the Army Corps of Engineers issued an order

to Olin to cease operations, cover the site with clay soil and erect a bulkhead. This closure design was directed in part to control leachate but the primary thrust of the design was to prevent the wastes from being washed away by the River.

In August; 1977, the DEC instructed Olin to install monitoring wells at the site for level, benzene hexachloride, total chlorinated hydrocarbons and mercury. However, these wells were not installed properly. Olin was then asked to properly install the wells.

Data from the well samples show contamination. Additional remedial work is needed at the site in order to insure the protection of the Niagara River from migrating chemicals. In addition, any such program must involve long term monitoring and maintenance in order to establish the effectiveness and integrity of such a control program.

PFOHL BROTHERS

The inactive Pfohl Brothers site is located near the Buffalo Airport at Aero Drive and Transit Road in Cheektowaga. Ellicott Creek is immediately south of the site and the borrow pits of the New York State Thruway Authority are to the north.

The site is in a federal "flood hazard" area. The water table is close to the surface. There is evidence of wetland vegetation at the site.

The site was used at least as early as 1946 for wastes from Westinghouse and American Optical and at least as late as 1971 for wastes from Hooker's Durez plant. The following wastes have been reported as having been disposed of at the Pfohl's site:

<u>Company</u>	<u>Wastes</u>	
American Optical	Pine tar pitch Scrap glass and emery Waste paints and thinners Waste cutting oils Fuller's earth contaminated with oil	Silicon Metal Waste solvents Rouge Garbage
Westinghouse	General refuse	
Hooker-Durez	Phenol tar containing chlorinated benzenes	
NYS Electric & Gas	Obsolete hardware Rubbish Oil Capacitors (with PCBs)	

The following haulers have also disposed of waste at the Pfohl's site:

Clinton Disposal Service
Rapid Disposal
Downing Container
Joe Ball Sanitation

The primary environmental and health problem at this site are the migration of leachate which may contain chlorinated benzenes and the resulting contamination of groundwater.

SCA CHEMICAL WASTE SERVICES, INC.

The 630 acre SCA facility is located on Balmer Road near Model City in the Towns of Lewiston and Porter. Throughout this report, the location of the SCA disposal site is identified as Porter. The site was formerly part of the federally owned Lake Ontario Ordinance Works.

The waste disposal operation at the site began about 1972. SCA took over the operation in 1973.

The SCA site is located on flat lowland. It is drained by two northward flowing streams, Six Mile Swale and Twelve Mile Creek.

The site, currently receives the following wastes:

- Solvents, both halogenated and non-halogenated
- Solvents, both halogenated and non-halogenated
- Acids, with and without heavy metals
- Aqueous waste including:
 - alkaline solutions with and without heavy metals
 - phenol contaminated water
 - PCB contaminated water
 - aqueous contaminated with heavy metals
 - brine solutions
 - aqueous solutions with organics
- Still and tank bottoms, paint sludges, heavy metal sludges, PCB solid waste, packaged lab chemicals
- contaminated soil and earth, solid organic waste
- Cyanide waste
- Organic liquids including oil and PCBs

Initially, the site was used for the incineration of unreclaimable solvents and the neutralization of aqueous wastes with the land disposal of extracted solids. The following waste management facilities are now in operation at SCA:

1. Water Treatment System

Liquid wastes are mixed with lime in a centrifugal neutralizer and open top reaction vessel. Contaminated water is directed to aeration tanks and facultative ponds and passed through a carbon absorption system. Sludges are landfilled on site.

2. Blended Fuel System

Waste liquids are blended to meet customer's fuel specification. Filtered solids are landfilled.

3. Distillation Process

A distillation recovery system uses a flash distillation unit. Distillation of bottom residues and filtered solids from this system are disposed of on site. Water decants are treated in the water treatment system.

4. Landfills

There are seven separate landfills, each with clay and plastic liners and a leachate collection system. Leachate is treated in the water treatment system.

SCA has indicated to DEC that, in the future, it may institute a program for the recovery of metals from sludges and may build a kiln type incinerator for liquids, slurries and organic residues. SCA estimates the site may be used for landfilling for 15 years.

Several applications are now on file at DEC concerning modification of a SPDES permit, continued operation of the landfills, an additional landfill and drum storage area and the construction of an outfall directly to the Niagara River.

Major problems at the site include accidental spills and odors. EPA has recently cited SCA for failure to store PCBs in watertight buildings.

SEAWAY INDUSTRIAL PARK

The 100 acre Seaway Industrial Park is located at River Road in the Town of Tonawanda. It is bordered on the northwest by River Road, on the southeast and northeast by power lines and on the southwest by Ashland Oil. The site is approximately 1000 feet from the Niagara River.

The site is owned by Seaway Industrial Park Development Co., Inc. It has been operated by that company and Friona Brothers of Niagara Falls and is now operated by Niagara Landfill, Inc. of Niagara Falls.

The following companies are among those that have disposed of wastes at the landfill:

<u>Company</u>	<u>Wastes</u>
Western Electric	Miscellaneous paper products Miscellaneous plastic, rubber and restaurant waste Continental enamel PVC plastic Spent cleaning solvent Waste oils Drummage pallets Fly ash
Carborundum (Coated Abrasives)	Incinerator ash Solidified resins Waste filler including calcium carbonate and clay Abrasive grain and scrap sandpaper Wood Rags Paper Floor sweepings
Ford Motor Company Stamping Plant	Garbage and rubbish
Chevrolet Forge Plant	Pit sludge
Chevrolet Metal Casting Plant	Waste sand Sand slurry
Chevrolet Motor Plant	Fly ash Pit sludge
Trico Products	General refuse

Union Carbide/Linde	Miscellaneous trash
FMC	Yard trash Floor sweepings Scrap perborate Miscellaneous garbage
Pennwalt	Lauroyl peroxide sludge
Bernal Foam Products	Toluene diisocyanate Chloroethene, polyether polyol and catalysts Scrap polyurethane foam Scrap wood and paper
Allied Chemical Specialty Chemicals Division (Plastics)	Scrap and chlorinated polyethylene Trash Wood Garbage Ceramic saddle packing Catalyst
Allied Chemical Specialty Chemical Division (Dye Plant)	Pretreatment sludge with heavy metals Filter sludges with organics, colors Liquid still bottoms
Allied Chemical Semet-Solvay Division	Plant scrap
DuPont (Tonawanda)	"Corian" "Tedlar" "Vexar"
Spaulding Fibre	Vulcanized fibre Thermosetting plastic trimmings Vulcanized fibre sheet
Hooker (Durez)	Rubbish
F.N. Burt	Waste paperboard Waste cellophane Waste gold leaf Scrap wood Waste plastic Garbage Waste adhesive (animal glue, polyvinyl, acetate, dextrins) Waste cans and metal

The following haulers have disposed of wastes at Seaway:

Booth Oil Company
CID Refuse Service
Clinton Disposal Service
Ray F. Morningstar
Niagara Sanitation
Rapid Disposal
Downing Container
Davis Scrap
Ken Staub Trucking
Joe Ball Sanitation
Hasley Trucking
Riverside Services
Continental Transfer System

In 1974, 6000 cubic yards of uranium ore tailings residue from the Haist property in Tonawanda, now owned by Ashland Petroleum, were disposed of at the Seaway Industrial Park in surface mounds. The tailings were not covered. According to DOE, the affected land cannot be subject to unrestricted use until a clean up is conducted.

The chief problems at the Seaway site have been inadequate cover and drainage. The cover problem appears to have been solved since additional cover was placed in the site pursuant to court order. An acceptable, final management plan, required under court order, has not yet been submitted to DEC.

SECTION III

GENERATORS OF HAZARDOUS WASTES

The following pages describe three kinds of hazardous waste generators:

- A. Private Companies
- B. Power Plants and Facilities
- C. Federal Facilities

The private companies described are those which received questionnaires from the Task Force. In some cases, notably Hooker Chemicals and Plastics Corporation, the Carborundum Company and Trico Products, plants or division within the company which received separate questionnaires, are the subject of only one description. For this reason, although questionnaires were sent to 90 companies, only 80 descriptions appear in the following pages.

The sources of the information in the descriptions include the questionnaires, other government records, newspaper articles, interviews with past and present company employees and personal observations and assessments by members of the Task Force.

None of the descriptions fully set forth waste generation and disposal activities of the companies. The Task Force asked each company to describe its waste disposal activities since 1930, but lack of records and dimmed recollection made a reconstruction of activities in early years difficult. Some companies could not even reconstruct their waste disposal activities of three or four years ago.

In addition, the descriptions are limited to industrial waste generation and disposal. The disposal of garbage, human wastes and trash is, for the most part, not included.

The following sections describe waste generation from and disposal at power facilities and federal government facilities.

AIRCO ALLOYS
3801 Highland Avenue
Niagara Falls

Airco Alloys was founded and incorporated in 1913 in Delaware. Operations in Niagara County began in 1919 under the name Pittsburgh Metallurgical Company. The name was changed in 1962 to Airco Alloys. Airco Alloys is a subsidiary of the Airco Corporation which, in turn, became a subsidiary of BOC International in 1978.

Airco Alloys manufactures ferroalloys and stainless steel pigs in forms such as ferrosilicon, ferromanganese, silvery pig and ferrochrome silicon. The Pittsburgh Metallurgical Company also manufactured ferroalloys at the Niagara Falls plant. These processes generate a slag which must be disposed of.

Since 1964, Airco Alloys has used a land disposal site located on Witmer Road in Niagara Falls for the disposal of two forms of slag, ferrochrome silicon and ferromanganese, two types of dust in a slurry form, ferrosilicon and ferrochrome silicon, and calcium hydroxide.

Before 1964, the Witmer Road site was used for the disposal of similar materials by the Vanadium Corporation of America.

Before 1970, some slags from Airco Alloys were hauled off plant property by Friona Brothers, Inc., and used for land fill and road beds. Since 1970, Hasley Trucking has purchased some of the slag from Airco Alloys and hauled it away for use in reclamation projects.

Estimated amounts of materials disposed of at Witmer Road site:

Since 1964 by Airco Alloys

Ferrochrome Silicon Slag*	21,000 tons
Ferromanganese slag*	6,000 tons
Ferrosilicon dust**	16,000 tons
Ferrochrome silicon dust***	39,200 tons

1920 to 1964 by Vanadium Corporation of America

Slag*	594,000 tons
Refuse (brick, wood, ash)	88,000 tons
Total	<u>764,200 tons</u>

* Assumes that 70% of slag is reclaimed.

** Dust from loghouse collectors at ferrochrome silicon and stainless steel pig furnaces built in 1976.

*** Baghouse dust from ferrosilicon furnace built in August 1971.

AIRCO SPEER CARBON-GRAPHITE
Packard Road at 47th Street
Niagara Falls

Airco Speer Carbon Graphite was incorporated in Delaware in 1899 under the name of Speer Carbon Company. The company began operations at its present location in 1930 when it purchased a 50 percent interest in International Graphite and Electrode Corporation. Speer Carbon assumed full ownership of the plant in 1932. Speer Carbon became a subsidiary of Airco, Inc. in 1961 and a division of Airco in 1962. Airco became a subsidiary of BOC International in 1978.

The company has used several processes to manufacture graphite including mixing and extrusion (since 1968); baking (since 1952); pitch treating (since 1936); oil treating (since 1942) and graphitizing (since 1930).

The company has generated the following wastes: carbonaceous furnace insulation, spent refractories, obsolete equipment, linseed oil, sand, scrap extruded and baked carbon materials and tar. The furnace insulation contained asbestos fiber, and since 1969, asbestos tape. Less than one ton per year of asbestos fiber and other substances were used (and disposed of) between 1952 and 1954 and again between 1964 and 1969. Approximately 160 pounds of asbestos tape has been used annually between 1954 and 1964 and since 1969. According to the company, the waste sand contains no phenolic binders.

From 1930 to 1954, Airco Speer disposed of carbonaceous furnace insulation, spent refractories, obsolete equipment and linseed oil on plant premises east of Packard Road and west of the Niagara Junction rail line. This same area was used as a disposal site by International Graphite and Electrode before 1930.

From 1954, when the on-premises site was filled to capacity, to 1964, the same wastes and sand were hauled to the Union Carbide dump in Niagara Falls now operated by Newco Waste Systems.

From 1964 to 1972, Modern Disposal Services hauled the above wastes and tar and scrap extruded and baked carbon materials to its disposal site in Model City. Since 1972, A. Cerrone and Niagara Sanitation Co., Inc. have hauled all of the above wastes to Newco in Niagara Falls.

Estimated annual amounts of wastes generated by Airco Speer Carbon-Graphite:

	<u>1930-1954</u>	<u>1954-1964</u>	<u>1964-1972</u>	<u>Since 1972</u>
Furnace insulation, refractories and sand	1200 to 6000 cu.yds.	6000 to 12,000 cu.yds.	12,000 to 30,000 cu.yds.	30,000 to 48,000 cu.yds.
Carbon materials	None	None	?	?
Obsolete Equipment	Small	Small	Small	?
Linseed Oil (after 1942)	2500 gallons	2500 gallons	2500 gallons	1500 gallons
Tar	None	None	None	?

ALLIED CHEMICAL CORPORATION
Industrial Chemicals Division
Buffalo Chemical Plant
35 Lee Street
Buffalo

The Allied Chemical Corporation was incorporated in New York in 1920 as the Allied Chemical and Dye Corporation. The Buffalo Chemical Plant was owned and operated by General Chemical Company, a subsidiary of Allied Chemical and Dye Corporation, between 1930 and 1947. In 1947, General Chemical Company was merged into Allied Chemical and Dye Corporation. Allied Chemical's name was changed to Allied Chemical Corporation in 1958.

Many processes were used at the plant including sulfuric contact process (since 1930), nitric acid-ammonia oxidation (since 1930), oxalic acid-carbohydrate oxidation (since 1942), muriatic and salt cake (1930 to 1944), ammonium thiosulfate (since 1957), metallic nitrates (since 1956), liquid "sulphan" (since 1951) and liquid sulfur dioxide (1954 to 1962).

The products produced by the plant are sulfuric acid (all grades) (since 1930), liquid "sulphan" (since 1951), liquid sulfur dioxide (1954 to 1962) nitric acid (since 1930), red fuming nitric acid (1949 to 1975), mixed acids (sulfuric/nitric) (since 1930), oxalic acid (since 1944), muriatic acid (1930 to 1944), salt cake (1930 to 1944), ammonium thiosulfate (since 1957), metallic nitrates-cadmium, nickel, copper and iron (since 1956) and potassium nitrite (since 1948).

The company has generated the following wastes:

- Ammonium thiosulfate filter cake
- Metallic nitrate rinses (with cadmium, copper, nickel, potassium or iron)
- Spent sulfuric acid sludge
- Spent vanadium pentoxide catalyst
- Spent cobalt catalyst
- Sulfur drainings
- Cinder
- Slag
- Miscellaneous construction and demolition debris
- Calcium and other salts of sulfuric acid and nitric acid
- Solid polymerized sulphur

From 1930 to 1977, unknown amounts of all of the above wastes (except the filter cake, rinses, sludge and cobalt catalyst) were disposed of at an on premises site. In 1977, use of this site was discontinued and approximately 8500 tons of material was excavated and transported by Niagara Sanitation to Land Reclamation in Cheektowaga and Newco Waste Systems in Niagara Falls.

Since 1974, ammonium thiosulfate filter cake (120 tons total) and metallic nitrate rinses (57,000 gallons total) were disposed of at SCA in Porter.

Since 1976, ammonium thiosulfate filter cake (60 tons total), spent vanadium pentoxide catalyst (108 tons total) and spent sulfuric acid sludge (12 tons total) has been hauled by Niagara Sanitation to Newco Waste Systems.

Cobalt catalyst is shipped by common carrier to reclaimers.

ALLIED CHEMICAL CORPORATION
Semet Solvay Division
3875 River Road
Tonawanda

The Allied Chemical Corporation was incorporated in New York in 1920 as the Allied Chemical and Dye Corporation. It changed its name to Allied Chemical Corporation in 1958. The Buffalo Coke Plant was owned and operated by the Semet Solvay Company between 1930 and 1947. In 1947, Semet Solvay Company merged into Allied Chemical and Dye Corporation. In 1978, the plant was sold to the Tonawanda Coke Corporation.

Industrial processes used at the plant from 1930 to 1978 include by-product coking, light oil distribution, ammonia recovery and BTX extraction. Wastes generated at the plant include furnace and foundry coke, aqueous ammonia, light oil, tar, coke oven gas, pyridine, tar acid and sodium phenolate.

Estimated amounts of wastes generated at the plant:

	<u>Tons per Year</u>	<u>Total Tons (1930 to 1978)</u>
Charred coal tar dust ash and coal and coke fines	1000 tons (1977-78)	N/A
Tar sludge fly ash and cinders	4680 tons	210,600 tons
Boiler fly ash	19,760	889,200
Brick, rubble and related demolition material		10
General plant refuse	2340	126,060
Spent iron oxide and wood shavings	728	32,760
Plant scrap, mostly metal	1248	56,160
Contaminated Chloroethane		750 gallons

Charred coal tar dust, ash and coal and coke fines were disposed of at Newco Waste Systems in Niagara Falls. Tar sludge, fly ash, cinders and boiler fly ash were disposed of in the southwest part of plant property. Brick, rubble and related demolition material were disposed in the northwest part of plant property. General plant refuse was incinerated on premises. Spent iron oxide and wood shavings were disposed of in the southeast part of plant premises. Plant scrap was disposed of at the Seaway Industrial Park in Tonawanda. Chloroethane was hauled to Buffalo Waste Oil of North Tonawanda. In 1977, Superior Pipe Cleaning and Elmwood Tank Cleaning removed oils from an in process lagoon for disposal or reclamation elsewhere.

ALLIED CHEMICAL CORPORATION
Specialty Chemicals Division
Buffalo Dye Plant
340 Elk Street
Buffalo

The Allied Chemical Corporation was incorporated in New York as the Allied Chemical and Dye Corporation. The Buffalo Dye Plant was owned and operated by National Aniline & Chemical

Company. In 1941, National Aniline merged with the Allied Chemical and Dye Corporation. In 1977, the plant was sold to Buffalo Color Corporation.

Processes employed at the Buffalo Dye Plant were the standard unit operations and processes used by the chemical process industry. The types of processes used since 1930 are listed below:

Nitration	1930 to 1976
Reduction	1930 to 1976
Sulfonation	1930 to 1976
Alkaline Desulfonation (hydroxylation)	1930 to 1976
Amination	1930 to 1955
Diazotization	1930 to 1977
Coupling (azo formation)	1930 to 1977
Halogenation	1930 to 1962
Oxidation	1930 to 1965
Friedel-Crafts Condensation	1930 to 1960
Ring-Closure	1930 to 1977
Alkylation	1930 to 1977
Esterification	1930 to 1955
Hydrolysis (Saponification)	1930 to 1977
Neutralization (pH adjustment)	1930 to 1972
Dehalogenation (alkaline)	1930 to 1967
Rearrangement	1930 to 1976
Sulfuration	1930 to 1967
Oximation	1945 to 1965
Carboxylation	1932 to 1960
Isomerization	1935 to 1960
Chelation	1945 to 1976
Condensations (other)	1930 to 1971
Bisulfite Addition	1930 to 1972
Phosgenation	1930 to 1975
Sandmeyer Reaction	1930 to 1965
Nitrosation	1930 to 1972
Skraup Synthesis	1930 to 1972

A wide variety of products were produced by the plant since 1930. The products and periods of production are listed below:

Aniline, Toluidines & Xylidines	1930 to 1953
Benzidine	1930 to 1976
Dichlorobenzidine	1939 to 1973
1-Naphthylamine	1930 to 1955
2-Naphthylamine	1930 to 1955
1-Naphthol	1930 to 1952
2-Naphthol	1930 to 1952
Schaeffer's, R&G Salts	1930 to 1972
Amino G and Amino I Acids	1930 to 1972
Gamma and I Acids	1930 to 1972
Aminoazobenzene and Aminoazotoluene, AAX	1930 to 1965

H Acid and C Acid, Amino H Acid	1930 to 1976
R and S Acids, 2R and 2S Acids	1930 to 1972
Michler's Methane and Ketone,	1930 to 1975
Tetramethyl Diamino Ditoylmethane	
Nitrobenzene, Nitrotoluenes, Nitro-	1930 to 1953
xylenes, Nitronaphthalene	
Chlortoluidines	1930 to 1955
Ethylbenzylaniline (EBA)	1930 to 1975
EBA Sulfonic Acid	1930 to 1975
Dinitrobenzene, Dinitrotoluene,	1930 to 1953
Dinitrochlorobenzene	
Cleves Acids and 1,5- and 1,8-Amino	1930 to 1972
Acids	
Sulfanilic and Naphthionic Acids &	1930 to 1977
Sodium Salts	
O- and p-nitrotoluene Sulfonic Acid,	1930 to 1972
NBSA	
Dinitro- and Diaminostilbene	1930 to 1972
Disulfonic Acids	
Benzoyl-, Toluy-, and Chlorobenzoyl-	1930 to 1960
benzoic Acids	
AQ, Methyl AQ and Chloro AQ,	1930 to 1960
Chloromethyl AQ	
Metaphenylene Diamine, Meta Toluene	1930 to 1953
Diamine	
N-alkyl and N, N-dialkylanilines	1930 to 1977
AQ Monosulfonic Acids	1930 to 1972
1-amino, 2-hydroxy, 4-naphthalene	1930 to 1966
sulfonic Acid and diazoxide,	
nitro 1,2,4 diazo	
Alpha, Beta-amino AQ's	1930 to 1960
Nitroanisoles, Dinitroanisoie	1930 to 1965
Indigo and Indigotine	1930 to 1977
Phenyl Glycine Salt	1930 to 1977
Dyes (major examples)	
Acid (Wool Orange A) Buffalo Blk NBR	1930 to 1977
Croc. Scarlet MOO	
Basic (Victoria Green WB) Auramine	1930 to 1977
Safranine, Methyl Violet	
Direct (Direct Black 38) Direct Blue	1930 to 1976
6, Red - , Green -	
Mordant (Superchrome Blk TS)	1930 to 1963
Blue B, Alizarine	
Solvent (Nigrosine, Nubiene Resin	1930 to 1972
Black) Oil Orange 2311, Oil Black	
Chysoidine	
Vat (Indigo) Khaki 2G, Blue BCF	1930 to 1965
Disperse (Nacelan Blue G or 2R)	1940 to 1965
Azoic & Developed (Diazine Blk H)	1930 to 1955
Naphthol AS, Stable Diazo, Fast	
Salts	
Sulfur (Sulfindone Blue B, 2R)	1930 to 1967
Food (Acid Dyes) FD&C Yellow 5,6)	1930 to 1977
FC&C Reds 1,2,3,4,40; FC&C Blues	
1,2	

Biological Stains & Indicators	1930 to 1970
(Wright's Stain) Brown Thymol Blue	
Pigments & Lakes (Carb. Yellow G)	1930 to 1977
(D&C, E&T, D&E Colors)	
Specialties (Fluoroescein)	1930 to 1976
Maleic and Phthalic Anhydrides	1930 to 1977
Nadic and Nadic Methyl Anhydrides	1954/56 to 1977
2-hydroxy, 3-naphtholic Acid,	1930 to 1966
Salicylic, o-cresotinic	
Anthruffin & Quinizarine	1930 to 1960
Succinic Acid and Anhydride	1930 to 1977
Toluene Diisocyanate	1954 to 1957
Bromamine Acid	1930 to 1965
Malic and Fumaric Acids	1930 to 1955
Naphthol AS Developers	1930 to 1955
Alkylbenzene & Alkylbenzene Sulfonate	1935 to 1965
Oximes	1940 to 1965
Aminoazobenzene, mono-, disulfonic	1930 to 1965
acid AAT monosulfo	
Succinimide, N-chlorosuccinimide,	1935 to 1965
Phthalimide	
Dinitrophenol	1930 to 1967
I Acid Urea	1930 to 1965
Dimethylaminoazobenzene	1930 to 1960
Aminopyrine	1935 to 1955
Lead Peroxide	1930 to 1960
Phenyl Acid, Tollyl Acid	1930 to 1970
1-aminonaphthalene; 4,8-disulfonic	1930 to 1970
acid, Epsilon & Casella Acid	
Metanilic Acid	1930 to 1970
Aniline and OT Omega Sulfonic Acid	1930 to 1970
1,4-oxy Acid	1930 to 1970
Isobutyl Sulfate	1930 to 1965
Naccosol, Naccotan	1930 to 1960
Isobutyl-2-naphthol	1930 to 1960
Picramic Acid	1930 to 1950
Chloromaleate Ester	1940 to 1955
Benzyl Mercaptan	1930 to 1945
Indophenols	1930 to 1970
Benzanthrone, Dibenzanthrone	1930 to 1965
Thiocarbanilide	1930 to 1955
Dioxytartaric Acid	1930 to 1955
Dehydrothio-p-toluidine & Primiline	1930 to 1960
Base	
Mixed Cyanide	1930 to 1977
Amino Sulfo Phenol	1930 to 1970
Nitrophenol	1930 to 1960
Nitroaniline, Dinitroaniline	1930 to 1970
Thioaniline Disulfonic Acid	1930 to 1970
I Acid Imide	1930 to 1970
Nitrochlorotoluene	1930 to 1970
p-aminoacetanilide	1930 to 1970
Quinaldine, Benzoquinaldine	1930 to 1965
Lauryl Sulfo Acetate	1930 to 1970

The Buffalo Dye plant generated the following types of industrial wastes:

- Pretreatment sludge containing heavy metals and low levels of benzidine
- Filter sludges containing organics, colors and metals (e.g., iron oxide, aluminium hydroxide, calcium sulfate)
- Still bottoms (e.g., dimethylaniline)
- Organic residues (e.g., Tetrapropylene, maleic anhydrides aniline)
- Solvents (e.g., alcohols, toluene, dichlorobenzene)
- Off-specification colors (e.g., dyes, azobenzenes, polyols)
- Calcium arsenate and arsenite
- Ammonium sulfate solution
- Heavy metal sludges (copper sulfide, lead sulfite, chromium hydroxide)
- Spent catalysts (mercury, nickel, palladium, vanadium)
- Miscellaneous laboratory samples and research and development wastes
- Waste oil

The following disposal sites were used for the disposal of industrial wastes:

A. Company owned sites

1. Iron sludge ponds

Two iron oxide settling lagoons were used from 1930 to 1963. The quantity of material deposited is unknown.

2. Weathering area - Plant D

Various metal sludges of unknown quantity were deposited in this area while awaiting sale for reclamation of the metals. In addition, other industrial wastes such as calcium sulfate were deposited on this site prior to off-site disposal.

3. Incinerator

Prior to 1953, much of the still bottoms, solvents and organic residues were discharged from the plant in the process effluent to the Buffalo River. In addition, some of this material was burned in pits at the weathering area in Plant D. About 1953, an incinerator was constructed and burnable solvents, still bottoms, waste oil and residues were disposed of in this manner until the incinerator was shut down in about 1968. The quantity of waste materials disposed of in this manner is not known.

4. Deep Well Disposal

A deep well injection operation was used at the plant from November 1960 until mid-1963. The deep well was operated in compliance with the requirements of a permit issued by the Erie County Health Department. It was 450 feet deep and was used to dispose of approximately 3,500,000 gallons of 40 percent ammonium sulfate solution. Prior to injection in the deep well, this waste material was treated with carbon to remove organic material.

B. Off-Plant Waste Disposal Sites

1. Niagara Recycling (Niagara Falls)

Niagara Recycling was used from 1970 to 1975 to dispose of approximately 13,000 tons of pretreatment sludge containing calcium sulfate, low levels of benzidine and minor amounts of metal hydroxides including zinc, copper, chromium, lead and organics. In addition, about 3700 tons of still bottoms and filter sludges containing organics, colors and metals, along with about 6000 tons of trash, were disposed of at this site. Niagara Sanitation was the contractor who hauled these materials. The materials were transported in 5 cubic yard boxes.

2. Frontier Chemical (Pendleton)

Frontier Chemical transported approximately 600,000 gallons of residue consisting of tetrapropylene and process sludges, solvents, waste oil and waste colors to its site in Pendleton. Materials were transported in drums as sludges and liquids.

3. Land Reclamation (Cheektowaga)

This site was used primarily for trash and rubble disposal between 1968 and 1975. Rapid Disposal of Buffalo and Downing Container transported the wastes to this site. These haulers also transported about 100,000 gallons of drummed laboratory sample bottles and waste colors to this site for disposal.

4. Lancaster Sanitary Landfill (Lancaster)

From 1970 to 1971, Buffalo Sanitation hauled drummed quantities of filtration sludges, waste colors and solvents to this site for disposal. The total quantity of waste transported to this site was over 200,000 gallons.

5. Chem-Trol (Blasdel)

Chem-Trol was used as a disposal site for drummed quantities of sludges from about 1965 to approximately 1970. Chem-Trol hauled about 55,000 gallons of tetrapropylene waste and nearly

44,000 gallons of calcium arsenate to its site in Blasdell. The tetrapropylene waste was incinerated and the calcium arsenate was apparently landfilled.

6. Altift Site (Buffalo)

Downing Container transported trash and an unknown quantity of process sludges to this site.

7. Seaway Industrial Park (Tonawanda)

Allied Chemical has indicated that Seaway was used from about 1968 to 1972 for the disposal of industrial waste. However, Allied Chemical documents obtained by the Task Force from the Erie County Department of Environment and Planning indicate that Seaway was used for industrial waste disposal at least until 1974. Allied has indicated that TLC Disposal of Buffalo transported unknown quantities of pretreatment sludge, filter sludges containing organics, colors and metals and liquid still bottoms, to Seaway for disposal. However, Allied documents indicate that the total quantity of those industrial wastes disposed of at Seaway was over 10,000 tons.

C. Miscellaneous Disposal Activities

Various heavy metal sludges and catalysts were generated at the Buffalo Dye Plant between 1930 and 1977. The company, on the basis of limited documentation and personnel recollections, has provided the following description of the disposal of these wastes:

1. Heavy Metal Sludges

Large quantities of sludges containing heavy metals were sold to various companies for recovery and resale. The types of sludges and the companies used are listed below.

<u>Name of Company</u>	<u>Years Used</u>	<u>Type of Sludge</u>	<u>Estimated Total Tonnage</u>
Burns Metals, Buffalo, N.Y.	Unknown to 1977	copper sulfide lead sulfite chromium hydroxide	544
P.J. Grove Dallas, Texas	1966	copper sulfide	59
Watson Industries Buffalo, N.Y.	1969	copper sulfide	35
Morgan Chemical Buffalo, N.Y.	1970 to 1972	copper sulfide	402

Jametric, Inc. Dallas, Texas	1969	lead sulfite	69
United Alloys and Steel Buffalo, N.Y.	1970	lead sulfite	195

2. Spent Catalysts

a. Mercury

Mercury was used as a catalyst at the Buffalo Dye Plant during the period 1930 to 1971. During the period 1930 to 1975, there was no off-site disposal of mercury. The only mercury which left the plant between 1930 and 1971 was mercury which got into plant water effluent streams discharged to the Buffalo River. Since 1971, mercury has not been used as a process chemical or catalyst at the Buffalo Dye Plant.

b. Nickel

Between 1949 and 1975, nickel was disposed of with other sludges at various landfill sites previously mentioned in the Buffalo area. Information prior to this period is not available. However, Allied estimates that approximately 1 ton per year of a catalyst consisting of a nickel salt deposited on a silica gel base was disposed of in this way.

c. Palladium

Spent palladium catalyst was not disposed of at a land disposal site but was returned by common carrier truck to Engelhardt Minerals and Chemicals Corporation, Newark, New Jersey for recovery.

d. Vanadium

Vanadium was used as a catalyst component between 1930 and the mid-1960's. Waste vanadium catalyst was disposed of off-site, but specific haulers and disposal sites and the amount of waste vanadium catalyst generated are unknown.

3. Ocean Dumping

Allied has indicated to the Task Force that from the early 1940's until the mid-1960's, unknown quantities of calcium arsenate (and arsenite) sludge were generated at the plant. This material was stored at the plant for several years prior to disposal. The waste was then transported in wooden barrels and shipped via railroad to the New York/New Jersey area for disposal in the Atlantic Ocean.

ALLIED CHEMICAL CORPORATION
Speciality Chemicals Division (Plastics)
3821 River Road
Tonawanda

The Allied Chemical Corporation was incorporated in New York in 1920 as the Allied Chemical and Dye Corporation. It changed its name to Allied Chemical Corporation in 1958. The 3821 River Road plant was part of the Semet-Solvay Petrochemicals Division until 1961, the Plastics Division until 1975, and thereafter, the Speciality Chemicals Division.

The company has manufactured various types of polyethylene using polymerization and copolymerization processes. Waste generated at the facility include scrap polyethylene, scrap chlorinated polyethylene, tars, miscellaneous trash, wood, paper, garbage, ceramic saddle packing, spent catalyst, waste solvents, waste oil and nitric acid.

Scrap polyethylene and chlorinated polyethylene, trash, wood, paper, garbage, ceramic saddle packing and catalyst were disposed of on plant premises from 1952 until sometime in the 1960's. One dump site, between River Road and the Niagara River on property now owned by the Tonawanda Coke Corporation, was used for the disposal of scrap polyethylene, miscellaneous trash and used ceramic saddle packing from 1952 to 1960. Approximately 25 to 50 tons per year of such wastes were disposed of at this site. A second dump site, located on the east side of River Road, was used from 1956 to 1960 for scrap and chlorinated polyethylene and spent catalyst. This site is 265 cubic yards in size. The company does not know how much waste was placed there. A third dump site, located in the southeast corner of company property, was used for disposal of tars during some unspecified period probably ending in the early 1960's. The company does not know how much tar was disposed of there.

From 1960 to 1977, 1000 cubic yards per year of scrap and chlorinated polyethylene, trash, wood, garbage, ceramic saddle packing and catalyst were hauled to the Seaway Industrial Park in Tonawanda by Downing Container Service. Since 1977, Niagara Sanitation has hauled such wastes to Newco Waste Systems in Niagara Falls.

36,000 gallons per year of assorted hydrocarbon solvents and waste oil generated by Allied Chemical have been reclaimed by Frontier Chemical (1970 to 1975), Superior Pipe Cleaning (1976 to 1978) and Booth Oil (1956 to 1969). In 1976 and 1977, chlorinated hydrocarbon solvents were sent to Frontier Chemical for disposal. In addition, 1500 gallons of nitric acid waste generated at the plant were hauled away by Frontier Chemicals in 1970. Finally, septic tank sludge has been hauled from the plant by Buffalo Sanitary Service, Inc. of Clinton Street in West Seneca.

ALLIED CHEMICAL CORPORATION
Specialty Chemicals Division (Research and Development)
20 Peabody Street
Buffalo

The Allied Chemical Corporation was incorporated in New York in 1920 as the Allied Chemical and Dye Corporation. It changed its name to Allied Chemical Corporation in 1958.

The Research and Development Laboratory's primary activities are basic chemical research and technical support to the production divisions of the corporation. Major areas of research and development since 1955 have included urethane chemicals, organic intermediates, dyes, pigments and halocarbons.

The small scale nature of the operation of the laboratory has resulted in the generation of very small amounts of wastes. From 1955 to 1975, burnable refuse and miscellaneous laboratory chemicals were incinerated at Allied Chemical's Buffalo Dye plant site in Buffalo. These materials were transported by Buffalo Dye plant fleet trucks. Since 1970, Niagara Sanitation has hauled unknown amounts of burnable laboratory refuse to an unknown site. Some materials were also compacted and hauled off by outside vendors.

Frontier Chemical Waste Process, Inc. of Niagara Falls has been used since 1966 for disposal of waste solvents and aqueous waste containing heavy metals (10,000 gallons/year) at Frontier's Pendleton site, until 1976, and, thereafter, to Frontier's Niagara Falls facility.

ALUMINUM COMPANY OF AMERICA
Whirlpool Street
Niagara Falls

The Aluminum Company of America was incorporated in Pennsylvania in 1895, the same year its operations began in Niagara Falls.

The Alcoa facility was located along the Niagara River on Whirlpool Street near the west end of Walnut Street. It ceased operation in 1948 and was permanently shut down in 1949.

The facility was an aluminum reduction and fabricating plant which used the Hall Process for aluminum smelting and standard rolling techniques for aluminum fabrication.

Waste products consisted of waste carbon materials, some aluminum oxide dusts, scrap steel, small amounts of scrap copper, wood and paper wastes from shipping cartons and general plant trash.

The company indicated to the Task Force that all solid waste materials were hauled from the plant by contractors and that no waste was disposed of on site. One former employee indicated that much of the company's waste was shipped to Massena, New York and reground to make carbon for arc furnaces. All waste that could not be reclaimed was incinerated and the ashes, along with any waste carbon and aluminum oxide dusts, were discharged to the Niagara River through a four-foot wide metal shoot.

AMAX SPECIALTY METALS CORPORATION
Clarence Center & Hake Roads
Akron

AMAX Speciality Metals Corporation founded and incorporated in Delaware in 1967. The present plant site was developed as an industrial property by Carborundum in 1953. Between 1953 and 1965 the facility was operated by Carborundum. From 1965 to 1967 the facilities were operated by Carborundum Metals Climax, Inc., a corporation owned by Carborundum and AMAX. In 1967, the plant became wholly owned by AMAX. Production and fabrication at the plant were terminated in June 1978.

From 1953 to 1960, the plant produced zirconium sponge. In 1960, the zirconium sponge production was discontinued at Akron and sponge was obtained from other plants. Between 1960 and 1965, Carborundum operated a melt plant and research facilities at the plant.

Manufacturing processes have included consumable vacuum arc melting of zirconium, rolling zirconium, pilgering zirconium tubing and production of zirconium wire.

From 1967 to June 1978, the waste chemicals resulting from the production of zirconium and hafnium products were deposited in on-site lagoons. These chemicals included copper nitrate, nitric acid, hydrofluoric acid, zirconium oxide and calcium fluoride. In 1978, pursuant to an agreement between AMAX and DEC, 5670 tons of neutralized metal sludge were removed from the on-site lagoons by SCA Chemical Waste Services, Inc. and taken by SCA to its Porter disposal facility.

In addition to the above chemical wastes, AMAX generated spent cutting and lubrication oils. AMAX has indicated that only minimal amounts of such oils were generated. From 1967 to 1978, these oils were hauled away by Rural Sanitation Services, Inc.

Waste oil was also hauled off premises by Booth Oil of Buffalo. Finally, in September 1978, one shipment of 90 fifty-five gallon drums of low level radioactive material was taken from AMAX by Chem-Nuclear Systems to South Carolina. A follow-up radiological survey at the AMAX plant conducted by ATCOR Corp. indicated no unusual radioactivity levels at the plant.

Carborundum and AMAX both indicated they had no information on waste generation at the Akron facility before 1967. AMAX did indicate that ammonium chloride, ammonium sulfate and zirconium oxide were disposed of in the on-site lagoons before 1967.

AMERICAN OPTICAL CORPORATION
Scientific Instrument Division
Eggert and Sugar Roads
Buffalo

The American Optical Corporation was incorporated in Delaware in 1963. The company began operations in western New York with the acquisition in 1938 of the Spencer Lens Company located at Doat and Genesee Streets in Buffalo. In 1942, the company moved to its present location. American Optical is a subsidiary of Warner Lambert.

The manufacturing processes used at the plant include plating and anodizing of metal parts, painting and spraying of metal parts, vapor degreasing, metal machining and lens grinding, polishing and coating.

Principal products include microscopes and microtomes (since 1938), ophthalmic instruments (since 1938); projectors (1938 to 1978); optical machinery (1958 to 1969) and periscopes and sniperscopes (1940 to 1957).

The main waste products generated at the plant are garbage, incinerator ash (since 1961), waste solvents, waste paints and thinners, scrap glass, metal, emery silicon and rouge, water soluble cutting oils (since the 1950's), non-soluble cutting oils, plastic particles, lubrication oil, sodium cyanide, solid pine tar pitch and oil contaminated fuller's earth. Solvents disposed of include chloroethane, acetone, 1,1,1 - trichloroethane, methylene chloride, freon/genatron, methanol, Stoddard solvent, naptha, toluene, toluene diisoyenate and xylene.

Company records do not indicate where Spencer Lens disposed of wastes before 1938. Two former American Optical employees,

one of whom had worked at Spencer Lens, advised the Task Force that no wastes were disposed of on premises by Spencer Lens and that most wastes were discharged to sewers.

From 1946 to 1956, American Optical disposed of garbage, fuller's earth contaminated with oil, waste solvents, waste paints and thinners, scrap glass, metal, emery, silicon, rouge, pine tar pitch, and cutting oils at Pfohl's Dump in Cheektowaga. From 1957 to 1961, Fuller's earth, waste solvents, waste paints and thinners and cutting oils were incinerated at the Cheektowaga incinerator. Since 1957, garbage, scrap glass, emery, metal, silicon, rouge, plastic particles, pine tar pitch and incinerator ash have been taken to the Land Reclamation site in Cheektowaga. Since 1954, Downing Container has hauled oil contaminated fuller's earth, cutting oils, glass fines, lubrication oils, solvents, paint and paint thinner to an unknown site. Since 1975, Ashland Chemical, Chem-Trol Corporation of Avon, Ohio and Downing have hauled waste solvents, paint, paint thinner, oil and pine tar pitch.

The Company discharged sodium cyanide to sewers before 1976. Since 1976, Ashland Chemical has hauled cyanide from the plant.

The amounts of some of the wastes identified above were estimated by the company for 1977 as follows:

Scrap metal fines	3.6 tons
Scrap rouge	.3 tons
Scrap silicon	1.1 tons
Water soluble cutting oil and glass fines	2750 gallons
Contaminated cutting oil and lubrication oil	1195 gallons
Contaminated solvents	6379 gallons
Solid paint particles	10 tons
Solid plastic particles	1 ton
Sodium cyanide	110 gallons
Pine tar pitch	8.4 tons
Incinerator ash	18 tons
Fuller's earth (1978)	20 tons*

*Company's 1979 estimates for 1978.

American Optical has indicated to the Task Force that its facility is five times as large now as it was in 1939 so that "to extrapolate this [quantitative] information over a period of 1930-1975 would be extremely speculative."

THE ANACONDA COMPANY
Brass Division
446 Military Road
Buffalo

The Anaconda Company Brass Division began operations at its present location as the Buffalo Copper & Brass Rolling Mill in 1906. The company was known as the American Brass Company (1917 to 1960), the Anaconda Brass Company (1961 to 1974) and The Anaconda Company Brass Division (since 1974).

Processes used at the plant since 1930 include metal casting, hot and cold rolling, annealing, slitting, pickling and mechanical material removal (milling). The company also practiced cold drawing and extruding (1930 to 1977) and piercing (1930 to 1970). Wastes generated include spent oils, coal ashes, nickel and copper bearing slag (since 1930), baghouse dust (since 1968), spent refractories, scrap wood, sawdust and metal oxides.

Much of the spent oil (12,000 gallons/yr.) has been hauled away by City Waste Oil and Southgate Oil Services, Inc. for reclamation. In August 1976, Cole-Zaiser, Inc. also hauled waste oil from Anaconda for reclamation.

From 1930 to 1970, the rest of Anaconda's wastes (except for normal slag reclamation and some coal ashes hauled away by William Bush Trucking) were disposed of on plant property in a swampy area directly north of the plant adjacent to the Erie-Lackawanna railroad tracks and bordered on the south by a baseball park. This disposal area is approximately five acres in size.

Estimated amounts of wastes disposed of at this site:

Coal Ash*	21,600 tons
Metal Slag*	<u>27,000 tons</u>
TOTAL	48,600 tons **

* Assumes that 70% of waste is reclaimed.

** Does not include scrapwood, sawdust, spent refractories and metal oxides.

From 1970 to 1978, Downing Container Service hauled the spent refractories and scrap wood and sawdust to Seaway Industrial Park in Tonawanda. In 1978, Downing Container began hauling these materials to Newco Waste Systems in Niagara Falls and Land Reclamation in Cheektowaga. From 1975 to 1977, Madison Industries hauled loads of metal oxides (in loads of 26,400 to 86,040 tons) to its plant in New Jersey.

ARCATA GRAPHICS
TC Industrial Park
Depew

Arcata Graphics began operations as the J.W. Clement Company in 1878 and was incorporated under that name in New York in 1908. The name of the company was changed to Arcata Graphics in 1970. Arcata Graphics is a subsidiary of the Arcata Corporation.

From 1914 to 1962, the Company had facilities at Seneca and Lord Streets, Buffalo and, from 1940 to 1962, at Erie Street, Buffalo. Computer Printing, Inc., another division of the Arcata Corporation, is located in Buffalo.

Arcata Graphics produces magazines and books. Its manufacturing processes include letter press printing (since 1930); offset printing (since 1966); gravure printing (since 1977); magazine and book binding (since 1930); and plate making (since 1930).

Wastes generated by the company include paper, paper dust, wood, general refuse, ink solvents and lubrication oils, contaminated solvents from gravure press operations, nitric acid waste and waste ammonia. Since 1976, the contaminated solvents have contained lactol spirits, xylene and toluene. The nitric acid wastes contain hexavalent chromium.

The company has estimated that approximately 5300 cubic yards of paper, paper dust, wood and general refuse; 36,000 gallons of ink solvents and lubrication oils; 48,000 gallons of solvents from the gravure press operation and 57,600 gallons of nitric acid wastes have been generated annually since 1962.

From 1962 to 1978, Continental Transfer System, Inc. hauled paper, paper dust, wood and general refuse to the Village of Depew dump site. Since June 1978, Continental has taken the same waste to the Lancaster Sanitary Landfill.

Liquid wastes were hauled by Frontier Chemical and Chem-Trol from 1962 to 1974 presumably to disposal sites at Frontier's Pendleton facility and Chem-Trol's facilities in Blasdell and then Porter. Since 1974, liquid wastes have been hauled by Interflow Systems (also known as K.D. Enterprises) to its disposal facilities in Hamilton, Ontario.

Arcata indicated that its old Buffalo facilities were both located in congested areas and that no on-site land disposal had occurred at either location. This was confirmed by former employees who indicated that wastes generated at the Erie Street facility were either burned or dumped in the Buffalo River.

The plant foreman and general manager at Computer Printing indicated that that facility generates waste paper, waste ink and paper scrap. Paper scrap has been hauled off premises for

recycling by Buffalo Waste Sales (now Consolidated Fiber). Downing Container has hauled waste paper and ink from Computer Printing since at least 1970. Plate room chemicals are discharged to sewers.

ASHLAND PETROLEUM COMPANY
4545 River Road
Tonawanda

Ashland Petroleum Company was incorporated in Kentucky in 1952. The refinery in Tonawanda began operating in 1928 as Frontier Oil and Refining Company and was sold to Ashland in 1952.

The processes used at the refinery are crude distillation, alkylation, polymerization, catalytic cracking, platinum reforming, light ends treating and asphalt blowing. The products consist of gasoline, distillates, asphalts, aromatics, liquified petroleum gas and substitute natural gas.

The company has generated the following wastes:

- Spent lime
- Wood
- Concrete
- Scrap metal
- Spent clay from kerosene treaters
- Spent phosphoric acid catalyst
- Spent sulfuric acid from the alkylation unit
- Spent catalyst (e.g., platinum, nickel-molybdenum and silica-alumina)
- Fluid catalytic cracking catalyst
- API separator sludge
- Leaded gasoline storage tank sludge
- Storage tank water and sediment
- Sewer sediment

Since 1957, spent lime (72 tons/yr.), wood, concrete, scrap metal, spent clay (50 tons/yr.) and spent phosphoric acid catalyst (5 tons/yr.) have been disposed of at a landfill owned by Ashland on River Road in Tonawanda one mile east of the Ashland Refinery. Before 1957, many of these wastes were disposed of in unknown areas on plant property.

Spent sulfuric acid (400,000 gallons/yr.) has been hauled from the plant by the Allied Chemical Industrial Chemical Division to its Lee Street Buffalo plant for regeneration.

Spent catalysts are hauled by common carrier to various reclaimers.

Fluid catalytic cracking catalyst is sold to other refineries.

API separator sludge (200,000 gallons/yr.) has been hauled by Newco Waste Systems to its Niagara Falls disposal site in 1976 and 1977. Before 1976, similar quantities were disposed of at SCA in Porter.

Leaded gasoline storage tank sludge (several tons/yr.) is placed in numerous temporary, on-premises weathering areas for conversion of organic lead to inorganic lead.

Storage tank water and sediment, sewer sediment and API separator sludge (several million gallons/yr.) is placed in a concrete lined pit on-premises. Sediment has never been dredged from this pit.

In 1960, Ashland Oil purchased the Haist property. This property was used from 1943 to 1946 for the disposal of 8,000 tons of uranium processing residues. 6,000 cubic yards of these residues were removed from the property in 1974 when Ashland constructed two storage tanks on the site. DOE has estimated that an additional 48,000 cubic yards remain to be removed.

BELL AEROSPACE TEXTRON
Niagara Falls Boulevard, Wheatfield
Porter and Balmer Roads, Porter

Bell Aircraft Corporation began operations in 1935. It became a part of Textron, Inc. in 1960. Nine Bell production facilities have existed in Erie and Niagara Counties since 1935:

		<u>DATES OF OPERATION</u>
Main Street	Niagara Falls	1942 to 1945
2050 Elmwood Avenue	Niagara Falls	1942 to 1945
Wheatfield	Niagara Falls Blvd Wheatfield	1942 to present
Chandler Street	155 Chandler St. Buffalo	1951 to 1958
Northland Plant	757 Northland Ave. Buffalo	1950 to 1958
Air Force Plant 38	Porter and Balmer Rds. Porter	1950 to present
Niagara Falls	Walnut Ave. & 3rd St. Niagara Falls	1952 to 1959
Riverside	254 Rano Street Buffalo	1956 to 1959
Air Force Plant 40	2450 Kenmore Ave. Tonawanda	1951 to 1958

These facilities have produced propulsion devices, avionic components, helicopter components, aircraft prototypes, air cushion vehicles and surface effect ships, electrical test equipment, aircraft components, rocket propulsion hardware, lasers, B47 aircraft components, engine pods for B52's and B47's and missile components.

The company has used the following manufacturing processes: pickling, plating, cleaning, machining, painting, heat treating, bonding, rocket test firings, laser research, ultrasonic testing, printing and welding.

The company has generated the following wastes:

- Scrap wood, fly ash and clay
- Scrap paper
- Heat treating salt - caustic
- Plating tank sludge
- Plaster mold
- Salt solids
- Scrap adhesives
- Waste oils
- Degreasing solvents (brush-wash, methylethyl ketone, methylene chloride, isopropyl alcohol and freon)
- Paint spray filters
- Laboratory chemicals
- Rocket fuels (unsymmetrical dimethyl hydrazine and nitroso dimethylamine)
- Thorium oxide and radium
- Nitric acid wastes
- Sulphuric acid wastes
- Transformer oils

Scrap wood, fly ash and clay in unknown quantities were hauled to a site at Walmore Road and the railroad overpass in Wheatfield from 1943 to 1955 and at the Town of Wheatfield dump at Nash Road from 1955 to 1962. Fly ash was disposed of at the Niagara County dump at Witmer Road in Wheatfield in the 1960's. Scrap wood was disposed of at Gratwick Park in North Tonawanda.

Scrap paper (2,600 tons/yr. in 1972) was disposed of at unknown locations.

Heat treating salts and plating tank sludge in unknown amounts were disposed of at the Niagara County dump at Witmer Road in Wheatfield in the 1960's.

Plaster molds in unknown amounts were disposed at the Town of Wheatfield dump at Nash Road (1955 to 1962), Gratwick Park (1962 to 1966) and Lynch Park at 2080 River Road, Wheatfield (1962 to 1966).

Salt solids in unknown amounts were disposed of at the Town of Wheatfield dump at Nash Road from 1955 to 1962.

Scrap adhesives in small quantities were disposed of at Gratwick Park from 1962 to 1966.

Waste oils were reclaimed on premises before 1960. From 1973 to 1976, waste oils (667 gallons/yr.) were hauled to Frontier Chemical in Niagara Falls for treatment and/or disposal. Between 1960 and 1973, Booth Oil may have hauled these wastes.

Degreasing solvents were burned or allowed to evaporate at the Wheatfield plant (1942 to the early 1970's). Since 1974, solvents (275 gallons/yr.) have been disposed of at Chem-Trol in Porter.

Paint spray filters (75 gallons/yr. in 1976) have been hauled by Niagara Sanitation and land disposed at an unknown site.

Laboratory chemicals in small amounts have been disposed of at Gratwick Park (1962 to 1966) and by Wyoming Waste Disposal Co. of Front Street, North Tonawanda in 1976.

Rocket fuel, nitric acid, a rocket fuel oxidizer and sodium hydroxide neutralizer, in amounts of hundreds of gallons per year, have been chemically oxidized in a small lagoon at the Wheatfield Plant since 1950, burned in open pits at Air Force Plant 38, or, since 1973, incinerated at Air Force Plant 38.

In November 1973, five to eight pounds of thorium oxide and a small amount of radium was hauled to ATCOR in Peekskill, New York. The company indicated that it has not generated waste of this kind at any other time.

Sulphuric acid wastes (144,000 gallons/yr.) were hauled by Frontier Chemical Waste Process from 1964 to 1971, and presumably disposed of at Frontier's Pendleton site.

Transformer oils suspected of containing PCB's (at least 55 gallons) were hauled to Chem-Trol in 1973.

The company does not know where the wastes identified above were disposed of during the years not specified above.

The Air Force advised the Task Force that from 1953 to 1958, brush wash, paint sludge and solvents from Air Force Plant 18 at 2221 Kenmore Avenue in Buffalo was disposed of at Bell's Wheatfield Plant.

BERNEL FOAM PRODUCTS COMPANY
344 Vulcan Street
Buffalo

Bernel Foam Products was incorporated and began operations in Buffalo in 1954. The company has manufactured foam latex (1954 to 1965) and flexible polyurethane foam (since 1962).

Wastes from the manufacture of these products consist of scrap polyurethane foam (five tons/yr.), toluene diisocyanate (one ton/yr.), a liquid drummed mixture of polyether polyol, chloroethene and catalysts (ten tons/yr.) and miscellaneous wood and paper rubbish.

Kepeco Construction Company was used for waste disposal of those wastes from 1967 to 1975. Downing Container Service of Buffalo has hauled these waste materials to Seaway Industrial Park in Tonawanda since 1975. The company does not know where wastes were disposed of before 1967.

BETHLEHEM STEEL CORPORATION
Lackawanna Plant
3555 Lake Shore Road
Buffalo

The Bethlehem Steel Corporation was incorporated in 1905 in Delaware. The company began operations in Erie County in 1922. Basic facilities used since 1930 include blast furnaces, coke ovens, open hearths (until 1974), rail and structured mills and related facilities.

Wastes resulting from plant operations include waste oil, sludges from the cold and hot milling processes (since 1969 - 1970), tar sludges, spent acids, slags and general plant refuse.

Estimated amounts of wastes generated at the Bethlehem plant:*

	<u>Tons Per Year</u>	<u>Total Tons Since 1930</u>
Slag - salvageable	2,250,000	103,000,000
Slag - requiring disposal	612,000	294,000,000
Paper	2,720	130,000
Wood	9,250	440,000
Rubber	394	19,000
Metals - salvageable	716	34,000

Metals - requiring disposal	1,100	53,000
Garbage	900	43,000
Refuse	37.5	1,800
Dredgings	156,000	7,500,000
Inert materials - Salvageable	363,000	17,000,000
Inert Materials - Requiring disposal	428,000	20,200,000
 TOTAL	 3,825,000	 183,600,000
TOTAL SALVAGEABLE	2,600,000	125,000,000
TOTAL REQUIRING DISPOSAL	1,220,000	588,000,000

* The above data is derived from the 1972 Erie and Niagara Counties Comprehensive Solid Waste Survey.

In addition to the above, the plant now generates 745,200 gallons of waste oil; 7,400,000 gallons of cold mill industrial sludges; 35,000 tons of hot mill industrial sludges; 70,000 gallons of tar sludges; and 11,700,000 gallons of acids per year. This data is derived from Bethlehem's 1978 Septic Tank Cleaner and Industrial Waste Collector Annual Report. This report indicates that slag generation in 1978 was 1,247,223 tons. Of this amount 136,558 tons was disposed of on-site.

Salvageable slag is sold and reprocessed. Slag requiring disposal is disposed of on-site. This disposal takes place on plant property on the Lackawanna Plant Industrial Landfill Site at the Lake Erie shore. The other wastes listed in the chart above are either incinerated or disposed of on plant property. Waste oil is sent to Booth Oil, Inc. for reclamation. Tar sludges are used as binder for rubble fill disposed of on-site. Acids are either sold or neutralized by dumping on slag on-site.

From 1949 to 1951, Bethlehem operated a pilot plant in Lackawanna for the rolling of uranium billets for fuel reactor rods. DOE indicated to the Task Force that there are no radioactive wastes or debris at the Lackawanna facility.

BUFFALO COLOR CORPORATION
340 Elk Street
Buffalo

Buffalo Color Corporation was incorporated in 1976 in Delaware. The company began operation in Erie County in 1977, when it acquired the Allied Chemical Corporation Dye Plant.

A wide variety of processes are used at the plant including hydrogenation, diazotation, coupling, sulfonation, catalysis and amidations. The products currently produced are indigo, food, drug and cosmetic colors, alkyl anilines, anhydrides and organic dyes and intermediates.

The plant generates the following wastes:

- Pretreatment sludge
- Off-specification colors
- Tar still bottoms
- Spent catalysts (e.g., nickel)
- Solvents
- Laboratory chemicals
- Burnable liquid organic wastes
- Waste oil
- Copper sludge

Pretreatment sludge (35 tons), colors and solvents (15,000 gallons), tar still bottoms (10,000 gallons), spent catalysts and laboratory chemicals (2750 gallons) are hauled away by Niagara Sanitation for disposal at Newco Chemical Waste Systems in Niagara Falls.

Burnable liquid waste and waste oil (50,000 gallons) are hauled by Frontier Chemical to its Niagara Falls plant to be blended as part of its fuels program. Other spent catalysts (e.g., nickel) are sent by common carrier to Englehardt Industries in New Jersey for recovery. Finally, copper sludge (80,000 gallons) is hauled by Burns Metals of Buffalo for resale.

BUFFALO PUMPS DIVISION
Buffalo Forge Company
874 Oliver Street
North Tonawanda
Duke Road
Cheektowaga

In 1891, the plant at Oliver Street in North Tonawanda (Plant #1) was purchased by Voelker and Felthousen and operated as the Buffalo Steam Pump Co. In 1931, the name was changed to the Buffalo Pumps Division of the Buffalo Forge Company. Another plant (Plant #2) has been located at Duke Road in Cheektowaga since 1967.

The sole product of this company is centrifugal pumps. The main processes used are machining, welding and painting.

The company generates paper, wood, waste oils, and paint wastes. Paper and wood (3,500 tons/yr.) were incinerated and the incinerator ash disposed of on-site prior to 1970 and 1971. Thereafter, paper and wood was hauled away by Rapid Disposal.

Waste oil (1,100 gallons/yr.) was hauled by Buffalo Waste Oil in Buffalo and is now hauled by Southgate Oil.

Paint wastes (up to 3,300 gallons/yr.) were mixed with sawdust and incinerated on site and are now disposed of at Chem-Trol in Porter.

F.N. BURT COMPANY, INC.
2345 Walden Avenue
Cheektowaga

The F. N. Burt Company commenced operations in Erie County in 1886 and was incorporated in Delaware in 1936. It is a subsidiary of Moore Corporation, Ltd. of Toronto. The company had three separate facilities in Buffalo before moving to its present location in 1958, 383 Babcock Street, 500-540 Seneca Street, and Main and Bryant Streets.

F. N. Burt manufactures rigid paperboard boxes, folding cartons and plastic boxes. Its manufacturing processes include cutting paper and paperboard, printing, cerating, forming, leaf stamping, die cutting and gluing paperboard and, from 1963 to 1973, injection molding plastics.

Wastes generated at the F. N. Burt plant include paperboard, cellophane and goldleaf, scrap wood, plastic, garbage, adhesive (animal glue, polyvinyl acetate and dextrans), inks, incinerator residue and fly ash (1930 to 1968), waste cans, metal, waste oils and solvents. The company has estimated that it generates approximately 5500 gallons per year of waste oil and solvents. The company indicated that it does not have information on the amounts of solid waste generated. However, data gathered as part of the 1972 Erie and Niagara Counties Comprehensive Solid Waste Survey indicate that approximately 4,500 tons per year of waste paper and wood were generated by the company.

From 1930 to 1963, waste solids and inks identified above were hauled to the Altift Realty Site at Tiffit Street in Buffalo by Rapid Disposal Service and F. N. Burt itself. The same haulers took solid wastes and inks to the Land Reclamation site in Cheektowaga from 1958 to 1968 and to the Lancaster Sanitary Landfill from 1958 to 1975. Rapid Disposal also took solid wastes to the City of Buffalo Incinerator at Niagara Street and the Seaway Industrial Park in Tonawanda during undetermined periods of time.

Waste oil and waste solvents were taken to Buffalo Waste Oil (1937 to 1968), Chem-Trol Pollution Services in Blasdell or Porter (1970 to 1977) and, since 1977, to Interflow Systems Ltd. in Hamilton, Ontario.

THE CARBORUNDUM COMPANY
Buffalo Avenue, Niagara Falls
Hyde Park Boulevard, Niagara Falls
Cory Road, Sanborn
Walmore Road, Niagara Falls

The Carborundum Company was formed in 1891 and began operations in Niagara County four years later. Carborundum is a subsidiary of the Kennecott Copper Corporation.

Carborundum has four plants in Niagara County: the Buffalo Avenue Plant (the original plant location used since 1895); the Global Plant at Hyde Park Boulevard in Niagara Falls (acquired in the purchase of the Global Corporation in 1936); the Sanborn Plant at Cory Road, Sanborn (acquired in the purchase of the Basic Carbon Corporation in 1964 and 1965) and the Wheatfield Plant at Walmore Road in Niagara Falls (acquired in 1948). Carborundum also owned the Lockport Felt Co., Inc. in Newfane from 1966 to 1977 and built and operated, from 1951 to 1967, a plant in Akron that is now owned by AMAX Speciality Metals Corporation.

A. Buffalo Avenue Plant

Several division of Carborundum conduct manufacturing operations at the Buffalo Avenue Plant. The Electro Minerals Division produces abrasives and other grains and powders (since 1930) and metallurgical silicon carbide bricks (since 1947). The Division uses several manufacturing processes including silicon carbide furnacing (since 1930), aluminum oxide and boron carbide furnacing (since 1944), abrasive and other grain processing (since 1930), abrasive and other powders production (since 1930), and briquetting of silicon carbide scrap (since 1947).

The Insulation Division at the Buffalo Avenue Plant has produced alumina-silica fibers (since 1954), blankets, felts and paper (since 1955), cloth, tape and rope (since 1955), coating cements (1957 to 1976) and insulating bricks (1957 to 1976). All of these products are made with alumina-silica fibers. Processes used by the division include furnacing-fiberization (since 1954), blanket and felt making (since 1955), textiles with ceramic fibers (since 1955), coating cement making (1957 to 1976) and block making (1957 to 1976).

The Graphite Products Division at the Buffalo Avenue Plant has produced KT silicon carbide (since 1960) and boron nitride powder and solids (since 1960). Processes used include mixing and forming (since 1960), furnacing (since 1960), fiber glass backing (since 1965), powder preparation of boron nitride (since 1960) and hot pressing of boron nitride (since 1960).

The Bonded Abrasives Division at the Buffalo Avenue plant has, since 1930, produced wheels, sticks, stones and filter media with weighing, mixing, molding, firing and finishing processes.

The Research and Development Division at the Buffalo Avenue Plant has conducted basic and applied research on the development of carbides, borides and nitrides, including such items as boron carbide, silicon carbide and boron nitride. Research work was also done on plastics and phenolics related to the bonding of abrasives. Development of fiber and high temperature plastics was performed. Graphite and activated carbon products were developed. From 1959 to 1968, some research was done on the synthesis of uranium, plutonium and thorium carbides.

The divisions operating at Niagara Falls have generated and disposed of wastes as follows:

1. Electro Minerals Division

Prior to 1973, sand, fly ash, fire brick, dust collector fines, kiln furniture, wood and broken carborundum wheels in unknown amounts were hauled to Lynch Park at 2080 River Road in Niagara Falls. From 1973 to 1975, unknown amounts of the same materials and garbage were hauled to the Niagara County Dump at Witmer Road in Wheatfield. Since 1973, approximately 7,000 tons per year of fly ash, fire brick, dust collector fines, kiln furniture and broken carborundum wheels were disposed of at the J.T. Salvage site in Youngstown. Since 1975, approximately 50,000 cubic yards of general trash, paper, wood, empty containers and fly ash and approximately 175 tons per year of alumina-silica sand and fiber have been hauled to the Modern Disposal Services, Inc. site in Model City. Scrap metal has been hauled by Waste Products of Western New York, Inc. of Niagara Falls.

2. Insulation Division

Prior to 1973, wastes from this division, primarily alumina-silica shot and fiber, were disposed of at Lynch Park. From 1973 to 1975, this waste was disposed of at the Niagara County Dump at Witmer Road in Wheatfield and the J.T. Salvage site in Youngstown. From 1975 to 1978, approximately 750 tons per year of such wastes were disposed of at the Modern Disposal Services, Inc. site in Model City.

In 1977, silicon fiber from insulation, grinding wheels, alumina and silicon carbide sand paper grit, inconel metal and stainless steel studs from a burned out Carborundum warehouse on

Lendell Drive in Sanborn were disposed of at Newco Waste Systems in Niagara Falls and at the "Old Creek Bed" site at Tuscarora and Porter Roads in the Town of Niagara.

3. Graphite Products Division

Waste products generated by this Division were disposed of by the Bonded Abrasives Division at Lynch Park prior to 1971 and by the Electro Minerals Division (see above) since 1971.

4. Bonded Abrasives Division

The Bonded Abrasives Division generated sand, fly ash, fire brick, dust collector fines, kiln furniture, wood, paper and broken carborundum wheels as wastes which, prior to 1972, were disposed of at Lynch Park. General scrap material such as paper, wood and scrap carborundum wheels was taken to the 102nd Street Site in Niagara Falls between River Road and the Niagara River. Such waste was probably disposed of at that part of the 102nd Street Site now owned by the Olin Corporation. After 1971, these wastes were hauled with wastes from the Electro Minerals Division (see above). In the 1950s and 1960s, broken carborundum wheels were also disposed of on Cayuga Island in Niagara Falls.

5. Research and Development Division

Radioactive wastes, including equipment dismantled in 1968, were disposed of at Nuclear Fuel Services, Inc. in West Valley.

In addition to the off-premises disposal described above, (a) approximately 5200 gallons per year of coolant containing 50 parts water and one part of an alkaline concentrate called Norton Wheelmate (with citride amine, minute steel chips and abrasive sludges), were disposed on the ground south of Building 89, 330 feet north of the Niagara River from 1972 until late 1978; (b) approximately 92,000 gallons of fuel oil is stored underground at the Buffalo Avenue Plant; (c) scrap carborundum wheels and silicon carbide have been landfilled on-premises at several locations and (d) the various wastes identified above as being generated at the Buffalo Avenue Plant are and have been temporarily stored at various places on plant premises including a site behind Building 82 and a site between buildings 30 and 32.

B. Globar Plant

The Globar Plant on Hyde Park Boulevard in Niagara Falls is part of Carborundum's Graphite Products Division. The plant has produced hearing elements, resistors, thermistors, varistors and igniters, using mixing, extrusion, drying, furnacing and calibration processes. The plant has generated sand, fly ash, pallets, scrap globars, incinerator ash and residue (until 1962), scrap containers and products, wood, pulp and empty drums as wastes.

From 1930 to 1972, sand, fly ash, pallets, scrap globars, incinerator ash and residue (until 1962) and scrap containers were, like the wastes from the Buffalo Avenue Plant, hauled to Lynch Park. Until 1962, paper, boxes, wood containers and scrap materials were incinerated on site and the residue disposed of at Lynch Park. From 1972 to 1978, wastes were hauled to Newco Waste Systems in Niagara Falls. In 1977, the amount of wastes disposed of at Newco was 250 tons. Plant wastes were temporarily stored at a site in the northeast corner of the plant premises prior to on-site incineration or off-site disposal.

C. Wheatfield Plant

The Coated Abrasives Division and the High Performance Plastics Division operate at this plant. Since 1948, the Coated Abrasives Division produces coated abrasives rolls, disks, sheets and belts by applying a mineral coating with phenolic resin, urea resins or animal glue adhesives to paper, cloth or fiber backings.

Wastes generated by the Coated Abrasives Division include wood, paper, rags, abrasive grain and scrap sandpaper, incinerator ash and solidified resins, floor sweepings and waste filler including calcium carbonate and clay.

Approximately 2,500 tons per year of wood, paper, rags, abrasive grain and scrap sandpaper, five tons per year of incinerator ash and 30 tons per year of the other wastes identified above were disposed of at the Seaway Industrial Park in Tonawanda from 1948 to 1968. From 1948 to 1972, solid abrasive grains was taken to Lynch Park.

From 1968 to 1976, approximate 8,125 tons per year of wood, paper, rags, abrasive grain and scrap sandpaper were disposed of at the Niagara County Dump at Witmer Road in Wheatfield. During that same period, approximately 400 tons of partially solidified and solidified resins, floor sweepings and waste fillers including calcium carbonate, clays and animal glue were disposed of on-premises at a dump located approximately one-third of a mile west of Walmore Road. Free phenols at the site amount to 800 to 1500 pounds.

Since 1976, approximately 2,300 tons per year of wood, paper, rags, abrasive grain and scrap sandpaper have gone to Niagara Recycling, Inc. in Niagara Falls while approximately 67 tons of the other wastes generated at the Coated Abrasives Division were disposed of at Newco Chemical Waste Systems, Inc. In 1977, the company estimated that 140 tons of resin sludge went to Newco each year.

The High Performance Plastics (Resin) Division has since 1961, used standard phenol formaldehyde addition polymerization to make phenol formaldehyde resin, urea-formaldehyde resins, varnish and cloth finishing mixes. Resin powder and phenolic

resin sludges, this division's wastes, have been disposed of by the Coated Abrasives Divisions at Newco. In 1977, the Company estimated that these sludges amounted to 12 tons per year.

The High Performance Plastics (Ekkcel) Division has, since 1973, made high temperature polymers and copolymers. The division has generated Therminol 66, sulphuric acid, acetic acid and trichloroethylene bottoms as wastes. From 1973 to 1976, these wastes were stored on site. Since 1976, the stored wastes and additional wastes generated annually in amounts of approximately 50,000 gallons per year have been hauled by Frontier Chemical Waste Process, Inc. in Niagara Falls for disposal probably by Newco Waste Systems.

D. Sanborn Plant

The Graphite Products and Research and Development Divisions operate at this plant. The Graphite Products Division has produced specialty graphite (since 1951), carbon and graphite testiles (since 1965) and carbon graphite composites (since 1966). Blending and mixing, extrusion, baking, impregnation and high temperatures baking processes have been used at the plant.

Wastes generated at this plant and, prior to 1962, at the Basic Carbon plant (formerly Graphite Specialties) located north of Pine Avenue and immediately west of Connecting Road in Niagara Falls, were scrap paper, wood, graphite (including 30 percent coal tar pitch) carbon and garbage. These wastes were disposed of as follows:

1951 to 1960	On premises at Basic Carbon Company
1960 to 1968	Town of Wheatfield Dump, off Nash Road between Niagara Falls Blvd. and Forbes Road, Wheatfield
1968 to 1976	Niagara County Dump, Witmer Road, Wheatfield
1976 to 1978	Newco Waste Systems, Niagara Falls

In addition to the above wastes, since 1965, approximately 9,000 gallons per year of 90 percent oil and 10 percent tri-chloroethylene mix has been removed by the Bison Waste Oil Company.

The Research and Development Division at the Sanborn Plant has produced silicon carbide whiskers (1965 to 1967), boron nitride fiber (since 1965), kynol fiber (1966 to 1973) and ekonol molding plastic (1968 to 1971). Processes used include screening and cleaning silicon carbide whiskers; melting and drawing boron nitride fiber and melting, filtering, degassing, drawing and stabilizing kynol fiber.

Wastes generated by the Research and Development Division included hydrochloric acid which was hauled to Chem-Trol Pollution Services, Inc. in Porter from 1965 to 1972 and treated on-site thereafter and scrap paper, wood, resins and empty containers disposed of at the Niagara County Dump at Witmer Road in Wheatfield from 1965 to 1975 and at Newco Waste Systems, Inc. since 1972. In 1977, the total amount of scrap hauled away was 258 tons. Approximately 2700 gallons of waste chemicals (hydrochloric acid and formaldehyde) were taken to Newco in one pick-up in March 1977.

E. Other Plants

Carborundum could provide no information about waste generation at the Akron plant which it operated from 1951 to 1967. The present owner of the plant, AMAX Specialty Metals, also had no information about pre-1967 operations. The plant produced hafnium and zirconium metals and it may be presumed that wastes generated before 1967 were disposed of on-premises.

The Lockport Felt plant produces felt belts for the paper industry. According to the present management at the plant, the little waste that is generated there is discharged to sewers. A small amount of waste machine oil, paper and cardboard waste is disposed of with garbage at the Lockport City Dump.

CHEVROLET MOTOR DIVISION
General Motors Corporation
Buffalo Plant
1001 East Delavan Avenue
Buffalo

The General Motors Company was incorporated in New Jersey in 1908. The present company, General Motors Corporation, was incorporated in Delaware in 1916. The Chevrolet Buffalo Plant began operating in August 1916 in a new facility.

The company has produced the following products at this plant:

Automobiles	1930 to 1941
Aircraft engines	1941 to 1945
Mounting brackets, auto axles, brake and clutch pedals	1945 to 1949
Auto axles, aircraft engine tank parts and linkages	1949 to 1952
Auto axles and linkages	Since 1952

Processes used since 1956 are machining, grinding, heat treating, lubrifying, parts washing, painting, welding, shot blasting, metal forming (hot and cold) and greasing.

The company has generated the following wastes:

- Cardboard, wooden pallets and cafeteria waste
- Waste oil
- Iron oxide scale
- Metal and carbide
- Grinding dust
- Grinding sludge (steel, silica, binder and water soluble oil)
- Waste treatment sludge (varnishes, oil and insoluble hydrocarbons)
- PCBs from scrap capacitors and lighting ballasts
- Lapping compound (silicon carbide and oil)

Cardboard, wooden pallets and cafeteria wastes have been disposed of at Land Reclamation in Cheektowaga (unknown date to present), Newco Waste Systems in Niagara Falls (unknown date to present) and the Lancaster Sanitary Landfill (unknown date through 1972). According to the 1972 Erie and Niagara Comprehensive Solid Waste Survey, approximately 1,180.8 tons of paper and 322.4 tons of wood were being generated annually by the Chevrolet plant.

Waste oil in unknown quantities has been hauled from the plant by Booth Oil.

Iron oxide scale (72 tons/yr.) and grinding dust (1.5 tons/yr.) have been hauled to Land Reclamation.

Grinding sludge (44 tons/yr.) and lapping compound (13,750 gallons/yr.) have been hauled to Niagara Recycling, Inc. in Niagara Falls.

Waste treatment sludge (4,000 gallons/yr.) was hauled from the plant by Superior Pipe Cleaning until 1974.

PCBs (two gallons/yr.) have been disposed of at Chem-Trol Pollution Services in Porter.

CHEVROLET MOTOR DIVISION
General Motors Corporation
Tonawanda Forge Plant
Kenmore Avenue
Tonawanda

The General Motors Company was incorporated in New Jersey in 1908. The present company, General Motors Corporation, was incorporated in Delaware in 1916. This forge plant began operations in 1954 as a new plant. The plant is contiguous with the casting plant and the motor plant of the Chevrolet Motor Division.

The company has manufactured the following products at this plant since 1954: automotive steering parts, axles and drive gears, engine parts and brake and clutch pedals. Processes used at the plant are hot forging, cold forging, cold extrusion and grit blast cleaning.

The Forge Plant has generated the following wastes:

Drained capacitors
PCB fluid
Pit sludge (steel sealer, graphite, oil resin
and sodium carbonate)
Waste oil
Union carbide "Synasol" solvent
EDM oil

Drained capacitors (660 gallons per/yr.) and PCB fluids (55 gallons total) have been hauled to SCA Chemical Waste, Inc. in Porter since 1975.

Pit sludge cleaned from water treatment settling tanks (6,000 to 8,000 gallons/yr.) has been disposed at SCA, Newco Waste Systems in Niagara Falls and the Seaway Industrial Park in Tonawanda since 1975.

Waste Oil in amounts ranging from 7,500 gallons in 1976 to 20,000 gallons in 1975 has been disposed of at SCA. EDM oil (approximately 10,000 gallons/yr.) has been hauled to Booth Oil for reclamation.

825 gallons of Union Carbide Synasol Solvent was hauled to Hukill Chemical Company in Cleveland for reclamation in 1976.

CHEVROLET MOTOR DIVISION
General Motors Corporation
Tonawanda Metal Casting Plant
Irene Street
Tonawanda

The General Motors Company was incorporated in New Jersey in 1908. The present company, General Motors Corporation, was incorporated in Delaware in 1916. The casting plant began operations as a new plant in 1954. The plant is contiguous with the forge and motor plants of the Chevrolet Motor Division.

This plant produces automotive grey iron castings. The processes used are grey iron melting, core and mold making, casting, grit blast cleaning, grinding, briquetting and sand reclamation.

The plant has generated the following wastes:

Waste foundry sand (clay, insoluble metal compounds, trace oil, resins and corn flour), sand slurry from settling basins, waste oils, sand contaminated catalyst (urea and ammonium nitrate), light capacitors (ballasts), core oil, sludge and furan resin.

Waste sand in the approximate amount of 300,000 to 400,000 tons per year has been disposed of as follows:

1954 to 1970	Squaw Island, Buffalo
1963 to 1964	William Strassman property (now Consolidated Freightway), River Road, Tonawanda
1964 to 1971	Wickwire Steel Plant site now owned by Roblin Steel, 4000 River Road, Tonawanda
1971 to 1975, 1975 to present	Seaway Industrial Park, 4825 River Road, Tonawanda
1971 to present	Altift, Inc., Tifft Street, Buffalo
1976 and 1977	Newco Waste Systems, Niagara Falls
1978 to present	Lancaster Sanitary Landfill, Lancaster
1978 to present	Niagara Frontier Port Authority, 910 Fuhrman Blvd., Buffalo

Sand slurry, in the approximate amounts of two to six million gallons per year, has been disposed of as follows:

1971 to 1975	Seaway Industrial Park, 4825 River Road, Tonawanda
1976	Newco Waste Systems, Niagara Falls
1977	Lancaster Reclamation, 403 Pavement Road, Lancaster

The Company does not know where slurry was disposed of before 1971.

Waste oil (at least 2500 gallons/yr.) has been hauled from the plant by Booth Oil Co. and Southgate Oil Co. of Elma for reclamation.

Chem-Trol Pollution Services, Inc. in Porter accepted 880 gallons of sand contaminated catalyst in 1973 and 660 gallons of light capacitors in 1977.

5450 gallons of core oil and sludge were hauled to Chem-Trol Pollution Services in Porter by Superior Pipe Cleaning, Inc. in 1975 and 1978.

A total of 7,000 gallons of water and furan resin was hauled by Superior Pipe Cleaning, Inc. from 1975 to 1977 to an unknown location.

CHEVROLET MOTOR DIVISION
General Motors Corporation
Tonawanda Motor Plant
River Road
Tonawanda

The General Motors Company was incorporated in New Jersey in 1908. The present company, General Motors Corporation, was incorporated in Delaware in 1916. The motor plant began operation in Erie County as a new facility in 1938. The plant is contiguous with the casting plant and forge plant of the Chevrolet Motor Division.

Chevrolet has manufactured the following products at this plant:

Passenger and truck engines and parts	Since 1938
Passenger and truck axles and assemblies	1938 to 1941
Aircraft engines and parts	1941 to 1945 and 1951 to 1954

Processes used since 1938 are machining and assembly, painting, heat treating, phosphating and plating.

The Motor Plant has generated the following wastes:

Oily sludge (oil, water, iron oxides and sulphates,
polymer and traces of graphite)

Waste top oil

Flyash

Pit sludge (iron and steel chips, grindings, diatomaceous
earth, water and oil)

Oily sludge (in amounts ranging from 750,400 gallons/yr. in 1973 to 400,000 gallons/yr. in 1977) has been hauled by Riverside Services Corporation to an unknown site (1956 to 1969), by Booth Oil Company (1971), by Chem-Trol Pollution Services (1973) and to Wiseman Oil Company in Coraopolis, Pennsylvania (1977). The sludge was apparently reclaimed by Booth Oil and Wiseman Oil.

Waste top oil collected by separation at the plant's waste water processing facility (in amounts from 10,500 gallons to 477,500 gallons) have been reclaimed at Booth Oil Company and Metalworking Lubricants Co. of Birmingham, Michigan.

Flyash (10,000 cubic yards/yr.) has been disposed of at the Seaway Industrial Park in Tonawanda (1970 to 1975), the Lehigh Valley Railroad site at Tifft Street in Buffalo (1970 to 1974) and the Lancaster Sanitary Landfill in Lancaster (1977).

Pit sludge (approximately 18,000 cubic yards/yr.) has been disposed at Seaway Industrial Park (1970 to 1975), the Lehigh Valley Railroad site at Tifft Street in Buffalo (1970 to 1974) and Newco Chemical Waste Systems in Niagara Falls (since 1976).

COLUMBUS MCKINNON CORPORATION
Fremont Street
Tonawanda

The Columbus McKinnon Corporation was founded in 1895. It was incorporated in New York in 1929. The company was known as the Columbus McKinnon Chain Corporation from 1917 to 1960 and by its present name since 1960.

Columbus McKinnon has operated at the Filmore Street location since 1960. It has also had plants at Marion and Robinson Streets, North Tonawanda (1954 to 1967) and at Great Arrow Avenue in Buffalo (1959 to 1973). From 1941 to 1959, it operated the Emblem Manufacturing Co. plant in Angola.

Since 1930, the company has manufactured chain products. Processes used in the company plants are heat treating, pickling, painting, machining, welding, blackening, vibrating, degreasing, zinc phosphating, wire drawing, borax coating, cosmoline spray, granolube coating, tumbling and rotoblasting. A copper dip process was terminated in 1960.

The company has generated the following wastes:

Waste oils

Pickle liquor (sulphuric acid, potassium permanganate, "Kleanrite A" and caustic soda)

Degreaser sludge (grease, oil, dirt and perchlorethylone)

Zinc phosphate sludge

Rotary furnace sludge (dirt and steel scale)

Oil quench tank sludge (dirt and steel scale fines)

Sulphuric acid sludge

Vibrator slurry (steel fines, aluminum oxides, alkaline compounds, burnishing soaps and dirt)

Potassium permanganate sludge

Waste oils (270,000 gallons total from 1930 to 1965) were disposed of on plant property from 1930 to 1965 and since then have been hauled in amounts of 1,000 to 2,000 gallons per year to an unknown location by Ray Morningstar, Inc. of Young Street, Tonawanda.

Pickle liquor (3 million gallons total) was discharged to Ellicott Creek until 1969 and since then, in amounts of 75,000 gallons per year, have been hauled by Frontier Chemical to its Pendleton and Niagara Falls facilities.

Degreaser sludge (10 gallons/yr.), zinc phosphate sludge (550 gallons/yr.), rotary furnace sludge (165 gallons/yr.), oil quench tank sludge (10 gallons/yr.), sulphuric acid sludge (550 gallons per year) have been hauled by Ray Morningstar since 1976. Columbus McKinnon does not know what company hauled such wastes before 1976 and where the wastes were disposed of before or after 1976.

Metal scrap, in amounts of up to 500 tons per year (1977 to 1978), were hauled from the plant property to an unknown destination.

DONNER-HANNA COKE CORP.
Abby and Mystic Streets
Buffalo

Donner-Hanna Coke Corporation was incorporated in New York in 1924. Donner-Hanna's current Environmental Control Manager has described the company's waste generating activities as follows:

"Donner-Hanna employs no waste haulers or disposer other than Downing Container Service, which provides and exchanges containers for garbage such as paper, wood, etc. which was previously burned. Products which Donner-Hanna make that might be candidates for waste disposal operations are now and have been recycled with raw material coal, so as to be reconstituted as saleable products. The sludge from our waste water pathway is principally insoluble calcium carbonate. It is not hazardous and has not warranted analysis.

"Once each year, we have dug calcium carbonate and earthen sediment from our waste water pathway to the Buffalo River and deployed it on the surface (of filled property which we use for coke storage) as is appropriate for non-hazardous material not requiring burial."

Erie County records indicate that ammonia still waste containing phenol was at one time discharged to the "black" water stratum some 145 feet below ground level at the Donner-Hanna facility until, after four years of use, the wells plugged and the project was abandoned. This discharge took place before 1953.

DRESSER INDUSTRIES, INC.
Dresser Transportation Equipment Division
Two Main Street
Depew

Dresser Industries began operations in Erie County in 1892. The company has been known since 1930 under the names Gould Coupler Company, Symington-Gould Corporation, Symington-Wayne Corporation and, since 1968, as the Dresser Transportation Equipment Division of Dresser Industries of Dallas, Texas.

The company produces steel castings by the foundry process. It generates spent bentonite clay (since 1938), Manley sand (since 1938), slag (since 1930), lubricating oil and small amounts of brick and phenolic binders (ammonia and cyanide) as waste products.

In 1976, the company estimated that it was generating 8800 tons per year of the wastes identified above. Since 1976, 15,000 cubic yards of such wastes have been generated each year.

From 1961 to 1976, all wastes were disposed of at Stocks Pond at the southeast corner of Broadway and Transit Road in Depew. Since 1976, all such wastes have been disposed of at the Lancaster Reclamation site by the Ferry Construction Company. Wastes are also dumped at a staging area on Dresser's own property west of Transit Road.

Before 1961, sand and clay wastes were hauled by Rayburn Smith, Inc. to an unknown site.

From 1942 until after World War II, the company operated an Army owned facility in Depew for the production of steel armor castings for tanks. The wastes generated at this facility, silica and bentonite clay casting cores and scrap metals from chipping and grinding operations, were probably hauled by Rayburn Smith.

DUNLOP TIRE AND RUBBER CORPORATION
Sheridan and River Roads
Tonawanda

Dunlop Tire and Rubber Corporation began operations in Buffalo in 1920. Dunlop has manufactured a wide variety of products including foam rubber (1942 to 1960), duthane (1959 to 1968), urethane foam (1959 to 1960), nylon (1962 to 1963), tire tubes (1938 to 1960), tennis balls, tennis rackets and golf balls (1940 to 1960), tires (since 1923), balata (since 1940), and blimps (1942 to 1945) using milling, mixing, extruding, calendering, tire building, curing and finishing processes.

Waste products generated include carbon black and powders, scrap wood, fly ash, scrap tires, wire tire beads, golf balls, scrap rubber, latex rubber, foam rubber, sulphur, plastics, oils, grease, oily sludge and tank residue, general refuse, chemical wastes (amines and nitrogen-containing compounds) and waste organic solvents (toluene and xylene).

All of these wastes have been disposed of at three sites on plant premises since 1921. In addition, (a) some solvents and degreasers (110 gallons/yr.) have been hauled by Downing Container and Elmwood Tank Cleaning to unknown sites, (b) carbon black, scrap wood, general refuse, oily sludge and tank residues were disposed of at Seaway Industrial Park in Tonawanda in 1976 and (c) some wastes have been hauled since 1930 by at least 20 haulers identified by the company.

The company does not know how much wastes it has generated. However, in 1976 the company indicated that it was generating the following amounts of wastes per year:

Waste oil and sludge	32,000 gallons
Oil skimmings	3,000 gallons
Solvent	13,750 gallons
Tank residue	2,750 gallons
Carbon black dust	40 tons
Scrap tires	660 tons

E.I. duPONT de NEMOURS & CO., INC.
Yerkes Plant
Sheridan Drive
Buffalo

E. I. duPont de Nemours & Company, Inc. was incorporated in Delaware in 1802. The company began operation in Tonawanda in 1921 and in Niagara Falls in 1930. The Niagara Falls plant is described separately in this report.

Various processes have been used at this facility including nylon molding (1968 to 1972), vinyl fluoride polymerization and polyvinyl fluoride extrusion (since 1955), melt extrusion of polyolefins (since 1951), viscose (1921 to 1968), polyester film melt extrusion (1951 to 1956) and acrylic sheet and shape casting (since 1968).

The products manufactured at the plant include rayon (1921 to 1955), cellophane (1924 to 1968), cel-o-seal caps and bands (1931 to 1964), cellulose sponge (1936 to 1951), cordura yarn (1941 to 1955), polyethylene film (1951 to 1961), "Vexar" netting (since 1959), "Tedlar" polyvinyl fluoride film (since 1955) and "Corian" sheet and shape (since 1968).

The following wastes were generated at duPont's Buffalo plant and disposed of in six pits on-premises from 1921 to 1978:

	<u>Estimated Total Tonnage</u>
Cellulosic viscose, cellophane	80,000 tons
rayon and sponges	
Dry "Corian" wastes	5,000
Wet "Corian" wastes	1,500
Polyvinyl alcohol film	100
"Vexar" netting	1,500
"Tedlar" with dimethylacetamide	1,000
"Tedlar" polyvinyl flouride film	750
Nylon shutters and water based	75
paint	
Laboratory chemicals	1

All material was dumped in bulk except the wet "Corian" wastes which was dumped in drums. Foundry sand from Chevrolet was used as cover at this site.

Since March 1978, Niagara Sanitation has hauled 875 tons of wet and dry "Corian", "Tedlar" and "Vexar" netting to Niagara Recycling in Niagara Falls.

Rapid Disposal was used from 1974 to 1976 to transport over 1300 tons of dry "Corian" wastes, "Vexar" netting and "Tedlar" to the Seaway Industrial Park and 200 tons of wet "Corian" in drums

to Lancaster Sanitary Landfill. Finally, SCA has been used, since 1974, to haul over 60,000 gallons of dimethylacetamide and water to its facility in Porter.

Booth Oil has hauled waste oil from the site.

E. I. du PONT de NEMOURS AND COMPANY, INC.
Buffalo Avenue
Niagara Falls

E. I. duPont de Nemours and Co., Inc. was founded and incorporated in the State of Delaware in 1802. The Buffalo Avenue plant began operations in Niagara Falls as Niagara Electro Chemical Company. In 1925 Niagara Electro Chemical was acquired by Roessler and Hasslacher Chemical Company, which in turn sold the plant to duPont in 1930.

DuPont has produced the following inorganic and organic compounds below:

1. Sodium peroxide (1896 to mid 1950s)
2. Hydrogen peroxide (1926 to late 1950s)
3. Sodium (since 1925)
4. Chlorine (since 1925)
5. Sodium chloride (1916 to 1967)
6. Chlorine liquid/gas (prior to 1930 to 1976)
7. Chloroform (1931 to 1975)
8. Methylene chloride (1929 to 1975)
9. Sodium cyanide (1900 to 1961)
10. Sodium (since 1954)
11. Polyvinyl acetate emulsion (1942 to 1973)
12. Ammonia (1900 to 1961)
13. Metal cyanides (copper, zinc) (since 1930)
14. Methyl chloride (1934 to 1975)
15. Sodium perborate tetrahydrate (1930 to middle 1960s)
16. Trichloroethylene (1925 to 1972)
17. Perchloroethylene (1925 to 1972)
18. Polyvinyl alcohol (1942 to 1973)
19. Acrylic polymers (1964 to 1970)
20. Vinyl acetate
21. Methanol
22. Acetic acid
23. Furan and tetrahydrofuran (1948 to 1969)
24. n-Methyl pyrrole (since 1950)
25. Trichloroethylene stabilizer (1961 to 1973)
26. Dichlorobutane (1948 to 1960)
27. Dichloroethylene (1961 to 1966)

28. Vinyl Acetate-ethylene copolymer (1974 to 1975)
30. Crude Adiponitrile (1948 to 1960)
31. Polymeric alcohols (since 1964)
32. Teracol^R (1964 to present)

Many processes have been used by duPont to manufacture these products. These are generally the standard unit operations and processes commonly used by the chemical process industry. The types of processes used are detailed below:

1. Sodium peroxide from sodium metals, air and oxygen (1896 to mid-1950s)
2. Electrolysis of sulfuric acid and persulfuric acid (1926 to late 1950s)
3. Electrolysis of sodium chloride (Downs Electrolyte Cell (since 1925)
4. Salt refining, precipitation, evaporation (1916 to 1967)
5. Chlorine liquefaction/vaporization (prior to 1930 to 1976)
6. Chemical reactions (1931 to present)
7. Chlorinations (1929 to 1934)
8. Catalytic esterification (since 1973)
9. Catalytic polymerization (1942 to 1973)
10. Catalytic pressure reaction (1942 to 1973)
11. Metals cyanides by solution and precipitation (since 1930s)
12. Hydrochlorination (1934 to 1975)
13. Oxidation (1930 to mid-1960s)
14. Cracking and thermal cracking (1925 to 1972)
15. Methylation (1942 to 1973)
16. Batch mixing (1961 to 1973)
17. Copolymerization (late 1960s)
18. Distillation (1948 to 1960)
19. Drying (since 1964)
20. Filtration (since 1964)
21. Catalytic cyclization (1966 to 1968)
22. Catalytic hydrogenation (1948 to 1969)

DuPont has generated the following industrial wastes:

Sodium salts
 Floor sweepings and dismantlement salts, bath
 Sodium wash tank residues
 Sodium cell brick and rubble
 Graphite scrap and butts
 Scrap fiberglass insulation
 Lime slaking grits
 Sludge from brine plant salt dissolver
 Filter charcoal
 Other furnace brick and rubble
 Solid residues^R from copper reduction tower
 Scrap Elvanol^R

Residues from zinc sulfite solution tank
Residues from brine storage
Chloromethanes process filter dumpings
Chlorethylenes process filter dumpings
Chlorinolysis residues
Catalyst fines
Carbon dust
Incinerator residue
Coal screenings
Sewer and pipe cleanings
Scrap trichloroethylene and perchloroethylene
Trichloroethylene and perchloroethylene liming residues
Waste oils
Scrap organic mixtures
Chloromethanols still residues
Vinyl acetate residues
Acetic acid residues and close boilers
Scrap polyvinyl acetate emulsions
Glycol scrap and glycol filter press cloth and sludge
Furfural residues
Furan residues
Spent resin
Fly ash
Scrap rubble from building dismantlement
Process equipment demolition waste
Plastic process equipment demolition waste
Scrap drums
Scrap frit
Alumina pellets
Asbestos insulation and transite materials
Asbestos packing
Waste plating solution
Iron filter sludge
Waste acid neutralization sludge
n-Methyl pyrrole residues
Scrap medium
Medium process washings
Mercuric gold washwater
Off-grade products
Picoline-pyridine hydrochloride catalyst
Empty bags with residual salts
Spent BLM and copper catalyst
Copper sludge
Spent Raney nickel catalyst
Intake water screenings
Oil skimmer adsorbent waste
Sodium cyanide residue
Chlorinated tank heels
Miscellaneous research and laboratory chemicals
Scrap sodium perborate
Hydrogen peroxide
Other solvents (methanol, methyl acetate)
Polyvinyl acetate beads
Miscellaneous wastes (filter aids, activated carbon,
Inconel rings)

DuPont has used the following sites for the treatment and disposal of industrial wastes:

A. Company owned sites

1. NECCO Park (North of Pine Avenue and 56th Streets,
Niagara Falls)

DuPont acquired the Necco Park site from Roessler and Hasslaucher Chemical Company in 1930. Prior to that time, this site was used as a disposal area by duPont's predecessors - Niagara Electro Chemical Company (1911 to 1925) and Roessler and Hasslaucher (1925 to 1930). The site, comprising approximately 25 acres, was closed by duPont in September 1977.

The following industrial wastes were disposed of at Necco Park by duPont:

<u>Type of Waste</u>	<u>Description</u>	<u>Estimated Total Tonnage</u>
salts from sodium	Anhydrous salts: 30-42% NaCl; 35-38% CaCl ₂ ; 10-15% CaO; 0.5-1.5% Ca ₃ N ₂ ; Trace NaO or NaOH	20,000
Floor sweepings and dismantlement salts bath ex sodium	20-70% NaCl; 20-50% CaCl ₂ ; 10-20% BaCl ₂	1,300
Sodium Wash tank residues	Wet Silica, Alkaline metal, carbonate hydroxide and chloride sludge	No data (Assume incl. in above item)
Sodium cell brick and rubble	Thermal brick, corroded steel, 90+%, salts (CaCl, CaCl ₂ , BaCl ₂) 10%	12,000
Graphite scrap and butts	90+% carbon (graphite), salts (NaCl, CaCl ₂ , BaCl ₂) 10%	1,100
Scrap fiberglass insulation	Cell insulation	Contract trash disposal
Lime slaking grits	Ca(OH) ₂ + limestone	Once per 1-3 years
Sludge from brine plant salt dissolver	Dirt from raw salt	25,000
Filter charcoal	Soaked with brine	No data
Other furnace brick and rubble	Thermal brick only	5,000
Solid residues from copper reduction tower	Wire, insulation and small amount of copper metal (little believed to Necco Park -50 M to 80 M lb/yr. to reclaimers)	No data (mostly to reclamation)

Scrap Elvanol ^R	Solid, granular polyvinyl alcohol (in bags or bulk)	3,300
Residues from zinc sulfite solution tank	Mostly silica-acidic with residual H ₂ SO ₄ . Wet sludge (drummed)	525
Residue from brine storage	Salt, sodium carbonate, sodium sulfite, some copper salts	No data
Filter dumpings		
a) from Chloromethanes Process	Some methylene chloride or chloroform, CaCl ₂ , Ba(OH) ₂ , alumina gel, silica gel, molecular sieves (probably drummed)	No data; believed small amount
b) From Chlorethylenes	Alumina gel and CaCl ₂ saturated with Trichlorethylene, perchlorethylene or Tri-Per residues (probably drummed)	No data; believed small
Chlorinolysis residues	Solids or semisolids in drums; high-boiling chlorinated compounds (46% chlorobutanes; 30% hexachlorobutadiene; 17% hexachlorobenzene; 6% pentachlorobutadiene; 1% each hexachlorethane and stabilizer) (part in drums, part dumped from T/T's)	1,800
Catalyst fines	Carbon, zinc, acetate; (sone acetic acid, vinyl or methyl acetate may be adsorbed) (drums buried)	No data
Carbon dust	Graphite from anode machining	No data
Incinerator clean-up	Noncombustible ash, glass, metal dirt	50
Coal screenings	Iron, slate, some coal and coal dust	Incl w/fly ash below

Sewer and pipe cleanings	Chlorine line residues: silica, ferric chloride	No data
Scrap Tri-Per	Trichlorethylene and perchlorethylene plus stabilizers - (occasional - normally reworked in process) (drums)	No data
Tri-Per Liming residues	Ca(OH) ₂ , CaCl ₂ , silica sludge saturated with trichlorethylene or perchlorethylene and/or high boiling residues. Aliphatic one-two- and four-carbon saturated and unsaturated chlorohydrocarbons	No data
Scrap oil	Lubricating oil, transformer oil, heat exchange oil. (Most oil to reclamation) (drums)	No data
Scrap organic mixtures	Combinations of methanol, methyl acetate, methyl ethyl ketone, dibutyl maleate, toluene, vinyl acetate, vinyl acetate polymer, crotonaldehyde and vinyl crotonate (drums)	2,000
Chlormethanols still residues	Liquid carbon tetrachloride, chloroform and higher boiling residues (drums)	550
Vinyl acetate residues	Vinyl acetate with high boiling tars - viscous, in drums	2,200
Acetic acid residues and close boilers	Acetic acid and dimer; corrosion products, polymer-like tars (infrequent to Necco)	Usually was incinerated on plant except very cold weather

Scrap polyvinyl acetate emulsions	Nonflammable; 50% water (most sold to salvage or sewered - only skins and screenings to Necco)	No data
Glycol scrap Glycol filter press cloth and sludge	Viscous polyglycol polymer) Duck filter with inert filter aid (30%), CaSO ₄ (5%), Ca(OH) ₂ (10%), CaF ₂ (5%) and inorganic glycol polymer, 50% (in poly-) ethylene bags) (by dumpster)	7,000
Furfural residues	Furfural + furfural residue tars (viscous (dumpsters)	11,000
Furan residues	Methyl furans, acetone, and higher boilers (usually incinerated or sold)	No data
Spent resins	Dowex ^R and Amberlite ^R resin in butane diol-water mixture (dumpster?)	70
Fly ash	Wet with water	
Scrap rubble from building dismantlement	Concrete, mortar, dirt	No data (Considerable)
Process equipment demolition waste	Noncombustible ceramic packing, grids, distributors, slightly contaminated or corroded metal, pipe, conduit (nonsalvageable)	No data
Plastic process equipment demolition waste	Haveg ^R , FRP, towers, tanks, pipe, linings, resin-graphite grids, exchanger parts, etc.	No data
Scrap drums	Metal now sold as scrap; some Fiberpaks ^R	

Scrap frit	Inorganic, inert glassy material - 200 lb.yr.	1
Allumina pellets	Inert, some surface occlusions of carbonaceous material	80
Asbestos insulation and transite materials	Building demolition waste	Variable in past. No data
Asbestos packing	Pitch impregnated rope	35
Miscellaneous industrial wastes	Scrap sodium perborate, hydrogen peroxide methanol, polyvinyl acetate beads and various research materials	No data
	Total	Greater than 93,000 tons

Wastes (consisting of liquids, solids and semi-solids were transported to Necco Park by duPont (1930 to 1977) and Armand Cerrone of Niagara Falls (1950s to 1977) in bulk or drummed quantities. Bulk material was dumped directly into the site from dumpsters or trucks. Drummed dry material was buried as such while drummed liquids were generally left in drums and disposed of in clay pit lagoons.

DuPont has indicated that Necco Park may have been used as an explosive magazine during World War II. In addition, the U.S. Army and duPont have advised the Task Force that duPont operated the Niagara Falls Army Chemical Plant on Buffalo Avenue in Niagara Falls from 1941 to 1945. The plant produced clothing impregnite (including a chlorinated phenyl urea). Solid waste from the plant was, according to the Army, disposed of at Necco Park.

2. Miscellaneous On-Plant Disposal Sites (Buffalo Avenue, Niagara Falls)

a. East of Building 301

This area was used as a disposal site by duPont from 1950 to 1961. Approximately, 500 tons of cyanide residue solids containing carbon, ash, cyanide and iron complexing agent. Only duPont hauled waste to this area and other firms did not use this site.

b. West Yard Weathering Dump

This site was used from the late 1940s until the 1950s to dispose of about 500 tons of sodium cyanide residue. Waste contractors were not required and no other firm disposed of wastes at this site.

c. C-2 Process Area

This site was used from 1925 until 1972 to dispose of trichloroethylene and perchloroethylene process tank heel cleanouts. The quantities are not known. Solvent leaks have occurred around tank forms and the soil may be contaminated with high boilers.

d. Southern Boundary of Plant West of Gill Creek

This area was used from 1930 to 1956 to dispose of unknown drummed quantities of copper sludge from the copper and zinc cyanide process. After 1956, this material was sold for scrap.

e. Area West of Hyde Park Boulevard South of Buffalo Avenue

This site was used until 1948 to dispose of metal parts, sludge, rubble, demolition debris and possibly sodium cell bricks. The quantity of waste disposed of at this site is not known.

B. On-Site Waste Treatment

Several methods of on-site waste treatment have been conducted by duPont including incineration, open solvent burning pits and washing areas. The west yard incinerator was operated from 1965 to 1973. The materials incinerated were primarily solid combustibles such as scrap paper and waste packaging materials. DuPont had indicated that no chemical wastes were incinerated.

The second incinerator operation (two incinerators in parallel to insure continuity) was located in the East Plant at Bldg. 404. This operation was used from 1950 to 1960 for the destruction of hydrogen cyanide stripped from brine. Also, a number of waste organic streams were burned as fuel and/or for disposal (with No. 2 oil as backup fuel). These were polyvinyl alcohol still bottoms, furan still residues and tetrahydrofuran residues. These were carbon/hydrogen/ oxygen compounds such as alcohols, aldehydes, ketones and other by-products from these processes. DuPont has been unable to find any records as to quantities of solvents burned as fuel. The stripped brine was neutralized with caustic and discharged to the City of Niagara Falls Wastewater Treatment Plant.

A third waste burner exists south of Bldg. 428 on Buffalo Avenue. This is a small gas-fired unit intermittently in use since 1968. The unit is used to burn about 1500 lb. per week of paper towels, rags, small packages, containing small amounts of precious metals from the Electronic Materials operation of the Photo Products Department. The ash (about 15 lb./week) is recovered in trays, is screened and iron and steel removed magnetically. The remaining ash is drummed and shipped to PGP Industries, Inc., Santa Fe Springs, California, for recovery of precious metal values.

A waste burning pit was also used at the plant. Since byproduct methyl acetate-methanol could only be partially disposed of from the period 1942 to 1950, this waste solvent was burned in an open pit several hundred yards east of B301. The quantity of waste disposed of in this manner is not known.

Finally several washing areas for sodium and cyanide washes were used for an unknown period of time.

C. Off-Plant Waste Disposal Sites

1. Newco Waste Systems

Du Pont has contracted with Newco to dispose of most of its industrial wastes since Necco Park was closed in 1977. The types and quantities of wastes disposed of at Newco are listed below.

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
1. Sludge salt waste	880
2. Cell sweepings	65
3. Graphite scrap and butts	30
4. Cell brick and rubble and dismantlement salt waste	300
5. Scrap fiberglass insulation	3
6. Asbestos rope, pitch impregnated	1
7. Filter cloths with salts and polymer	400
8. Alumina pellets	3
9. Scrap frit	1
10. Lime slaking grits	2
11. Empty paper bags with residual salts	105
12. Rubble from building dismantlement	variable
13. Empty Fiberpak ^R drums with residual salts	8.5
14. Asbestos insulation and other demolition materials	variable
15. Process equipment demolition waste	variable
16. Plastic Process Equipment waste	variable
17. Transite siding (asbestos cement siding)	variable
18. Cleaned metal scrap	600
19. Scrap metal containers and drums	30
20. Waste truck oil	very little
21. Oil skimmer adsorbent waste	no data
22. General plant trash and intake water screenings	4000
Total	Greater than 6400 tons

Armand Cerrone, Niagara Falls, hauls waste type numbers 1 through 4, 6, 9, 11, 12 and 14 through 17 while duPont transports waste type numbers 7 through 9 to Newco. In addition Niagara Sanitation hauls waste type numbers 5, 11, 13 and 18 through 22 to Newco where it is ultimately disposed of at Niagara Recycling.

2. SCA Chemical Waste Services, (Chem-Trol), Porter

SCA (Chem-Trol) has been used since 1972 to dispose of the following annual quantities of industrial wastes at its site in Porter. The types of waste disposed follows:

<u>Type of Waste</u>	<u>Annual Quantity</u>
1. Waste plating solution	200 gallons
2. n-Methyl pyrrole residues	10,000 gallons
3. Scrap mediums	600 gallons
4. Medium process washings	1,000 gallons
5. Mercuric gold washwater	400 gallons
6. Waste acid neutralization sludge	13,000 tons
<u>Total</u>	12,200 gallons 13,000 tons

SCA (Chem-Trol) hauls all of the above waste types except the waste acid neutralization sludge which is transported to SCA by Modern Disposal Services, Inc. of Model City. In addition, duPont records show that from 1973 to 1975 approximately 210 tons of residue containing chloroform and about 900 tons of carbon tetrachloride were sent to Chem-Trol for reclamation.

3. Niagara County Refuse Disposal District (Wheatfield)

DuPont used this site intermittently during the 1960's to dispose of an unknown tonnage of solid off-grade polyvinyl alcohol. DuPont transported this material to the Wheatfield site in bags.

4. Frontier Chemical Waste Process, Inc., (Pendleton)

Frontier Chemical was occasionally used to dispose of waste at their Pendleton site from the late 1960's to 1975. Frontier Chemical and duPont transported waste to this site in five gallon cans or bottles and 55 gallon drums. The waste consisted of miscellaneous small quantities of precious metals and solvents.

D. Miscellaneous Waste Disposal Practices

Waste oil has been handled by Booth Oil Company of North Tonawanda (1950 to 1970) and Southgate Oil Services, Inc. of Elma (1973 to present). In addition, waste oil was stored at the duPont plant from 1970 to 1973 and prior to 1950, waste oils were generally disposed of at Necco Park.

From 1950 to 1961, Booth transported an unknown quantity of "Ucon" oil (non-PCB) and from 1961 to 1970, they hauled approximately 120 tons of oil containing Aroclor 1248 PCBs to their facility in North Tonawanda. The ultimate disposition of these oils is not known.

Southgate Oil has hauled an unknown quantity of drummed waste oil to their facility in Elma for reclamation.

Spent Raney nickel catalysts have been shipped to Englehardt Company in New Jersey for reprocessing. In addition, spent BLM (copper containing) and other copper catalysts were sold for their copper values. DuPont has been unable to locate the names of haulers or the quantities of material sent to the above locations.

Finally, an unknown quantity of high boilers was sent for a number of years to Big Ben Chemical and Dow Chemical for recovery and scrap parts and steel drums were sent to various salvage operations and drum reconditioners. The names of these facilities are not known.

EAD METALLURGICAL, INC.
51 Pearce Avenue
Tonawanda

EAD Metallurgical was founded and incorporated in the State of New York in 1976. Operations in Erie County began in January 1978.

Through the use of sophisticated metallurgical processes, EAD produces nuclear alpha foils for use in the smoke detector industry. The foils contain americium-241, gold, silver and rhodium.

Unusable foil remnants are packed into one gallon cans. Other solid waste such as contaminated shoe covers and gloves are packed into 55 gallons drums. Sludge and soiled filters resulting from treatment (evaporation) of fluor and foil washings are also packed into 55 gallon drums. Tins and drums are hauled from the plant by the Chem-Nuclear Systems, Inc. of Eggert Road, Orchard Park.

Liquid waste from floor and foil washings is normally released into the sewers if Am-241 concentrations permit. If the levels are higher than those permitted, the liquid is evaporated and the resulting sludge is hauled from the plant by Chem-Nuclear Systems, Inc.

FMC CORPORATION
Agricultural Chemical Division
100 Niagara Street
Middleport

This facility was first used in 1904 when it was owned by the Niagara Sprayer Company. In 1928, the company was reorganized as the Niagara Sprayer and Chemical Company, Inc. and incorporated in Delaware. In 1943, the Food Machinery and Chemical Corporation acquired the company and, in 1947, changed the facility name to the Niagara Chemical Division. In 1961, the Food Machinery and Chemical Corporation shortened its name to FMC. Since 1973, the plant has been known under its present name.

Various chemical processes are used at the plant including chemical reactions, crystallization, evaporation, mixing, blending, compounding, formulation, filtration and packaging. The products manufactured are carbofuran (since 1969), dithiocarbamates consisting of ferbam (since 1957), manganese niacide (since 1957), polyram (since 1963), ziram (since 1957) and zineb (since 1959). In addition, metal arsenate and arsenite compounds (e.g., copper arsenate and lead arsenate) were manufactured from 1930 to 1974, dinitro cresol compounds were manufactured from 1961 to 1964 and thickener M-4 for military use was produced at the facility from 1965 to 1970.

The company has generated the following wastes:

Arsenical wastes (e.g., lead and copper arsenate)
Sulfur compounds
Sludge compounds
Sludge from the dithiocarbamate wastewater lagoon
Carbofuran
Incinerator ash
Off-grade products
Organic phosphates
DDT
Benzene hexachloride
Waste kerosene with traces of pesticides
Spent caustic from absorber
Laboratory chemicals
Furadan aqueous sludge
Furadan and clay
Floor sweepings and duct house bags
Mixed liquid pesticides
Polyram and clay
Ferric hydroxide sludge with traces of arsenic
Acidic calcium sulfate sludge
Empty pesticide containers
Process wastewater with calcium sulfate, sodium sulfate, ammonium sulfate and trace contaminants from dithiocarbamate processes

Prior to 1940 to 1970, the company disposed of bulk quantities of industrial wastes in trenches on approximately 15 acres of plant property. The types of wastes disposed of include arsenical wastes, sulfur compounds, sludge from the dithiocarbamate wastewater lagoon, carbofuran, incinerator ash and off-grade products. FMC indicated that it could not estimate the amounts of wastes disposed of on-site. However, the Task Force has learned that more than 250 tons of arsenical wastes were dumped on-site and that DDT, benzene hexachloride and organic phosphates were also disposed of on premises. FMC also has operated a disposal site in Orleans County for similar wastes.

Since 1973, SCA, Modern Disposal Service and FMC Corporation itself have hauled waste kerosene with traces of pesticides (19,900 gallons total) spent caustic (21,700 gallons total), laboratory chemicals (280 drums total), furadan aqueous sludge (10,400 gallons total) furadan and clay (4,000 gallons), plant floor sweepings and dust house bags (approximately 1,300 tons total), mixed liquid pesticide (4,300 gallons total), polyram and clay (13,200 gallons total) and ferric hydroxide sludge with traces of arsenic (176 tons total) to the SCA facility in Porter.

Since 1977, Newco Waste Systems, Lorber Trucking, Modern Disposal Service and FMC Corporation have hauled waste kerosene with traces of pesticides (3,950 gallons total), packaged laboratory chemicals (225 drums total), furadan sludge (5,300 gallons total), plant floor sweepings and duct house bags (236 tons total), ferric hydroxide sludge with traces of arsenic (380 tons total), acidic calcium sulfate sludge and water (9,300 gallons total), spent caustic (201 tons total), compacted empty pesticide containers (36 drums total), and polyram and clay (3,400 gallons total) to the Newco site in Niagara Falls for disposal.

Frontier Chemical Waste Process, Inc., in 1978, transported 18,290 tons of process wastewater containing calcium sulfate, sodium sulfate, ammonium sulfate and trace quantities of contaminants from dithiocarbamate processes mixed with regenerant from surface water treatment to Frontier's facility in Niagara Falls. In addition, Wizard Method, Inc. of North Tonawanda has hauled similar material cleaned out from evaporator heat exchange tubes to Newco.

Finally, since 1970, FMC has hauled dry waste including ash from incinerated paper, paper waste from cartons, spent containers and packaging materials containing small amounts of clays, talcs and fillers in bulk quantities, to the Niagara County Refuse District site in Lockport.

FMC CORPORATION
Industrial Chemical Division
34 Sawyer Avenue
Tonawanda

FMC Corporation was established in 1925 as the Buffalo Electro-Chemical Company. The company later became known as Food Machinery and Chemical Corporation. In 1961, the name was shortened to FMC.

The company manufactures a variety of products including ammonium persulfate (since 1951), potassium persulfate (since 1927), sodium persulfate (since 1961), hydrogen peroxide (1927 to 1970), peracetic acid (since 1927), zinc and calcium peroxides (1958 to 1968) and dipicolinic acid (since 1958).

The company generates floor sweepings, scrap products, borax, potassium perdisphosphate, potassium phosphate, potassium fluoride, manganese oxide, filter backwashes containing ammonium persulfate, ammonium sulfate, metal oxide, scrap perborate and miscellaneous garbage as wastes.

Four pits on site, each 4,000 cubic feet in size, were used for disposal of floor sweepings (660 gallons/year), scrap products and borax from 1964 to 1976. Since 1974, Chem-Trol Pollution Service, Inc. has been used for the removal and disposal of floor sweepings, scrap products including persulfates, perborates, sodium carbonate peroxide, hydrogen peroxide, peracetic acid, calcium and zinc peroxide, magnesium, urea, pyrophosphate and dipicolinic acid.

Since 1962, Seaway Industrial Park in Tonawanda has been used for disposal of yard trash, floor sweepings, scrap perborate and miscellaneous garbage. The company has no records of waste disposal activities prior to 1962.

FORD MOTOR COMPANY
Ford Stamping Plant
3660 Lake Shore Road
Buffalo

The Ford Motor Company has operated two manufacturing facilities in Buffalo, an assembly plant which operated from 1924 to 1957 in a building now occupied by the Niagara Frontier Port Authority, and the Stamping Plant at Lake Shore Road which has been operating since 1950.

The assembly plant assembled cars. The stamping plant produces automotive metal stampings and assemblies. In addition, there is some minor assembly of parts and painting of finished products.

During its time of operation, wastes from the Assembly Plant were taken to an open dump site adjacent to the Ford property on Lake Erie. Combustable items such as cardboard and wood were burned. Since that time the U.S. Army Corps of Engineers has filled the area with lake dredgings. Also, the Niagara Frontier Port Authority is accepting waste casting sands from the Chevrolet Casting Plant as fill on this same location.

The stamping plant generates the following wastes:

Waste oil
Non-returnable oil drums
Zinc primer sludge
Ammonia sludge
Oil sludge
Cyanide waste
Oil contaminated water
Garbage and rubbish

Waste oil (more than 500,000 gallons/yr.) has been hauled from the plant and either reclaimed or disposed of as follows:

- | | | |
|----|--|---|
| 1. | Booth Oil
1950 to 1977 | 300,000 gallons/yr.
reclaimed |
| 2. | Chem-Trol (Porter)
1971 to 1975 | 200,000 gallons/yr.
disposed |
| 3. | Frontier Chemical Waste
Process, Inc. (Pendleton or
Niagara Falls)
1974 to 1977 | 20,000 gallons/yr.
reclaimed or disposed |
| 4. | Metalworking Lubricants
Birmingham, Michigan
1974 to 1975 | 50,000 gallons/yr.
reclaimed |
| 5. | Lancaster Sanitary Landfill
1970 to 1971,
1976 to 1977 | 30,000 gallons/yr.
disposed |
| 6. | Southgate Oil Service, Inc.
1977 to 1978 | 600,000 gallons/yr.
reclaimed |

Oil drums have been reclaimed by Harbison Bros. of Buffalo. (1975 to 1977) or disposed of at Newco Waste Systems in Niagara Falls (1977 to 1978).

Zinc primer sludge (3600 gallons/yr. in 1977 and 1978), ammonia sludge (50 gallons/yr. in 1977 and 1978) and cyanide wastes (100 gallons in 1977 and 1978) have been disposed of at Newco Waste Systems in Niagara Falls since 1977.

Oil sludge (at least 100,000 gallons/yr.) has been disposed of at Land Reclamation (1970 to 1974), Chem-Trol Pollution Services, Inc. in Porter (1971 to 1975), Lancaster Sanitary Landfill (1974 to 1977), Newco Waste Systems (1977 to 1978) and at an unknown site used by Northeast Oil Service (1977 to 1978).

Oil contaminated water (20,000 gallons/yr.) has been sent to Chem-Trol in Porter from 1971 through 1978).

Garbage and rubbish from the stamping plant has been disposed of at Land Reclamation (1970 to 1974 and 1977 to 1978), the Chaffee Landfill (1974 to 1977) and the Seaway Industrial Park (1972).

Ford does not have documentation describing the disposal of wastes before the earliest dates indicated above. However, the Environmental Representative of the Stamping Division has indicated to the Task Force that the company suspects that cyanide wastes may have been disposed of on plant premises at some unknown location.

GENERAL ELECTRIC COMPANY
Apparatus Service Division
175 Millens Road
Tonawanda

The General Electric Company, Apparatus Service Division, began operations in Erie County in 1928. Until 1969, the Division had a plant on 318 Urban Street in Buffalo. From about 1919 to 1972, GE also operated a manufacturing facility at 1495 Fillmore Avenue in Buffalo.

Since 1930, the Apparatus Service Division has repaired electric motors, transformers and mechanical units.

The primary wastes generated by the Apparatus Service Division are waste oil, grease and solvent, waste transformer oil, varnish, paint residue, sludges, wood and oil contaminated materials. Transformer oil is generated when transformers brought in for repairs are "untanked". Since 1965, some of the transformer oils disposed of have contained PCBs. These oils have been known under the name "Pyranol". Transformer oils not containing PCBs are known as "IOC" oils.

Before 1969, IOC transformer oil was burned in plant furnaces with heating oil. Since 1970, in the new plant, Booth Oil has hauled waste oil, grease, solvent and IOC transformer oil from the Apparatus Service Division. In 1976, 12,000 gallons of IOC transformer oil and 800 gallons of contaminated oil, grease and solvent were hauled by Booth Oil. Since 1975, Chem-Trol has hauled Pyranol, varnish and oil contaminated material. Between 1975 and 1978, Chem-Trol hauled 2530 gallons per year of Pyranol and 62 55-gallon drums of solid oil contaminated material. The Buffalo Sanitary Service Company of Clinton Street, West Seneca, has hauled paint residues and sludges.

In the spring of 1978, Chem-Trol advised General Electric that it would no longer haul PCB contaminated waste transformer oil. The company is now storing such oil in a tank on premises pending the identification of a new disposal site. The company does not know where Pyranol was disposed of before 1975.

General Electric's Fillmore Avenue facility produced miniature bulbs for Christmas trees and side and rear automobile lights, radio tubing and proximity fuses during World War II, TV picture tubes after 1946 and rectifiers and transistors until the plant was closed in 1972. The plant wastes included neutralizing solutions, electroplating wastes, solder wastes and oils, paper, wood, metal and off-specification products.

As part of the 1972 Erie and Niagara Counties Comprehensive Solid Waste Survey, the company indicated that Downing Container hauled 156 tons per year of paper, wood, and metals and Frontier Chemical Company hauled 6,500 gallons per year of waste oil from the plant. One 55 gallon drum per year of radioactive materials was also hauled to New Jersey from the plant.

THE GOODYEAR TIRE & RUBBER COMPANY
5408 Baker Avenue
Niagara Falls

The Goodyear Tire & Rubber Company was founded and incorporated in Ohio in 1898. In 1946, Goodyear began operations in Niagara Falls.

Several processes have been used at the plant including polyvinyl chloride emulsion resin polymerization (since 1946), polyvinyl chloride suspension resin polymerization (since 1952), rubber chemical accelerator manufacturing (since 1954) and rubber chemical antioxidant manufacturing (since 1958). The products include polyvinyl chloride emulsion resin (since 1946), polyvinyl chloride suspension resin (since 1952), accelerators (since 1954) and antioxidants (since 1958).

The company has generated the following wastes:

- Iron catalyst salts
- Accelerator sewer sumps
- Polyvinyl chloride emulsion berries and skins
- Polyvinyl chloride floor sweepings
- Thiazole polymer blends
- Elemental sulfur
- Ortho-ditolyl thiourea
- Ortho-toluidine mixture
- Waste Oils

From approximately 1948 to 1967, Walter S. Kozdranski Company, Inc. of Niagara Falls hauled 1,975 tons of iron catalyst salts, 1,000 tons of accelerator sewer sumps, 8,625 tons of polyvinyl chloride emulsion berries and skins and 3,450 tons of polyvinyl chloride floor sweepings to the Olin Chemical dump on River Road near 102nd Street in Niagara Falls. In addition, Goodyear itself hauled 1,300 tons of thiazole polymer blends to the River Site east of and adjacent to the Olin dump from approximately 1955 to 1967.

Intermittently from 1968 to 1976, Modern Disposal Services hauled 450 tons of thiazole polymer blends, 1,900 tons of iron catalyst salts, 475 tons of accelerator sewer sumps, 2,850 tons of polyvinyl chloride emulsion berries and skins and 1,150 tons of polyvinyl chloride floor sweepings to the Niagara County at Witmer Road in Wheatfield.

From 1968 to 1978, Modern Disposal hauled 650 tons of thiazole polymer blends, 1,340 tons of iron catalyst salts, 355 tons of accelerator sewer sumps, 1,790 tons of polyvinyl chloride emulsion berries and skins and 725 tons of polyvinyl chloride floor sweepings to its disposal site in Model City.

Furthermore, intermittently from 1976 to 1978, Modern Disposal hauled 60 tons of iron catalyst salts, 20 tons of accelerator sewer sumps, 60 tons of polyvinyl chloride emulsion berries and skins and 25 tons of polyvinyl chloride floor sweepings to the Niagara County dump in Lockport.

Finally, in April, 1978 and August, 1978, Modern Disposal and Lorber Truck Service, Inc., of Kenmore hauled 140 tons of elemental sulfur and 48 tons of ortho-ditolyl thiourea and ortho-toluidine mixture to Newco Chemical Waste Systems in Niagara Falls.

Waste lubricating and hydraulic oils have been hauled away from Goodyear by Booth Oil Company of North Tonawanda.

GREAT LAKES CARBON CORPORATION
5600 Pine Avenue
Niagara Falls

The Great Lakes Carbon Corporation was incorporated in Delaware in 1939. It began operations at its present location in Niagara Falls in 1939.

The manufacturing processes used at the facility include carbon extrusion, baking of green carbon, pitch impregnation, graphite conversion and stock finishing. The main products produced since 1939 include carbon electrodes, graphite shapes, amorphous carbon cathodes and shapes, granular carbon, pastes and resin, and tar based cement.

The main waste products generated at the facilities include carbon, graphite and coal dust, miscellaneous debris (including brick, concrete, castable, solid pitch, coke, sand, carbon fines and charred wood) and paper, wood and cardboard.

From 1939 to 1966, these wastes were disposed of on plant premises north of Pine Avenue between the two main concentrations of company buildings. From 1958 to 1971, the same wastes were hauled by Friona Brothers, Inc. to the Union Carbide dump now owned by Newco in Niagara Falls. Since May 1971, the wastes have been hauled by Modern Disposal, Inc. to its disposal site in Model City.

The amounts of waste disposed before 1971 are not known by the company. However, since 1971, the amounts of waste generated have been as follows:

Paper, wood and cardboard	2400 cu. yds./yr.
Dusts	2400 cu. yds./yr.
Debris (1971-76)	12,000 cu. yds./yr.
(1976-78)	8,880 cu. yds./yr.

In addition to the above, in November 1976, Chem-Trol Pollution Services took four 55-gallon drums of Inerteen capacitors from Great Lakes to its Porter disposal facility. Inerteen is a PCB. The company indicated that such capacitors were first acquired in 1974 and were only disposed of on that one occasion.

HANNA FURNACE CORPORATION
1818 Fuhrmann Boulevard
Buffalo

The Hanna Furnace Corporation was founded and incorporated in 1900 in New York. The company began operations in Erie County between 1901 and 1902.

The production process used at the plant from 1930 to 1975 include the use of blast furnaces to produce pig iron. Wastes generated as a result of this process include blast furnace slag, dry and wet flue dust and general plant wastes such as sand, brick, coke, lumber, concrete and iron scrap.

Estimated amounts of waste generated at Hanna Furnace:

	<u>Tons Per Year</u>	<u>Total Tons (since 1930)</u>
Blast furnace slag	200,000	9,000,000
Dry flue dust	10,000	450,000
Wet flue dust	7,000	245,000
General plant wastes (sand, brick, coke, lumber, concrete, iron scrap)	5,000 (est.)	225,000

Blast furnace slag is sold to the Buffalo Slag Co. for reclamation. Dry flue dust is open air stored on plant property to the northeast of the plant buildings or sold for reclamation. Wet flue dust is open air stored in a pit on plant property due north of plant buildings across the Union Canal. General plant wastes are land disposed due east of the wet flue dust storage area.

The company also operates an incinerator for burnable waste. Incinerator ashes are subsequently land disposed at the site for general plant waste or are sold to Buffalo Slag for use as fill. Sanitary wastes produced at the plant are hauled away by Joe Ball Sanitation. In addition, Hanna Furnace disposes of approximately 60,000 cubic yards of material dredged from Union Canal in the same on-site landfill used for general plant refuse.

HARRISON RADIATOR DIVISION
General Motors Corporation
56 Clyde Avenue
Buffalo

The General Motors Company was incorporated in New Jersey in 1908. The present company, the General Motors Corporation, was

incorporated in Delaware in 1916. The Harrison Radiator plant at Clyde Avenue in Buffalo began operations in 1946. It is known as the Harrison Plant No. 3.

Plant products have been miscellaneous steel parts and automobile heaters (since 1946) and plastic automotive parts (since 1969).

Processes used since 1946 are metal forming (press stamping), metal joining (welding, soldering), metal cleaning and painting. Plastic injection molding began in 1969.

Wastes produced are waste oils, paint sludge, various spent degreasing solvents (i.e., trichloroethylene, toluene, xylene and "SC-100") caustic paint stripping solutions, garbage, cardboard, paper, wood, rubber, plastics and non-salvageable metals such as steel bands, drums, cans and wire.

10,800 gallons per year of 80-90% oil/water mixture (lube, hydraulic, cutting and emulsified oil) have been hauled away by Frontier Chemical Waste Process, Inc. on Royal Avenue in Niagara Falls.

10,650 gallons per year of flocculated paint solids and unknown amounts of spent degreasing solvents have been hauled to Newco Chemical Waste Services, Inc. by Frontier Chemical Waste Process, Inc.

3000 gallons per year of water solution containing caustic base paint stripper and paint solids have been hauled by Superior Pipe Cleaning, Inc. to the Chem-Trol site in Porter.

Total amounts per year* of the following wastes are produced:

Garbage	25 tons
Cardboard	800 tons
Paper	125 tons
Wood	112 tons
Rubber	2.5 tons
Plastics	58 tons
Other solids	50 tons
Kolene sludge	3,000 gallons
Drums, cans, bands and wire	8 tons

* GM Industrtrial Solid Waste Inventory for the year 1973.

These materials were hauled by company trucks to the Lockport City Landfill, Oakhurst Street, Lockport until 1969. Since 1969, the wastes have gone to the Niagara County Landfill, Richfield Street, Lockport and the Lancaster Landfill on Gunnville Road, Lancaster.

HARRISON RADIATOR DIVISION
General Motors Corporation
Walnut and Washburn Streets
Upper Mountain Road
Lockport

The General Motors Company was incorporated in New Jersey in 1908. The present company, the General Motors Corporation, was incorporated in Delaware in 1916. The Harrison Radiator Division has three plants in Lockport:

Plant No. 1	Walnut and Washburn Streets	Since 1917
Plant No. 2	Upper Mountain Road	Since 1938
Plant No. 4	Upper Mountain Road	Since 1960

The three plants are treated collectively in this description.

Harrison Radiator has manufactured automotive radiators (since 1930), heaters (since 1930), thermostats (since 1930), transmission oil coolers (since 1945) and air conditioners (since 1955). Processes used since 1930 at the plant include metal forming, metal joining, metal cleaning and painting and, since 1958, plastic compression and injection molding.

The following wastes have been generated at these plants:

Cardboard, waste paper, non-salvageable metals, rubber,
wood, plastics and glass
Waste treatment tank cleaning
Wastewater treatment sludge
Waste oils
Chlorinated solvent waste
Polyester resin
Plaint sludges
Fly ash
Mercury

Harrison indicated as part of the Industrial Chemical Survey that it used toluene, xylene, vinyl toluene, methylene chloride, tetrachloroethylene, aromatics and "SC-100" as solvents.

Cardboard, waste paper, non-salvageable metal, rubber, wood, plastics and glass were disposed of at the City of Lockport landfill off Oakhurst Street until 1969 and at the Niagara County Refuse Disposal District site in Lockport since 1969. In 1974, the company estimated that it was generating approximately 12,500 tons per year of this waste although some part of that total was recycled and not landfilled.

Waste treatment tank cleaning sludges from the annual maintenance clean out have been hauled by Frontier Chemical to Newco Waste Systems in Niagara Falls for disposal. In 1977, 25,000 gallons of these wastes were generated.

Harrison indicated to the Task Force that wastewater treatment sludge has, since 1969, been disposed of at the Niagara County Refuse Disposal District site in Lockport. In 1978, Harrison indicated to DEC that it was generating 4.5 million gallons per year of wastewater treatment sludge and that this sludge was being stored in lagoons on premises until the question of its final disposal was resolved. Internal Harrison Radiator documents made available to the Task Force indicate that in 1974, it was generating 19,413 tons of sludge and disposing of this sludge in a "municipal" landfill.

Waste oils (196,150 gallons/yr.), chlorinated solvent waste (39,300 gallons/yr.) and polyester resin (660 gallons/yr.) have been hauled from Harrison Radiator by Frontier Chemical for blending into fuels.

Paint sludges (67,600 gallons/yr. in 1977) have been hauled by Frontier Chemical to Newco Waste Systems for disposal.

Fly ash (375 tons/yr. in 1974) has been hauled from the plant by the New York State Department of Transportation for use on icy roads.

Mercury (50 pounds/yr. in 1974) has also been hauled from the plant by Hoover E. Strong of 119 West Pepper Street in Buffalo.

HOOKER CHEMICALS AND PLASTICS CORPORATION
Buffalo Avenue, Niagara Falls
Walck Avenue, North Tonawanda
Long Road, Grand Island

Hooker Chemicals and Plastics Corporation was founded in 1906 as the Development and Funding Company. It has since been known as Hooker Electrochemical Company (1909 to 1958), Hooker Chemical Corporation (1958 to 1974) and Hooker Chemicals and Plastics Corporation (since 1974). Hooker is a subsidiary of the Occidental Petroleum Company.

Hooker acquired three firms during the 1950s. In 1955, Durez Plastics and Chemicals, North Tonawanda, and Niagara Alkali Chemical Company, Niagara Falls, were acquired. Oldbury Electrochemical Company, Niagara Falls, was acquired in 1956.

I. Buffalo Avenue Plant

The Buffalo Avenue plant produces a wide variety of inorganic and organic compounds. Over 250 chemicals, many with numerous variations, have been produced since 1930. The major products

are chlorine, caustic soda, chlorotoluenes, dechlorane plus, halogenated organics such as parachlorobenzotrithloride (PCBTC) and parachlorobenzotrifluoride (PCBTF) and various sulfur and phosphorus compounds.

A large number of organic compounds made at the Buffalo Avenue plant are no longer produced. Mirex (dechlorane) was actively produced until 1967 although grinding and packaging operations continued until 1975. For a very short time, Hooker also produced pilot scale quantities of kepone, a compound very similar in structure to mirex.

Both mirex and kepone are also derivatives of hexachlorocyclopentadiene (C-56). Hooker produced C-56 itself on-site from 1949 to 1975. Other derivatives of C-56 which Hooker produced in the past include thiodan (endosulfan) (1958 to 1975), a major pesticide product, dechlorane 602 and 604, fire retardant chemicals and chlorendic acid, also a fire retardant chemical.

In the past Hooker also produced trichlorobenzene and tetrachlorobenzene by the chlorination of benzene. At least one isomer of trichlorobenzene, the 1,2,4 isomer, is regarded as a pesticide.

From 1946 to 1975, Hooker also produced major quantities of hexachlorocyclohexane (C-66) by the chlorination of cyclohexane. The gamma isomer of C-66 was marketed under the trade name Lindane. A mixture of all four known isomers was marketed under the trade name Isotox.

Until approximately 1971, Hooker produced major quantities of trichloroethylene on-site by the chlorination of acetylene.

Organo-phosphorous pesticides were produced until approximately 1971. Trichlorophenol was produced from 1949 to 1972. These operations used large quantities of phenolic compounds. A major contaminant in the production of trichlorophenol is TCDD, a highly toxic dioxin.

In 1943, Hooker also conducted an operation for the slag recovery of uranium bearing materials as the precursor to uranium recovery. This operation took place on a part of the Hooker facility adjacent to the New York Central Railroad.

From 1951 to 1953, Hooker operated the Niagara Falls Army Chemical Plant on Buffalo Avenue in Niagara Falls. The plant produced clothing impregnate (with chlorinated phenyl urea). From 1954 to 1958, Hooker operated a boron isotope separation plant at the Lake Ontario Ordinance Works.

Numerous production processes have been used since 1930 at the Buffalo Avenue Plant. These are generally the standard unit operations and processes commonly used by the chemical process industries. Typical processes include diaphram and mercury

chlorine cells (since 1930), chlorate cells (since 1930), nitrations (since 1930), sulfonation (since 1930), hydrofluorinations and fluorinations (since 1945), esterification/polymerization (since 1973), transesterifications (1960 to 1970), diels-alder condensations/dimerization of hexachlorocyclopentadiene (C-56) (since 1953) and chlorinations, hydrochlorination and dehydrochlorinations of organic materials (since 1930).

The Buffalo Avenue plant has generated the following types of industrial wastes:

1. Benzylchlorides (includes benzal chloride, benzyl alcohol and benzyl thiocyanate (1930 to 1967)
2. Thiodan (Endosulfan) 1958 to 1975)
3. Sodium sulfides/sulphydrates (1939 to 1975)
4. Hexachlorocyclopentadiene (C-56) (1949 to 1975)
5. Hexachlorocyclohexane (Lindane/BHC/HGI) (1946 to 1975)
6. Chlorobenzenes (1930 to 1974)
7. Benzoyl chlorides (1930 to 1975 and benzotrichlorides (1930 to 1967)
8. Benzotrichlorides (1968 to 1975)
9. Liquid disulfides (LDS/LDSN/BDS) and chlorotoluenes (1930 to 1967)
10. HCl purification and chlorotoluenes (1967 to 1975)
11. Metal chlorides (1930 to 1967)
12. Benzotrifluorides (organic residues) (1960 to 1975)
13. Calcium fluorides (from benzotrifluorides (1973 to 1975)
14. Benzotrifluoride derivatives (1965 to 1975)
15. Dodecyl (Lauryl, Lorol), mercaptans (DDM), chlorides and miscellaneous organic sulfur compounds (1940 to 1975)
16. Trichlorophenol (TCP) (1949 to 1972)
17. Thionyl chloride and miscellaneous sulfur/chloride compounds (1930 to 1975)
18. HET acid, anhydride and HETRONS (1953 to 1975)
19. Miscellaneous chlorination (includes waxes, oils, naphthalenes and aniline)
20. Miscellaneous acid chlorides other than benzoyl (includes acetyl, caprylyl, butyryl and nitro benzoyls)
21. Dechlorane (Mirex)
22. C-56 Derivatives (includes Dechlorane Plus, Dechlorane 602, Dechlorane 604 and Pentac)
23. Phenol tars containing chlorobenzenes (from Durez)
24. Organic phosphorus compounds (including phosphites, phosphonates, acid phosphates and thiophosphates)
25. Phosphorus and inorganic phosphorus derivatives other than sodium hypophosphite (includes chlorides and sulfides)
26. Sodium hypophosphite
27. Brine sludge from the mercury abatement process
28. Miscellaneous waste materials including:

- a. Off-grade process material
- b. Pilot plant and semi-commercial wastes
- c. Transformer oils and cleaning solvents
- d. Byproducts from defense projects during World War II.

The plant also generated fly ash, gypsum, slag, cell components, brine sludge (except from mercury abatement), construction debris and general plant refuse.

The uranium slag recovery operation generated radioactivity, which, in 1976, the federal government found to be at levels within federal and state standards for unrestricted use. The operation of the Niagara Falls Army Chemical Plant generated inorganic acid wastes, organic distillation residues, floor sweepings, filter cloth, trichloraniline, hydrochloride still and zinc oxide. Neither Hooker nor the federal government indicated the nature of wastes generated at the boron isotope plant and where such wastes were disposed of.

Many disposal sites were used for the disposal of industrial wastes. These sites are described below. The number following the type of waste refers to the 28 classes of waste identified above. The figures for total quantity of waste deposited at each site were derived by Hooker from past disposal records, production figures and residue factors and statements by current and former employees. These figures do not have a high degree of accuracy. However, they do give an indication of the magnitude of waste quantities disposed of at each site.

A. Company owned sites

1. Love Canal (97th to 99th Streets, Niagara Falls)

Hooker used the Love Canal as a disposal area for industrial wastes from approximately 1942 to 1952. Hooker purchased the 16 acre Love Canal parcel in 1947 from Niagara Power and Development Company but used the site for the five years prior to purchase pursuant to a written letter agreement with Niagara Power and Development Company. In 1953, Hooker sold the Love Canal site to the Niagara Falls Board of Education. The types of industrial wastes disposed of by Hooker at Love Canal are listed below:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Misc. acid chlorides (20)	400 tons
Thionyl choride (17)	500 tons
Misc. chlorinations (19)	1,000 tons
DDM (15)	2,400 tons
TCP (16)	200 tons

Benzoyl chloride (7)	800 tons
Metal chlorides (11)	400 tons
LDS/MCT (9)	700 tons
BHC (5)	6,900 tons
Chlorobenzenes (6)	2,000 tons
Benzyl chlorides (1)	2,400 tons
Sulfides (3)	2,100 tons
Misc. 10% of above	<u>2,000 tons</u>
Total	21,800 tons

Wastes brought to the Love Canal were transported and dumped as liquids, solids or semi-solids in metal or fibre drums. Records indicate that material was placed in that site in drums and emptied into the Canal from the drums. The drums were later transported from the site or placed in the Canal empty of wastes. In addition, the Task Force learned that bulk quantities of liquid and solid industrial wastes were deposited directly into the Canal.

Haulers used to transport wastes for disposal at Love Canal were Hooker Electrochemical Company, Carl Wagner Trucking of Niagara Falls, Young's Trucking and a firm called Lasher with which a Mr. McArdle was associated. The Lasher firm is apparently no longer in existence.

Records indicate that all industrial wastes deposited by Hooker at the Love Canal were generated by its original Niagara Falls facility and did not come from Niagara Alkali Chemical Company, Oldbury Electrochemical Company or Durez Plastics and Chemicals, Inc., which at that time were not part of Hooker. Furthermore, the Task Force has not been able to identify any other entities, except the City of Niagara Falls, that disposed of wastes at the Canal. The Army indicated to the Task Force that Hooker contracted with Carl Wagner to haul wastes from the Niagara Falls Army Chemical Plant to a Hooker owned site. These wastes were, in all likelihood, disposed of at the Love Canal since (a) Love Canal was in use when Hooker was operating the Army Chemical plant; (b) waste type 19 including chloroanilines that could have been generated at the Army Chemical Plant was disposed of at the Love Canal and (c) Carl Wagner Trucking hauled Hooker wastes to Love Canal.

2. Hyde Park (Hyde Park Boulevard, Town of Niagara)

Hooker acquired the Hyde Park site and used it as a disposal site for industrial wastes after the closing of Love Canal in 1953 to August 1975. The site comprises approximately 15 acres. Hooker still owns the site today.

Hooker disposed of the following types of industrial wastes at Hyde Park:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Calcium fluoride (13)	400 tons
Mercury brine sludge (27)	100 tons
C-56 derivatives (22)	4,500 tons
Organic phosphates (24)	4,400 tons
Hypo mud (26)	1,000 tons
Inorganic phosphates (25)	100 tons
Misc. acid chlorides (20)	1,200 tons
Dechlorane (21)	200 tons
BTC (8)	1,700 tons
Chlorotoluenes (10)	1,700 tons
HET acid (18)	2,100 tons
Misc. chlorinations (14)	1,600 tons
BTF derivatives (14)	2,900 tons
DDM (15)	4,500 tons
TCP (16)	3,300 tons
BTF (12)	5,600 tons
Benzoyl chloride (7)	6,200 tons
LDS/MCT (9)	900 tons
Metal chlorides (11)	100 tons
C-56 (4)	1,100 tons
BHC (5)	2,000 tons
Chlorobenzenes (6)	16,500 tons
Benzyl chloride (1)	3,400 tons
Thiodan (2)	1,000 tons
Sulfides (3)	6,600 tons
Misc. 10% of above	7,300 tons
Total	80,200 tons

In addition, when Frontier Avenue was relocated to make room for the LaSalle Expressway in 1968, approximately 200 cubic yards of soil and wastes from the lower section of Love Canal were excavated and transported to Hyde Park for disposal.

Wastes brought to Hyde Park were land disposed generally in pits and were transported and dumped as liquids, solids or semi-solids. Material was placed in the site in drums, emptied from drums which were then returned to the plant or dumped directly into the site as bulk liquids or solids. Some of the liquid waste was mixed with fly ash prior to final disposal. In addition, plant rubbish was also disposed of at the Hyde Park site.

Hooker, Carl Wagner Trucking, Walter S. Kozdranski Co., Inc. of Niagara Falls and J. Vitullo Trucking, also of Niagara Falls, transported wastes to Hyde Park. There is no indication that Hooker allowed other firms or municipalities to use the Hyde Park site for waste disposal.

3. 102nd Street (Buffalo Avenue, Niagara Falls)

Hooker used the 102nd Street site to dispose of industrial wastes from prior to 1943 until approximately 1971. They still own the site today. The site is approximately 20 acres in size and is comprised of two parcels which were owned by Oldbury Electrochemical, one parcel owned by Niagara Alkali, and one parcel owned by Hooker. In addition, this site is bordered on the west by Griffon Park and on the east by a dump site owned by the Olin Corporation. The following types of industrial waste disposed of at this site:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Organic phosphites (24)	100 tons
Sodium hypophosphite (26)	20,000 tons
Inorganic phosphates (25)	900 tons
BHC cake (including Lindane) (5)	300 tons
Chlorobenzenes (6)	100 tons
Misc. 10% including other chlorinated organics	2,100 tons
Total	23,500 tons

Cell parts and equipment, brine sludge, fly ash and garbage were also dumped at this site.

Wastes were dumped in bulk or in drums as solids, semi-solids or liquids. A Hooker document indicates that the Hooker parcel of the 102nd Street site was used prior to the Love Canal for the disposal of solid and drummed residues. Among the wastes dumped were benzoyl chloride, thionyl chloride, chlorinated waxes, polychlorinated naphthalenes, hydrochloric acid, antimony chloride, benzoic acid, benzoate of soda and caprylyl chloride. Hooker, however, maintains that this site was not used prior to Love Canal. Furthermore, no firms, other than Hooker and its affiliates, used this site for waste disposal.

4. River Site (S and N Areas) (Buffalo Avenue, Niagara Falls)

This site is located on the Niagara Falls plant west of the Niagara Falls water treatment plant and north of the Robert Moses Parkway. The size of the site is approximately 16 acres. Hooker used this site for industrial waste disposal from approximately 1947 to 1975. Major disposal operations were phased out about 1961 although disposal of sulfur/chlorine residues (waste class 17) continued up to about 1967 and equipment cleaning operations continued up to 1975.

Hooker disposed of the following types of wastes at the River site:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Organic phosphates (24)	200 tons
Misc. acid chlorides (20)	400 tons
Phenol tars (23)	800 tons
Thionyl chloride (17)	4,200 tons
HET acid (18)	500 tons
Misc. chlorinations (19)	400 tons
DDM (15)	8,100 tons
TCP (16)	200 tons
Benzoyl chloride (7)	3,300 tons
LDS/MCT (9)	2,200 tons
Metal chlorides (11)	900 tons
C-56 (4)	17,400 tons
Chlorobenzenes (6)	18,900 tons
Benzyl chlorides (1)	1,600 tons
Thiodan (2)	700 tons
Sulfides (3)	4,200 tons
Misc. 10% of above	6,400 tons
Total	74,400 tons

Hooker documents also indicate that benzene hexachloride and Lindane filter cake were disposed of in the N Area.

The River Site was used for disposal of slag, fly ash and gypsum and was also a staging area for drums destined for disposal at Love Canal. The phenol tars containing chlorinated benzenes disposed of at this site were generated at the Durez facility. The site was apparently not used by companies other than Hooker.

Disposal practices of the River Site included bulk dumping of liquids, solids and semi-solids. Trenches were dug and material was placed directly in them or placed in the trenches in drums. Hooker documents also indicate that tank cars were buried in this site.

No waste haulers were used other than Hooker and its affiliates. However, the site was filled sometime after 1938 when it was still under the Niagara River.

5. Miscellaneous On-Plant Disposal Sites (Buffalo Avenue, Niagara Falls)

a. D Area

The D Area was used as a disposal site by Hooker from approximately 1930 to 1942. Hooker documents indicate that there may have been two disposal sites in the D Area.

Wastes were dumped as liquids, solids or semi-solids, in bulk or drummed quantities. The types of industrial waste disposed of at this site are listed below:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Misc. acid chlorides (20)	200 tons
Thionyl chloride (17)	400 tons
Misc. Chlorinations (19)	500 tons
Benzoyl chlorides (7)	800 tons
LDS/MCT (9)	800 tons
Metal chlorides (11)	100 tons
Benzyl chloride (1)	800 tons
Sulfides (3)	200 tons
Misc. 10% of above	<u>400 tons</u>
Total	4,200 tons

Hooker and its affiliates were the only haulers to transport waste to this site and apparently other firms did not use this site.

b. F Area

The F Area was used as a disposal site from approximately 1930 to 1946. Again, wastes were dumped as liquids, solids or semi-solids, in bulk or drummed quantity. The wastes disposed of at this site are listed below:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
DDM (15)	100 tons
Chlorobenzenes (6)	<u>1,400 tons</u>
Total	1,500 tons

Some of the chlorobenzene material was excavated and moved to the River Site (S and N areas). Waste contractors were not required for disposal at this site and apparently other companies did not dispose of wastes at this site.

c. V Area

Three sites were used for disposal in the V area: V-56, V-64 and V-80. V-56 was first used in 1930. It is not known when use of this site was discontinued. There is little information on the period of use of the V-64 site. Apparently this site was used as a ground level dewatering area. The V-80 site was used from 1968 to May 1978.

Wastes disposed of at these sites were dumped as liquids, solids or semi-liquids, in bulk or drum quantity. The method of disposal is not clear from Hooker documents, but is believed to include pits and ground level dumping. Haulers other than Hooker and its affiliates were not needed to transport wastes to these sites.

The types of industrial waste disposed of at the V area sites are listed below:

(1) V-80

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Phosphorus pentachloride	250 tons
Phosphorus trichloride	25 tons
Phosphorus pentasulfide	
Scrap phosphorus	
THPC	
THPS	
Benzoyl peroxide	
Aluminum phosphide	
Carbon disulfate	
Hepta sulfide	
Phosphoric acid	
Total	400 tons

(2) V-56

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Phosphorus liquid and solid	<u>200 tons</u>
Total	200 tons

d. U Area

Niagara Alkali operated two settling basins in this area for dewatering brine sludge. The years of operation of this site are not known. This sludge was removed periodically. Hooker documents indicate that this waste was disposed of at the 102nd Street site. Hooker documents also indicate that this area may contain some caustic, trichloroethylene and asbestos. However, the nature and quantity of these materials are not known.

e. Fine Chemicals Waste Lagoon

This site is located in the area where buildings D-11 and D-21 are now located. Very little information is known about this site, but it was apparently used during the 1930s and 1940s. Hooker documents indicate that liquid benzoyl chloride and other liquid residues were disposed of in these lagoons. However, the quantities and composition of these wastes are not known.

f. W-107

This site was apparently used as a ground level dewatering area. However, the years of operation of this site and the nature and quantity of wastes is not known.

B. On-Site Waste Treatment

1. Residue Reactor (Incinerator)

A patented residue reactor (incinerator) system for the destruction of bulk liquid organic residues was started up in late 1961 in Area 3 of the Niagara Falls plant. It is still operating today. Wastes from Hooker's Montague, Michigan C-56 operation were destroyed in the residue reactor from 1963 to 1972. The quantity of this waste is estimated to be about 900 tons and was included in the figure for waste class (4) below. The types and quantity of wastes disposed of at this facility from 1961 to 1975 are listed below:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
BTCs (8)	9,300 tons
Chlorotoluenes (10)	25,200 tons
HET acid (18)	3,400 tons
Benzoyl chloride (7)	23,400 tons
C-56 (4)	28,100 tons
Chlorobenzenes (6)	43,400 tons
Thiodan (2)	23,100 tons
Misc. 10% of above	15,600 tons
Total	171,500 tons

Hooker has recently received a DEC permit to incinerate the following types of industrial waste in its residue reactor:

Benzal chlorides	Formaldehyde
Benzoic acid	Hexachlorocyclopentadiene
Benzoic anhydride	Hexachloropentadiene
Benzotrichloride	High boilers
Benzoyl trichloride	Methanol
Benzyl chlorides	Monochlorotoluene
Chlorobenzotrichloride	Orthochlorotoluene
Chlorotoluenes	Parachlorobenzoyl chloride
Dechlorane plus	Parachlorotoluene
Dichlorobenzotrichloride	Pentac
Perchloroethylene	Tetrachlorothiathrene
Toluene	Trichlorotoluene
Water and water contaminated with lubricating oil	

Hooker has indicated that no wastes were land disposed at the site of the residue reactor.

2. Other Treatment

An incinerator near the existing boiler house was used during the late 1940s to destroy sulfur containing wastes. However, Hooker has indicated that records of the composition and

quantity of wastes disposed and a description or operation of this unit have not been found.

Two ponds are currently in use in the S area. These ponds are used for the neutralization of hydrofluoric acid with lime. The resulting calcium fluoride sludge is being landfilled at Newco Waste Systems.

No separate recovery units, other than those within individual processes are operated at the Niagara Falls plant.

Finally, several refuse incinerators have been used at the Buffalo Avenue plant.

C. Off-Plant Waste Disposal Sites

1. Chem-Trol (Blasdell)

The Chem-Trol site in Blasdell was used by Hooker in 1971 for the disposal of an estimated 200 tons of bulk liquid hexachlorocyclopentadiene (C-56) and less than 100 tons of miscellaneous industrial wastes. Chem-Trol was contracted by Hooker to haul the above wastes to the Blasdell site.

2. SCA (Chem-Trol) (Porter)

Hooker used Chem-Trol to dispose of a substantial quantity of industrial waste from 1972 to 1975. The material was hauled by Hooker and Chem-Trol and included liquid, solid and semi-solid wastes in bulk or drummed quantities. The industrial wastes disposed of at Chem-Trol during the period 1972 to 1975 are listed below:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Calcium fluoride (13)	100 tons
Mercury brine sludge (27)	2,800 tons
C-56 derivatives (22)	2,000 tons
BTC (8)	300 tons
Chlorotoluenes (10)	200 tons
HET Acid (18)	100 tons
BTF derivatives (14)	1,200 tons
DDM (15)	500 tons
TCP (16)	100 tons
BTF (12)	5,100 tons
Benzoyl chlorides (7)	700 tons
C-56 (4)	300 tons
BHC (5)	200 tons
Chlorobenzenes (6)	100 tons
Thiodan (2)	100 tons
Sulfides (3)	100 tons
Misc. 10% of above	<u>1,300 tons</u>
Total	14,600 tons

The quantity of waste material disposed of at Chem-Trol has been substantially reduced since 1976 because of the start-up and operation of Newco Waste Systems in Niagara Falls. However, in 1976 approximately 9,000 tons of wastewater containing sulfuric acid and heavy metals, and about 700 tons of mercury sludge were disposed of at Chem-Trol. In 1977 approximately 1,000 tons of mercury sludge was sent to Chem-Trol for disposal.

3. Newco Waste Systems

Since Newco began operations in August 1976, it has been Hooker's major off-premises disposal site for industrial waste. Hooker transports most of the waste to Newco including bulk or drummed quantities of liquids, solids and semi-solids. The total quantity of industrial waste disposed of at Newco is estimated to be over 2,500 tons. The waste types are similar to those previously disposed of at Chem-Trol.

In addition, Hooker has contracted with Tricil Waste Management Limited of Mississauga, Ontario through Newco to dispose of liquid chlorinated organics and wastewaters which Newco is unable to handle.

4. Niagara Recycling (Niagara Falls)

Niagara Recycling is part of the Newco conglomerate. Hooker has used Niagara Recycling since 1974 to dispose of about 10,000 tons of sodium hypophosphite and over 100,000 tons of calcium fluoride sludge. Wizard Methods of Niagara Falls hauls the calcium fluoride sludge to Niagara Recycling. Niagara Sanitation and Niagara Recycling have transported the sodium hypophosphite mud. Both of these wastes are transported in bulk containers. Fly ash has also been disposed of at this site.

5. Niagara County Refuse District (Witmer Road, Wheatfield)

Hooker used this site from 1970 to 1972 to dispose of bulk quantities of sodium hypophosphite mud. An estimated 5,700 tons of the material was transported to this site for Hooker by Niagara Sanitation.

6. Robert Moses Parkway (Niagara Falls)

This site is located on property owned by PASNY, approximately 200 yards west of the intake structures, between the Robert Moses Parkway and the Niagara River. Its location was identified to a member of the Task Force by a private citizen who was involved in PASNY's major construction projects in Niagara Falls in the late 1950s and early 1960s. This person indicated that this site was used as a "one-shot" disposal site for approximately 200 to 300 drums of unknown chemical wastes from Hooker in or about 1963. Hooker has not confirmed the existence of this disposal site.

7. Silbergeld Junk Yard (14th Street, Niagara Falls)

Scrap metals from Hooker and Oldbury Electrochemical was disposed of at this site from the mid-1930s to mid-1950s. Hooker maintains that none of this scrap contained any chemical waste.

8. Miscellaneous Out-of-State Facilities

Ohio Liquid Disposal, Freemont, Ohio, has recently been used to dispose of several hundred thousand gallons of sulfuric acid, hexachlorocyclopentadiene and several million gallons of leachate from Hooker's Hyde Park landfill. Ohio Liquid Disposal transports this material to Ohio for deep well disposal. In addition, Rollins Environmental Services, Bridgeport, New Jersey, has been used occasionally to dispose of a few tons of pentac contaminated clothing.

II. North Tonawanda Plant - Durez Division

The Durez Division plant has produced a wide variety of products since 1930. The products and the years of production are listed below:

1. Penolic resin and pulverized phenolic resins (since 1930)
2. Phenolic, polyester, and diallylphthalate molding compound (since 1930)
3. Formaldehyde (since 1947)
4. Para-tertiary octyl phenol (since 1946)
5. Hexamethylenetetramine (since 1963)
6. Zinc stearate and calcium stearate wax (since 1947)
7. Phenol (1940 to 1971)
8. Recovered phenol (since 1941)
9. Polyester resin (1957 to 1975)
10. "Hetrofoam" (since 1960)

Numerous processes are used to produce these products. These processes are generally the standard unit operations and processes commonly used by the chemical process industry, including chemical reactions, oxidation, dehydration, chlorination, hydrolysis (discontinued in 1971), esterification, styrenation, mixing, rolling, grinding and screening.

The Durez Division has generated the following types of industrial waste:

1. Alkyl and diallylphthalate molding compound
2. Calcium aluminum oxide
3. Calcium phosphate
4. Caustic wastewater
5. Copper aluminum oxide
6. Epoxy resins

7. "Hetrofoam"
8. Hexamethylenetetramine
9. Off-specification or rejected product
10. Oil sludge
11. Other phenol bearing materials including liquid resins
12. Other phenol tar
13. Para-tertiary octyl phenol wash water
14. Phenol plant tars containing chlorinated benzenes
15. Phenolic molding compound
16. Phenolic resin
17. Polyester resin
18. Solvents (toluene, xylene and methanol)
19. Spent silver catalyst
20. Waste oil
21. Waxes (zinc stearate or calcium stearate)
22. Miscellaneous industrial wastes

The Durez Division has utilized the following sites for the treatment and disposal of industrial wastes:

A. Company-owned sites

Durez used 14 disposal sites on plant property between 1930 and 1973 to dispose of approximately 28,500 tons of industrial waste. In addition, rubbish (paper, cardboard, garbage) was also dumped at these sites. The types of wastes disposed of include drummed quantities of phenol tar (including a substantial amount containing chlorinated benzenes), phenol bearing material (including phenolic resins and molding compounds) and calcium aluminum oxide and calcium phosphate catalyst. These wastes were dumped without containers. A general description of the types of waste disposed of at each site follows. A specific description of each site is included in the section of this report on disposal sites.

<u>Site</u>	<u>Waste Types</u>
I	Phenol tar containing chlorinated benzenes
II	Phenol tar containing chlorinated benzenes; phenolic resins; rubbish
III	Calcium aluminum oxide and calcium phosphate
IV	Phenol tar containing chlorinated benzenes
V	Phenol bearing material
VI	Phenolic resins (liquid)
VII	Phenol bearing material (liquids and solids)
VIII	Phenol
IX	Calcium aluminum oxide and calcium phosphate
X	Phenolic bearing materials; rubbish
XI	Phenolic resins (liquid)
XII	Phenolic bearing materials; rubbish
XIII	Phenolic bearing materials; rubbish
XIV	Phenol bearing materials

Hooker land disposed the following quantities of waste at its Durez plant facility:

<u>Type of Waste</u>	<u>Estimated Total Tonnage</u>
Phenol tar	250 tons
Phenol bearing material	28,000 tons
Calcium aluminum oxide and calcium phosphate	250 tons
Total	28,500 tons

From 1957 to 1958, Durez hauled about 250 tons of liquid phenolic residue and 500 tons of liquid phenolic tars to the Hooker Niagara Falls plant for disposal. These materials were transported in drums. A Hooker document indicates that the phenol tars contain chlorinated benzenes. This material was disposed of in the S and N areas.

The distillate and vacuum pump seal water wastes generated since 1976 in the vacuum pump seal water systems in the "Hetrofoam" process has been disposed of in the residue reactor at Hooker's Niagara Falls plant.

B. Off-Plant Waste Disposal Sites

1. Pfohl Brothers

This site was used by Durez from 1969 to 1971. Schreck Iron and Metal Works of North Tonawanda was employed to haul approximately 125 tons of phenol tar to this site for disposal. A Hooker document indicates that the phenol tar contains chlorinated benzenes.

2. Chem-Trol Pollution Services (Porter)

Chem-Trol was contracted by Durez in 1975 to haul 14,800 gallons of caustic wastewater. This material transported in bulk quantities to Porter for disposal.

3. Huntley Power Station (Tonawanda)

Durez has indicated to the Task Force that, for a period of several years in the late 1950s, approximately 625 tons of phenol tar was transported to the Huntley Power Station in Tonawanda for use as fly ash cover material. The name of the waste hauler is not known. A Hooker document indicates that the phenol tar contains chlorinated benzenes. The Niagara Mohawk Power Corporation, owner of the Huntley Power Station, maintains that these phenol tars were disposed of at Gratwick Park in North Tonawanda and not the Huntley Power Station.

4. Interflow Systems, Ltd. (Hamilton, Ontario)

Interflow was used by Durez from 1974 to 1976 for the disposal of spent caustic wastewater and para-tertiary octyl phenol wash water. D&D Disposal of St. Catharines, Ontario, hauled bulk quantities of this material to Interflow. The quantities of such wastes are not known.

5. Ohio Liquid Disposal (Freemont, Ohio)

Ohio Liquid Disposal has been used since 1977 to dispose of approximately 85 tons of spent caustic wastewater. This material is transported in bulk quantities for deep well disposal in Ohio.

6. Tricil Limited (Mississauga, Ontario)

Tricil was used in 1977 to haul bulk quantities of para-tertiary octyl phenol to its site in Ontario. However, the quantity of such material is not known.

7. Holiday Park (Old Niagara Falls Boulevard and Walck Road, North Tonawanda)

Durez used this site from 1972 to 1974 to dispose of 125 tons of solid phenolic resin and 500 tons of solid phenolic molding compounds. These wastes were transported in drums. Also, Durez hauled about 500 tons of rubbish (paper, wood, metal and cardboard) to this site for disposal.

8. Newco Waste Systems (Niagara Falls)

Since 1977, Durez has disposed of 175 tons of solid phenolic resin, 113 tons of solid phenol, alkyd and diallylphthalate molding compound and 1.5 tons of oil sludge at Newco. In addition, an unknown quantity of solvents was also transported to Newco. Durez hauled the above materials in drum quantities. Furthermore, 3,500 tons of general rubbish (paper, wood, fiber drums, cardboard and garbage) have been taken to Newco since 1977 by Durez. In 1975 and 1976, Niagara Sanitation hauled about 6,500 tons of such material to that site.

9. Niagara County Refuse District (Witmer Road, Wheatfield)

Durez hauled drummed quantities of various industrial wastes to this site from 1968 to 1975. This includes approximately 20,000 tons of solid phenolic resins, about 20,000 tons of solid phenolic molding compound, and nearly 50 tons of oil and grease drippings. In addition, approximately 40,000 tons of rubbish (paper, wood and garbage) was also disposed of at this site.

10. Gratwick Park (River Road, North Tonawanda)

This site was used from 1960 to 1968. Durez hauled approximately 25,000 tons of solid phenolic resin, 25,000 tons of solid phenolic molding compound, nearly 50 tons of oil and grease drippings, 50,000 tons of rubbish (wood, paper and garbage) and an unknown quantity of solvents to this site.

11. Seaway Industrial Park (River Road, Tonawanda)

Durez used this site during the early 1970s to dispose of about 500 tons of rubbish (paper, wood and cardboard). This site was used on Saturdays when the municipal disposal sites identified above were closed. Durez has indicated that phenolic resins and molding compounds were not disposed of at this site.

C. Other Waste Disposal Practices

During the 1940s, phenol tar containing chlorinated benzenes was sold to a contractor and used as material for road surfacing. The name of the contractor is not known. In addition, some of this material was trucked to an unknown site in Lancaster and buried. At present, the effluent of the phenol recovery process is incinerated in an oil heated steam boiler, the effluent of the hexamethylenetetramine process is distilled to remove methanol and tar residue from the phenol recovery process is incinerated under experimental test conditions approved by DEC. Booth Oil of North Tonawanda has, since 1967, hauled approximately 30,000 gallons of waste oil from the Durez plant.

III. Research and Development Laboratories - Grand Island

Hooker's research facility on Grand Island was opened in January 1959. Prior to the opening of this site, the research facilities were located at the Niagara Falls plant. The wastes generated from the research facility consists of miscellaneous laboratory chemicals including acids, alkalies, organic compounds, oxidizing agents and pesticides (pentac, lindane, thiodan, etc.). These wastes have been disposed of as follows:

1. From January 1959 to 1962, waste chemicals (bottles, jars and vials packed in drums) from Grand Island were picked up and disposed of in the S and N area landfill sites or at the Hyde Park site.
2. From 1962 to mid-1973, refuse and combustible waste chemicals from Grand Island were incinerated at the Grand Island location, while noncombustible waste chemicals (bottles, jars and vials packed in drums) were disposed of in the S and N areas and the Hyde Park landfill.

3. From May 1973 to 1975, the Research and Development facility on Grand Island contracted with Chem-Trol for disposal of chemical wastes (including small containers of miscellaneous chemicals packed in drums) at the Chem-Trol site in Porter.

The following waste chemicals were disposed of at Porter:

Unidentified packaged laboratory chemicals	109 drums
Copper bath and rinse solution	10 drums
Methylene chloride	12 drums
Cyclohexanone	5 drums
Mineral spirits	4 drums
Acetone	7 drums
Combined organic laboratory solvents	<u>49 drums</u>

Total Approximately 20 tons

4. Since 1976, similar laboratory chemicals to those have been disposed of at Newco in Niagara Falls.
5. In addition, plastic wastes from the polymer synthesis facility constructed on Grand Island in 1970, such as polyvinyl chloride, amounting to approximately 80 drums per year have been disposed of at Hyde Park and the S and N areas (1970 to 1973), Chem-Trol in Porter (1973 to 1975) and Newco (since 1976).

Hooker has indicated that no wastes from the Grand Island facility were land disposed on Grand Island.

INTERNATIONAL MINERALS AND CHEMICAL CORPORATION
4626 Royal Avenue
Niagara Falls

IMC was incorporated in New York in 1909 as the International Agriculture Corporation. In 1951, IMC acquired Interspieden and Company (ISCO) in Niagara Falls. Operations ceased in 1972 and the plant was sold to Niagara Recycling in 1974.

From 1951 to 1972, IMC manufactured chlorine, caustic potash, potassium carbonate and chloropicrin using electrolytic diaphragm cells, crystallization and calcination and chlorination of nitromethane to chloropicrin. Prior to 1951, ISCO produced similar products at the plant by the same processes.

IMC's Location Manager indicated to the Task Force that no records of the nature, quantities or disposal of waste materials generated by IMC exist.

MACNAUGHTON-BROOKS, INC.
11 Bolten Place
Buffalo

The Macnaughton-Brooks Company was incorporated in New York in 1960 and began operations in Buffalo at that time. The company manufactures paint products.

Waste products consist of solvents and solvent sludge (water, solvent and paint powder). From 1960 to 1966, about 100 gallons per year of waste solvents were poured onto bricks in the back of the plant. Solvent sludge (5000 gallons/yr.) was removed by Downing Container Service of Buffalo for disposal at an unknown location. From 1966 to 1975, all waste products were hauled to Chem-Trol in Blasdell and Porter. Since 1975, Newco Chemical Waste Systems has been used for waste disposal. The company had indicated that there has not been any on-site waste disposal since 1966.

MILWARD ALLOYS, INC.
Mill and North Transit Streets
Lockport

Milward Alloys, Inc. was incorporated in New York and began operations in Lockport in 1948.

The company produces copper and aluminum alloys by melting and mixing primary metals.

The company generates as wastes Venturi scrubber liquor (sodium hydroxide, sodium phosphate, phosphorous pentoxide and trace amounts of copper metal), liquid phosphoric acid wastes and refuse.

From 1974 to 1977, phosphoric acid wastes were disposed of at Chem-Trol in Porter. The company does not know how much of such waste it has generated and where such wastes were disposed of before 1974. However, the present and a former company president have indicated that, in the past, such wastes were discharged to the 18 Mile Creek.

Venturi scrubber liquor (14,000 gallons/yr.) has been sent to Frontier Chemical in Niagara Falls for treatment and disposal elsewhere, probably at either Chem-trol or Newco.

Refuse from the company has been hauled to the Niagara County site in Lockport.

The removal of waste phosphoric acid was handled by Chem-Trol Pollution Services of Porter from 1974 to 1977. Waste haulers include Lorber Trucking of Kenmore and Milward itself. The Company does not know where wastes were disposed of before 1974.

MOBIL OIL CORPORATION
Buffalo Refinery
635 Elk Street
Buffalo

The history of Mobil's Buffalo Refinery dates to the 1880s when the Atlas Refining Company and several other companies conducted some types of refining operations in the Buffalo area. The Buffalo Refinery was acquired by Standard Oil Company in 1892 and incorporated in New York the same year. The facility has been owned by the following companies:

1892 to 1931	Standard Oil Company of New York
1931 to 1955	Socony-Vacuum Oil Co., Inc.
1955 to 1966	Socony Mobil Oil Co., Inc.
Since 1966	Mobil Oil Corporation

Many processes are used at the Buffalo Refinery including crude oil distillation, catalytic cracking, catalytic reforming, asphalt manufacturing, alkylation (1956 to 1975), Merox sweetening, caustic treating, copper chloride treating, DEA gas sweetening, clay filtration, visbreaking (1939 to 1950), thermal reforming (1950 to 1956), catalytic polymerization (1951 to 1956) and lubricating oil manufacturing (1930s to 1951).

The products include propane, gasoline, kerosene, distillate fuel oil and diesel, residual fuel oil, asphalt, lubricating oil (1930s to 1951), paint thinner solvent (discontinued in 1950s) and paraffin wax (1930s to 1958).

The refinery has generated the following wastes:

- Soil contaminated with fuel oil
- Catalytic cracking catalyst
- Gravity separator sediment
- Gasoline storage tank sediment
- Lead contaminated angle iron
- Soil with spent caustic
- Yard sewer sediment
- Soil with oily material
- Fly ash
- Kerosene tank sediment
- Asphalt

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The products include propane, gasoline, kerosene, distillate fuel oil and diesel, residual fuel oil, asphalt, lubricating oil (1930s to 1951), paint thinner solvent (discontinued in 1950s) and paraffin wax (1930s to 1958).

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- Lead contaminated angle iron
- Soil with spent caustic
- Yard sewer sediment
- Soil with oily material
- Fly ash
- Kerosene tank sediment
- Asphalt

Construction and demolition debris
Crude oil storage tank sediment
Distillate storage tank sediment
Miscellaneous rubbish (including plastic, rubber,
wood, garbage, clay and catalytic cracking
fines)
Air flotation unit skimmings
Air flotation unit sediment
Cooling water silt
Sludge from lubricating manufacture
Soil with asphalt and fuel oil
Caustic tank sediment
Miscellaneous landscaping debris
Clay from kerosene treaters
Alumina
Naphtha hydrodesulfurization catalyst
Catalytic reformer catalyst
Spent caustic
Spent sulfuric acid

Since 1977, Pinto Equipment Rental has hauled soil contaminated with fuel oil (180 tons total), catalytic cracking catalyst (225 tons total), gravity separation sediment (160 tons total), gasoline tank sediment (10 tons total) and lead-contaminated angle iron (5 tons) to Newco Waste Systems in Niagara Falls. Since 1961, Pinto has hauled soil with spent caustic, catalytic cracking catalyst (645 tons total), yard sewer sediment, soil with oily materials, fly ash (15 tons total), gravity separator sediment (1500 tons total), kerosene tank sediment, asphalt, construction and demolition debris to unknown disposal sites. Finally, from 1961 to 1976, Pinto hauled cooling water silt (1300 tons total), air flotation unit sediments, gravity separator sediment and construction and demolition debris in unknown quantities to Mobil's dump on Elk Street in Buffalo.

Elmwood Tank Cleaning was used in 1978 to haul crude oil storage tank sediment (120 tons) and distillate storage tank sediment to an unknown disposal site.

Joe Ball Sanitation has been used since 1975 to haul miscellaneous rubbish to an unknown site. Rapid Disposal hauled miscellaneous rubbish from 1973 to 1974 to an unknown site. From 1961 to 1972, Downing Container hauled miscellaneous rubbish and catalytic cracking catalyst (540 tons total) to an unknown site.

Craygo Company, Inc. has been used since 1975 to haul gasoline storage tank sediment and crude oil storage tank sediment in unknown quantities to an unknown disposal site.

Since 1975, Frontier Chemical has transported air flotation skimmings (2700 tons total) and sediment (47 tons total) to its facilities in Pendleton and Niagara Falls.

Acme Services was used in 1976 to haul gasoline storage tank sediment (75 tons) and gravity separator sediment. The gravity separator sediment was taken to Niagara Recycling in Niagara Falls.

Great Lakes Wrecking Company was used occasionally between 1973 and 1976 to haul cooling water silt and demolition debris to the Mobil Oil dump site on Elk Street.

Industrial Oil Tank & Cleaning of Rome, New York, was used in 1972 to haul crude oil storage tank sediment to an unknown disposal site.

Chem-Trol, from 1972 to 1975 removed gravity separator sediment and air flotation unit skimmings (740 tons total) to its Porter facility.

Cuyahoga Wrecking Co. and Izzo Tank & Pump, both of Buffalo, have been used to remove miscellaneous landscaping debris to an unknown site.

Some spent catalyst is shipped by common carrier to various catalyst reclaimers across the country.

Spent caustic is sold as sodium sulfide solution. Spent sulfuric acid was a by-product of the alkylation unit which was shutdown in 1975. Prior to that time, the spent sulfuric acid was transported by Allied Chemical's nearby Lee Street Buffalo plant for regeneration.

Mobil's on-site landfill was used until 1976. The types of wastes disposed of there are cooling water silt, construction and demolition debris, air flotation unit sediments, gravity separator sediment, gasoline storage tank sediment, sludge from lubrication manufacture, soil contaminated with asphalt and fuel oil, catalytic cracking and reforming catalysts, sewer sediment, spent caustic sludge, alumina and miscellaneous rubbish.

NIACET CORPORATION
47th Street and Pine Avenue
Niagara Falls

Union Carbide Corporation was incorporated in New York in 1917. Its plant at 47th Street and Pine Avenue began operations in 1925. It was sold to the Niacet Corporation in June 1978 and is still in operation today.

A variety of products have been manufactured at the plant: acetaldehyde by acetylene hydration with a mercury catalyst (1925 to 1950), acetic acid acetaldehyde oxidation with a mercury catalyst (1930 to 1955), vinyl acetate (1940 to 1959), hydroxyethyl cellulose by epoxylation of cellulose pulp (1953 to 1965), methanol by high pressure hydrogenation of carbon monoxide (1928 to 1950), metallic acetate salts (1930 to present) and anionic tergitols by sulfuration of alcohols (since 1957).

The waste materials generated by Niacet have included liquid process wastes (organic and inorganic), mercury aluminum sludge (containing 7 to 10 percent mercury), 2-ethylhexoate solvent refuse, non-chemical waste and miscellaneous laboratory chemicals.

Liquid process wastes (30 million gallons/yr.) and laboratory chemicals in small amounts are discharged to sewers.

Mercury aluminum sludge (1100 gallons/yr.) is now disposed of at Newco Waste Systems in Niagara Falls. Before 1978, the sludge was reclaimed by Interstate Metal Reclaiming of Kierney, New Jersey.

2-ethylehexoate solvent (1100 gallons/yr.) is now reclaimed at Newco. Before 1978 this solvent was probably discharged to sewers.

Refuse and non-chemical wastes are and have been incinerated.

NL INDUSTRIES, ICD/NIAGARA
4511 Hyde Park Boulevard
Town of Niagara

NL Industries, Inc. was founded and incorporated in 1891 in New Jersey. The company began operations in Niagara County in 1906. Other company names have been The Titanium Pigment Co. (1930 to 1935), the Titanium Alloy Manufacturing Co. (1930 to 1948), the National Lead Co., TAM Division (1948 to 1973), and NL Industries, ICD/Niagara (since 1973).

General processes used at the plant since 1930 include grinding and arc furnacing of zircon, zirconia and Ilmenite/Rutile, sulfuric acid digestion of Ilmenite (1930 to 1935) and calcining of alkaline earth carbonates and titanium oxide (1942 to 1975). Products resulting from the above processes include pigment titanium oxide, iron-carbon-titanium alloys, iron-aluminum-titanium alloys, zircon and zirconia oxide powders and grains and alkaline earth titanates and zirconates.

Much of the wastes generated at NL Industries has been disposed of at the disposal site located east and north of the plant.

Estimated amounts of wastes disposed of at the plant:

	<u>Total tons 1930 to 1976</u>
Uncalcined titanium oxide	386
Ammonium zirconia carbonate solution	3.6
Magnesium chloride with zirconium impurity	43
Zirconium sodium potassium chloride mixture (fused salt)	3.3
Aluminum oxide with titania impurity	2,000
Iron-carbon-titanium alloy	500
Silica fume (with motor oil)	50
"Ivex" lotion (ammonium zirconium carbonate)	1

Other waste generated by the company were hauled by Modern Disposal Service, Inc., Town of Niagara Sanitation Department and M. Reback & Company.

Estimated amounts of the wastes hauled from the plant:

	<u>Total (1963-present)</u>
Fumed silica	10,000 tons
Paper bags, wood pallets	34,000 cu. yds.
Brick, flint pebbles and zircon-zirconia sludge	5,600 cu. yds.
Steel and fiber drums	5,600 cu. yds.

These wastes were disposed of in the Niagara County dump in Wheatfield, the Niagara County dump in Lockport SCA in Porter and the Model City disposal site of Modern Disposal.

NOURY CHEMICAL CORPORATION
2153 Lockport-Olcott Road
Burt

The company began operations in Burt, New York in 1946 as Cadet Chemical Corporation. It was later known as Chemetron-Noury (1966 to 1970) and, since 1970, as Noury Chemical Corporation.

Since 1946, the firm has produced peroxides and phthalate esters and generated a variety of waste products including phthalates, peroxides, calcium carbonate, keetox wastes, paste wastes, oxylite waste, starch, DCP contaminated with peroxide, sulfuric acid, phosphorous acid sludge, benzoic acid solids, cardboard, packaging materials and miscellaneous garbage.

From 1955 to 1972, phthalates, methyl ethyl ketone peroxide, calcium carbonate, sulfuric acid, phosphorous acid sludge and benzoic acid solids were disposed of in five sludge pits located between Buildings 14 and 19 on plant premises.

From 1974 to 1975, a landfill behind Building #20 was used for the disposal of paste waste, benzoic acid sludge, oxylite waste, starch, DCP contaminated with peroxide and phosphoric acid sludge. All of these sites are currently being excavated and the wastes stored in approximately 1200 drums in a diked area on site behind Building 20 in anticipation of DEC approval of a new on premises dump site.

Cardboard and wood (some contaminated with liquid and solid peroxides) were incinerated in the Burt Burning Cage, east of Building #14A and 20 from 1955 to 1972. These wastes, together with some starch contaminated with peroxide, waste peroxide pastes and keetox and oxylite waste were sent to the Wilson/Cambria/Newfane Dump from 1972 to 1975 and, since 1975, to the Lockport City Dump.

From 1955 to 1975, all liquid effluent and sludge was sewered to 18 Mile Creek. The sludge in the creek and along its banks is now being removed to two pits (behind Building #20) on plant property. The materials so disposed are soil, benzoic acid sludge, benzoyl peroxide sludge and dicalcium phosphate sludge (350 tons total) together with crushed 55 gallon drums.

Frontier Chemical is currently used to remove waste sludge (750 tons/yr.) from the Noury pretreatment plant. The material is then neutralized and filtered. The liquid is sewered to the City of Niagara Falls and the solids are sent to Newco Waste Systems in Niagara Falls.

NUCLEAR RADIATION DEVELOPMENT
2937 Alt Boulevard
Grand Island

Nuclear Radiation Development began operations in November of 1969 as a subsidiary of the GLAR-BAN Corporation. In 1977, GLAR-BAN merged with the Mark IV Industries, Inc.

From 1969 to the present, NRD has used powder metallurgy to manufacture sealed foil radioactive sources for use in devices such as smoke detectors.

Both liquid and solid radioactive waste result from the above process. From 1969 through 1976, an evaporator was used for some of the liquid waste. Normally, liquid waste is released to the sanitary sewer following analysis for radioactive levels. Solid wastes include Americium-241, Nickel-63, Lead-210, Radium-226, Thallium-203, Cesium-137, Strontium-90, Krypton-85 and Carbon-14. All solid wastes (including filter particulates from water treatment) is packaged into steel drums and shipped to the nearest available disposal site. Three sites have been used for waste generated at NRD: Four shipments were sent to Nuclear Fuel Services in West Valley, New York from 1970 to 1972. Since 1972, three shipments have gone to the Nuclear Engineering Company in Morehead, Kentucky and 14 shipments were sent to Chem-Nuclear Systems, Inc. in Barnwell, South Carolina. The average shipment consists of approximately 94 steel drums and five wooden and/or cardboard boxes. Solid waste is generated at the rate of 28 tons per year. Waste haulers include:

1. McCormack Highway Transportation, Inc., Campbell Road, Schenectady, New York
2. Tristate Motor Transit Company
3. Pacific Intermountain Express
4. Rented Ryder Trucks (by NRD for West Valley deliveries)

OLIN CORPORATION
Buffalo Avenue
Niagara Falls

Olin began operations at the Buffalo Avenue facility in 1897 under the name of Castner Electrolytic Company. Since that time, the company has also been known as Mathieson Chemical Company, Olin Mathieson Chemical Corporation and Olin Corporation.

Olin has produced the following products:

Ammonia	(No data)
Chlorine	(Since 1930)
HTH (calcium hypochlorite)	(Since 1927)
Hydrochloric acid	(1953 to 1956)
Hexachlorocyclohexane (C-66)	(1950 to 1956)
Sodium chlorite	(Since 1941)
Sodium hydroxide	(Since 1930)
Sodium methyrate	(Since 1941)
Trichlorobenzene	(1952 to 1956)
Trichlorophenol	(1953 to 1957)

Numerous productions processes have been used since 1930. These are generally the standard unit operations and processes used by the chemical process industries. Among the processes used are brine electrolysis, triple salt process, sodium amalgam process, reduction of chlorine dioxide, chlorinations and other chemical reactions.

Olin has generated the following types of industrial wastes:

Black cake (sodium chloride, sodium chlorite, sodium chlorate, carbon, calcium carbonate and calcium hydroxide)
Graphite
Fly ash
Benzene hexachloride
Trichlorophenol
Trichlorobenzene
Alpha or Beta BHC cake
v-Tetrachlorobenzene
Carbon dust
Hexachlorobenzene
Pentachloronitrobenzene
Lime sludge
Brine sludge containing mercury
Retort ash
Trichloroanisoie
Miscellaneous industrial wastes (concrete, old insulation and empty containers)

Many disposal sites were used for disposal of industrial wastes. These sites are described below. Also, Olin is in the process of obtaining additional information about the company owned sites. This material is to be submitted to the Task Force shortly.

A. Company Owned Sites

1. 102nd Street (Buffalo Avenue, Niagara Falls)

The 102nd Street landfill was purchased in 1948 and used for disposal of various industrial wastes until 1970. The site, comprising about seven acres, is still owned by Olin today. The following types of industrial wastes were disposed of at this site:

<u>Waste</u>	<u>Estimated Total Tonnage</u>
"Black cake"	20,000
Graphite	692
Benzene hexachloride and trichlorophenol mixture	65
Trichlorobenzene	150
Alpha and Beta BHC cake	1,250

v-Tetrachlorobenzene	1,100
Lime sludge	23,900
Brine sludge	20,000
Hexachlorobenzene	60
Trichloroanisole	<u>No data</u>

TOTAL Approximately 66,000 tons

In addition, over 16,000 tons of concrete, empty containers, fly ash, boiler ash, and trash were disposed of at this site.

Wastes were dumped in bulk or in drums as solids, semi-solids or liquids. The material was placed in pits which were eventually covered or deposited directly onto the ground.

2. Buffalo Avenue Parking Lot

This site was used from approximately 1947 to 1956 to dispose of about 175 tons of brine sludge containing mercury.

3. Industrial Welding Company Site

Olin previously owned this site and used it from 1947 to approximately 1956 to dispose of about 175 tons of brine sludge containing mercury.

4. Miscellaneous On-Plant Disposal Sites

At least one other plant site was used from about 1957 to 1960 to dispose of about 275 tons of brine sludge containing mercury.

B. Off-Plant Waste Disposal Sites

1. Niagara County Refuse Disposal District (Wheatfield)

Olin used this site from about 1961 to 1976 to dispose of approximately 32 tons of graphite, about 1000 tons of lime sludge (1970 to 1972) and 4964 tons of brine sludge containing mercury (1971 only). J. Vitullo Trucking Company of Niagara Falls transported these materials in bulk quantity to this site.

2. Newco Waste Systems (Niagara Falls)

This site has been used since 1972 to dispose of graphite, lime sludge and brine sludge containing mercury. 1.8 tons of graphite (1977 only); 3,444 tons of lime sludge (since 1972); and 21,900 tons of brine sludge (1972 to 1977) were hauled by J. Vitullo in bulk quantity to the Niagara Recycling operation for disposal. In addition, since 1978, J. Vitullo has hauled 3,348 tons of brine sludge to Newco for disposal in their secure landfill. Furthermore, in 1978, several other haulers were used to transport industrial wastes to Newco.

Lorber Truck Service of Kenmore hauled secondary treatment sludge, sodium methyllate, filter residue, caustic backwash, filter tubes and caustic, packaging, retort ash containing mercury and contaminated soil. Cataract Disposal of Niagara Falls hauled chlorate sludge and secondary treatment sludge. Walter S. Kozdranski, Niagara Falls, Sicoli and Massaro, Thomas Carter Trucking, and Johnson (addresses unknown) transported contaminated soil. Finally, C.H. Heist Corporation of Cheektowaga and Wizard Method of Niagara Falls hauled sludge from cleaning sewers. The quantities hauled by the above contractors are not known.

3. Air Force Plant No. 68 (Model City)

This facility was operated by Olin from approximately 1958 to 1960 under contract with the Air Force and Navy to perform work on high energy fuel projects. Since 1966, this area has been owned by Fort Conti Corporation.

The waste generated consisted of boron and lithium compounds and were disposed of in two sites on the facility property. The types of wastes disposed are listed below:

a. Site No. 1

<u>Waste</u>	<u>Estimated Total Tonnage</u>
Lithium chloride	13
Potassium chloride	14.6
Lithium chloride contaminated with kerosene, oil, process residuals and decontaminated solutions	8
Unknown chemical wastes	<u>30</u>
Total Approximately	70 Tons

The total quantity of wastes buried is estimated to be approximately 300 drums.

b. Site No. 2

This consisted of waste burning pits used for the disposal of an unknown quantity of off-specification borane compounds and other combustible wastes. The residue remaining in these pits was covered with earth when the operation ceased.

c. Miscellaneous Waste Disposal Activities

Olin has indicated to the Task Force that since 1930, the Niagara Falls plant made available to various persons (their identity is not known) brine sludges, fly ash, broken concrete, building materials and salt dirt for use as driveway bases or

fill. These waste materials, in some cases, were contaminated or mixed with miscellaneous organic compounds generated at the company's research facility. However, the exact nature or quantities of these materials cannot be determined.

PENNWALT CORPORATION
Lucidol Division
1740 Military Road
Buffalo

This company began operations in Buffalo in 1926 as Novadel-Agene Corporation. It became the Lucidol Division of Wallace & Tiernan in 1953. It is now known as the Lucidol Division of Pennwalt Corporation.

Products include lauroyl peroxide, dicyclohexyl peroxy dicarbonate, foot powder, baby powder and vitamin enrichments.

From 1956 to 1970, phosphorous acid sludge was neutralized with limestone and land disposed on the southeast portion of plant property. Since 1970, the sludge, in amounts of 12.5 tons per year, has been converted to 70% phosphorous acid and sold. It is no longer land disposed.

Other wastes have been stored on-site in polyethylene lined steel drums until removal by SCA Chemical Waste Service, Newco Chemical Waste Systems and/or Frontier Chemical Waste Process for drummed disposal. In addition, from 1976 to 1978, lauroyl peroxide sludge was taken by Davis Scrap Service of Buffalo to the Seaway Industrial Park.

PIERCE & STEVENS
710 Ohio Street
Buffalo

Pierce & Stevens was incorporated in New York in 1917 and began operations in Buffalo in that year. In 1967, it was acquired by Pratt & Lambert. Since 1930, the company has manufactured coatings, adhesives and thinners.

Waste materials generated at the plant include scrap metals, miscellaneous paper and wood and waste liquids, (adhesives, paint and lacquer solvents such as hydrocarbons, ketones, esters and alcohols).

Waste liquids (30,000 gallons/yr.) have been hauled to and received by Solvent Recovery Service of Linden, New Jersey for at least twenty years. The other wastes identified above have been hauled by Rapid Disposal Service of Buffalo to an unknown location.

POLYMER APPLICATIONS, INC.
3445 River Road
Tonawanda

Polymer Applications was incorporated in New York in 1968 and began operations in Tonawanda at that time. The company manufactures resins using phenol formaldehyde resin alkylation.

The company generates the following wastes:

Unreacted phenols and resin sludges

Organic solvents (phenols, toluene, xylene,
formaldehyde and light hydrocarbons)

Plastic and wood materials, concrete, scrap iron,
wire and empty damaged drums

Unreacted phenol and resinous material (440 gallons/yr.) and organic solvents (125,000 gallons/yr.) were disposed of in an underground storage tank on plant premises from 1976 to 1977 when, after leaching to surrounding property, the wastes and contaminated soils in the areas were removed by Elmwood Tank Cleaning Corporation to an unknown disposal site. Since 1977, these wastes have been removed by Elmwood.

The other wastes identified above have been hauled to an unknown site by Downing Container since 1969.

PRATT & LAMBERT, INC.
75 Tonawanda Street
Buffalo

Pratt & Lambert was incorporated in New York in 1885 and began operations in Tonawanda in 1901. Products manufactured since 1930 include paint, varnish, lacquer, resins, stains and thinners. Processes used at the plant include grinding, polymerization, mixing and blending.

The waste products generated by Pratt & Lambert consist of solvent paint wastes sludges (acetone, toluene, xylene, methylethyl ketone and other aliphatic and aromatic hydrocarbons), waste acids (phosphoric and other inorganic acids), aqueous process waste, liquid paint solvents, general refuse and miscellaneous trash.

Solvent paint wastes sludge (est. 15,000 gallons/yr.) has been hauled by Downing Container to unknown locations (since 1962), by Chem-Trol presumably to its Porter disposal site (1971 to 1976), by Frontier Chemical Waste for reclamation or disposal (since 1973) and by Pratt & Lambert to Newco Waste Systems in Niagara Falls for disposal (1977).

Waste acids (250 gallons/yr.) have been hauled to Frontier Chemical Waste in Niagara Falls for treatment since 1973.

Aqueous process waste (at least 500,000 gallons/yr.) was hauled by Chem-Trol presumably to its Porter disposal site (1971 to 1976) and by Frontier Chemical Waste in Niagara Falls since 1973.

Liquid paint solvents have been hauled to Solvent Recovery Service of Linden, New Jersey for reclamation or, since 1945, in amounts of 63,000 gallons per year, incinerated on plant premises.

Refuse and trash were hauled to and incinerated at the "Piggery" at River Road in Tonawanda (1937 to 1945), hauled by R. C. Knapp of Tonawanda to an unknown site (1945 to 1975) and hauled by Downing Container to an unknown site since 1962.

A former plant employee recalled that some of the waste materials identified above may have been disposed of in the bed of the Erie Canal in Tonawanda.

PRATT & LETCHWORTH DIVISION
Dayton Malleable Inc.
189 Tonawanda Street
Buffalo

Dayton Malleable Iron Co. was founded in 1848 and incorporated in Ohio in 1869. In 1923, Pratt & Letchworth was purchased by Dayton. In 1973, Dayton changed its name to Dayton Malleable Inc.

Since 1900, Pratt & Letchworth has used the casting process at its Buffalo plant to produce railroad steel castings. The company also produces forged steel. Wastes generated are sand (from dry sand scrubbers), slag, paper and wood, and motor and hydraulic oil.

Estimated amounts of wastes generated at Pratt & Letchworth:

	<u>Amounts per Year</u>	<u>Total Since 1930</u>
Sand	13,200 tons	633,600 tons
Slag	1,000 tons	48,000 tons
Paper and wood	3,000 cu. yds.	144,000 cu. yds.
Waste oil	14,300 gallons	686,400 gallons

From 1930 to 1949, sand and slag waste was hauled by Anderson Trucking and by Pikowski Trucking of Kenmore for use as fill. From 1930 to 1949, the railroad track which crossed Amherst Street at street level was raised to make a viaduct. Fill material from plant property along with tons of sand and slag were used for the project. The void created on plant property by fill removal was refilled with plant wastes. Finally, plant refuse was also hauled to the stone quarry directly opposite the plant site on Amherst Street.

From 1949 through 1965, wastes were either incinerated or land disposed on 23 acres of Pratt & Letchworth property next to the Scajaquada Creek and Amherst Street designated for disposal. Waste Oil was generally spread on internal roadways for dust suppression. William Beck Trucking Co. hauled slag and sand from 1949 to 1955 to be reclaimed.

Since 1965, sand and slag have been hauled by Pratt & Letchworth to the City of Buffalo West Side Incinerator pit located on Squaw Island.

Since approximately 1960, Downing Containter Service has hauled sand, dust, paper and wood from Pratt & Letchworth.

From 1970 to 1978, Pratt & Letchworth has used the Land Reclamation Site in Cheektowaga for disposal of sand, slag and paper and wood.

RAMCO STEEL INC.
110 Hopkins Street
Buffalo

Ramco Steel Inc., a subsidiary of Ramcorp Metals Inc., was founded and incorporated in New York in 1972. The present plant was owned and operated by Bliss and Laughlin Steel from 1929 to 1972.

Ramco uses cold drawing, turning, grinding, treating, and pickling to produce cold drawn steel bars. Waste generated as a result of this process include lubricating oils, spent pickle liquor and rinse water and lime effluent.

Estimated amounts of wastes generated at Ramco Steel:

	<u>Amounts per year</u>	<u>Total Amounts Since 1972</u>
Waste lubricating oils	7,000 gal.	42,000 gal.
Spent pickle liquors	75,000 gal.	450,000 gal.
Rinse water and lime effluent	6,050,000 gal.	36,300,000 gal.

Waste lubricating oils are now hauled and reclaimed by Southgate Oil Service. They were formerly hauled by Northeast Oil Service of Syracuse for reclamation.

Pickle liquor and water and lime effluent are placed in a settling pond on plant premises near the plant buildings.

Bliss and Laughlin Steel Company was not able to provide the Task Force with any information concerning waste disposal practices before 1972. The 1972 Erie and Niagara Counties Comprehensive Solid Waste Survey indicated materials and amounts listed below were hauled from Bliss and Laughlin by private contractors:

Paper	23.4	tons/yr.
Wood	39.0	tons/yr.
Metals	7.8	tons/yr.
Plastics	1.04	tons/yr.
Glass	3.9	tons/yr.
Misc.	19.5	tons/yr.
Total	94.64	tons/yr.

As Bliss and Laughlin used the same processes as Ramco Steel, it probably generated the same wastes and disposed of them in a similar manner.

REPUBLIC STEEL CORPORATION
1175 South Park Avenue
Buffalo

Republic Steel Corporation was founded in Buffalo in 1906 as the New York State Steel Company. Operations began in 1907. The company went into receivership in 1913 and was sold to William H.

Donner in 1915. In 1930, Republic Steel Corporation purchased Donner Steel Company.

Basic facilities and processes used at the plant include the blast and basic oxygen furnaces, bloomings and bar mills, pickling and scarfing. Products include hot metals, steel blooms, billets, bars and shapes. Industrial wastes produced by the plant include clarifier sludge, soaking pit and bar mill scale, basic oxygen furnace slag, blast furnace flue dust and slag, electrostatic precipitator dust, Kask baghouse dust, waste pickle liquor, oil from bar mill skimmers and scarfing cinder.

Estimated amounts of waste generated at Republic Steel plant:

	Amounts Per Year	Total Amounts Since 1930
Clarifier Sludge	48,420 tons	2,324,160 tons
Iron Oxide Scale (from soaking pit operations)	15,000 tons	720,000 tons
Iron Oxide Scale (from rolling of bars and billets)	7,800 tons	374,400 Tons
Slag (from BOF)	126,900 tons	6,091,200 tons
Flue Dust (from blast furnace)	15,500 tons	744,000 tons
Iron Oxide Dust	11,200 tons	537,600 tons
Carbon Dust (Kask Baghouse)	100 tons	4,000 tons
Spent pickle liquor	10,577 tons	507,696 tons
Waste Oil (from bar mills)	20,000 gallons	960,000 gallons

Until 1958, South Buffalo Railway hauled all of the above wastes, except waste oil, to a Republic owned dump at Marilla and Hopkins Streets in Buffalo. Since 1958, Hekett Engineering has hauled wastes to that site. Some sludge hauled by Hekett is used by Hekett on roadbeds for dust control. Waste oil has been hauled from the plant by Buffalo Waste Oil Services.

ROBLIN STEEL COMPANY
101 East Avenue
North Tonawanda

Roblin Steel Company was founded and incorporated in New York in 1961 as Roblin-Seaway Industries, Inc. In 1965 the name was changed to the Roblin Steel Corporation. In 1968, the

present name, the Roblin Steel Company, was adopted, and the company became a division of Roblin Industries, Inc. The company began operations in Niagara County in 1961.

Processes used by Roblin Steel since 1961 include hot rolling of steel rods and bars, sulfuric acid pickling of steel coils, lime and oil coating of steel coils, annealing of steel coils, wire drawing and melting and casting of nickel (1961 to 1969).

Waste produced by these manufacturing processes include waste oil, spent sulphuric acid, pickle liquor, iron oxide mill scale, lime and phosphate sludge and miscellaneous trash.

Estimate amounts of some of the wastes generated at Roblin Steel:

	<u>Total Amounts Since 1961</u>
Iron oxide scale	17,100 tons
Waste oil	36,000 gallons
Spent sulphuric acid pickle liquor	8,222,067 gallons
Spent iron and zinc phosphate sludge	35.7 tons

Since 1961, Roblin Steel has disposed of iron oxide scale, phosphate sludges and miscellaneous trash at its on premises disposal site. Since 1973, iron oxide scale and lime and phosphate sludge has also been hauled by Harvey Newman & Sons, Inc. to its Shawnee Road dump site in the Town of Wheatfield where it is land disposed. Since 1961, waste oil has been hauled to Booth Oil Co., Inc. or Buffalo Waste Oil Co. of North Tonawanda for reclamation. Waste oil is now taken to Newco Chemical Waste Systems in Niagara Falls and by Southgate Oil Service for reclamation.

From 1961 to 1966, spent sulphuric acid pickle liquor was discharged to North Tonawanda city sewers. From 1966 to 1968, spent sulphuric acid pickle liquor was taken to Frontier Chemical Process Co. in Pendleton where it was neutralized with lime and dumped into Quarry Lake. From 1969 to 1970, spent sulphuric acid pickle liquor was disposed of at the Old Wickwire-Spencer Steel plant property at 4000 River Road in Tonawanda which has been owned by Roblin since 1967. 1,000,000 gallons of liquor were land disposed at that site. From 1970 to 1972, spent sulphuric acid pickle liquor was disposed of at Chem-Trol Pollution Services, Inc. in Blasdell. Since 1972, the waste has been disposed of at SCA Chemical Waste Services, Inc. in Model City.

Miscellaneous trash has been taken to the Niagara County Refuse site at Witmer Road in Wheatfield (1972 to 1975); the Niagara County Refuse site at Richfield Street in Lockport (1975 to present) and, since 1976, to Niagara Recycling in Niagara Falls.

SHANCO PLASTICS AND CHEMICALS, INC.
2716 Kenmore Avenue
Tonawanda

Shanco Plastics and Chemicals was incorporated in Delaware in 1948. Operations began at the Kenmore Avenue plant in Tonawanda at that time. Shanco was purchased by the Synres Chemical Corporation of Union, New Jersey in 1975 and, in 1976, the firm became a division of Synres. In October 1977, manufacturing operations at the Kenmore Avenue plant ceased.

Shanco produced rosen esters and phenolic resins using esterification, oxidation and condensation processes.

These processes include organic phenolic wastes, oils, trace sulfuric acid wastes and rosin and resin dusts from floor sweepings.

The company generated the following wastes:

Waste slurry (organic alcohol, resinous oils and trace sulfuric acid wastes)

Phenolic wastes

Rosin and resin dusts from floor sweepings

Waste slurry (600 tons/yr.) was removed by Chem-Trol (1970 to 1972) and by Frontier Chemical (1973 to 1977).

Phenolic wastes (85 tons/yr.) were disposed of on premises behind the plant buildings until 1976 when the site was excavated by Knab Brothers of Military Road, Kenmore.

In addition, a former plant manager indicated to Synres that disposal of drummed wastes took place on plant property in the early 1950s on a site where a warehouse now stands. The nature and volume of the waste materials is unknown. However it is probable that the wastes consisted of phenolic materials.

Six tons per year of resinous oil and inorganic acids were also hauled from the plant by Frontier Chemical.

SIMONDS STEEL DIVISION
Guterl Special Steel Corporation
Ohio Street
Lockport

Simonds Steel began operations in 1832. It was incorporated in Massachusetts in 1868. Operations in Niagara County began in 1910. The company name from 1930 to 1965 was Simonds Saw and Steel Company. Since 1965, the name has been Simonds Steel Division, Guterl Special Steel Corporation. Processes used at the plant include the pickling, grinding and melting of ores to produce alloy steel.

Estimated amounts of waste generated at the plant:

	<u>Amount per year</u>	<u>Total Amounts Since 1930</u>
Spent Acid	460,000 gallons	12,880,000 gallons
Oil and grease	3,200 gallons	964,000 gallons
Slag	3,480 tons	165,000 tons
Casting Sand	69 tons	3,312 tons
Baghouse Dust	230 tons	8,740 tons
Grind Dust	65 tons	3,120 tons

Spent acid is and has been discharged to the Lockport City Sewers. Oil and grease are reclaimed by Southgate Oil Services. Slag, casting sand, baghouse dust and grinding dust are land disposed on company owned property due east and south east of the plant site. Some slag may have been reclaimed.

From 1948 to 1956, Simonds Saw and Steel milled uranium metal (12,500 to 17,500 tons total) and smaller quantities of thorium metal (15 to 20 tons total) for the Atomic Energy Commission and the National Lead Company of Fernald, Ohio. AEC personnel have indicated that uranium residues were stored in drums either on-site or at the Lake Ontario Ordinance Works in Porter and then shipped to the National Lead Company plant at Fernald, Ohio for reclamation. Later, residues were taken to Ohio directly. No radioactive wastes were disposed of in any other manner. However, some radioactive contamination of the plant was found in 1976 and excavation of 100 cubic yards of soil and 100 cubic yards of building material may be required.

SNYDER TANK CORPORATION
3774 Lake Shore Road
Buffalo

The Snyder Welding Service was founded in 1939. It was incorporated in New York in 1941 and its name was changed to the Snyder Manufacturing Company. In 1956, it assumed its present name.

This company has always produced steel and aluminum fuel tanks. The processes used at the plant include acid pickling, phosphate coating, degreasing, acid etch (aluminum), washing and painting.

The company generates the following wastes:

Spent pickle liquor
Used phosphate coating solutions
Contaminated oils
Paper, wood, plastics and metal

Before 1971, spent pickle liquor (98,000 gallons/yr.) was drained directly into Lake Erie. Since 1971, this waste has been disposed of at Chem-Trol in Porter.

Phosphate solutions (98,000 gallons/yr.) is now disposed of at Chem-Trol. The company does not know what happened to phosphate solutions before 1976.

Contaminated oil (1300 gallons/year) is now hauled by Booth Oil. The company does not know what happened to its waste oil before 1976.

Paper, wood, plastics and metal (72.8 tons/yr. in 1972) have been hauled to the Lancaster Sanitary Landfill.

SOLVENT CHEMICAL COMPANY, INC.
3163 Buffalo Avenue
Niagara Falls

Solvent Chemical Company, Inc. was incorporated in Massachusetts in 1935 and began manufacturing operations in Niagara Falls in 1974. In September 1978, the plant was closed.

From 1974 to 1977, the company produced mixed dichloro, trichloro and tetrachloro benzenes. Two waste haulers were used for the removal of waste materials. From 1974 to 1976, Modern Disposal Service, Inc. removed drummed sludge (quantity unknown) from the zinc chloride process consisting of zinc, lead, aluminum

oxide, copper, barium sulfate and inert materials and disposed of such materials at its Model City site. From 1974 to 1978, Newco Chemical Waste Systems, Inc., removed drummed solid mixed chlorobenzenes (27,500 gallons/yr.) and disposed of such material in its disposal site in Niagara Falls. Newco is now employed in clean-up operations at the closed plant.

SPAULDING FIBRE COMPANY, INC.
310 Wheeler Street
Tonawanda

Spaulding Fibre Company began operations in Tonawanda in 1911. In 1920, the company was incorporated in New Hampshire.

The basic processes employed at the plant include paper manufacture, condensation, polymerization, resin-carrier saturating, high pressure laminating, vulcanizing filament (1960 to 1977) and fabrication (1930 to 1973).

The products include vulcanized fibre (sheet and tube), thermosetting laminates (sheet and tube), paper "Filawound" glass tubing (1960 to 1977) and fabrication of fibre and laminates (1930 to 1973).

The company generates the following wastes:

- Scrap vulcanized fibre
- Vulcanized fibre sheet
- Thermosetting plastic
- Waters of reaction (contains phenol, formaldehyde, solvents, cresylic and water)
- Zinc sulphate and diatomaceous earth
- Zinc hydroxide filter cake
- Waste oil
- Asbestos
- Glass dust
- Waste varnishes
- Fabrication grindings

Before 1969, all combustible waste was incinerated on premises. In addition, several lagoons were used for disposal of fabrication grindings. These lagoons were eventually excavated and the excavated materials disposed of. The names of the haulers of the excavated materials and the disposal sites they used are not known.

From 1969 to 1974, Wheatfield Warehouses, Inc. of North Tonawanda hauled scrap vulcanized fibre, vulcanized fibre sheet and thermosetting plastic and trimmings to both the Seaway

Industrial Park in Tonawanda and an unspecified area of what is now the LaSalle Expressway in Niagara Falls. Approximately 21,000 tons of such wastes were disposed of at both sites.

Since 1972, Niagara Sanitation has hauled the same wastes together with broken pallets, refuse, fibre scrap, zinc sulphate and diatomaceous earth and zinc hydroxide filter cake to Niagara Recycling in Niagara Falls. Booth Oil has hauled waste oil from the plant. Waters of reaction are still incinerated on premises.

Two dumps exist on plant property. One area is the asbestos dump where 20 tons of asbestos and glass dust were dumped from October 1977 to September 1978. This site is currently inactive. Plans have been submitted to DEC to operate the site in accordance with state regulations.

The other on-premises disposal area was used from February 1978 to September 1978 for approximately 750 drums of waste varnishes. This site is now inactive. Remedial plans are being developed by the company.

STAUFFER CHEMICAL COMPANY
Lewiston Road
Niagara Falls

Stauffer Chemical Company was incorporated in 1885 and began operations in Niagara Falls, after acquiring Niagara Smelting, in 1946. The plant was closed in 1978.

Caustic soda, chlorine, silicon tetrachloride and titanium tetrachloride were produced through 1972. Sulfur chlorides were manufactured until the plant closed. Other products included zirconium tetrachloride, antimony tetrachloride, aluminum chloride (1942 to 1965), chloroacetic acid (1961 to 1965), liquid sulfur, titanium trichloride, boron trichloride and trithion intermediate (1963 to 1965). The manufacturing processes consisted of chlorination of metals, sulfur and carbon bisulfide.

Stauffer generated concrete cell parts, asbestos, graphite, reactor linings, scrap sulfur, scrap metal, silicon, zirconium and titanium oxides and cinder from coal-fired boilers and oil as wastes.

These wastes were disposed of at several locations. The Upper Mountain Road Dump in Lewiston was used for disposal of these wastes between 1930 and 1952, the Lewiston Quarry (Art Park) was used between 1953 and 1969, and the New York State Power Authority property, east of the Stauffer plant, was used

between 1969 and 1974. Stauffer hauled the wastes in its own trucks. The company has indicated that it does not know the quantities of any of its waste materials.

From 1974 to 1978, Stauffer's waste water treatment sludge (3,000 tons/yr.), scrap sulfur, scrap metal and cinders were hauled by Niagara Sanitation to Newco Chemical Waste Systems in Niagara Falls. The company does not know where any of such sludges were disposed of before 1974. Waste oil (220 gallons/yr.) has been hauled by Booth Oil.

STRIPPIT
Division of Houdaille Industries, Inc.
12975 Clarence Center Road
Akron

This company was founded and incorporated in 1925 and has been known previously as Buffalo Alarm Clock Casing Co. (1925 to 1935) and the Wales Strippit Corporation (1935 to 1956). It has previously operated at two locations, Niagara Street, Buffalo (1935 to 1942) and in North Tonawanda (1942 to 1956). The Akron plant was purchased from Buffalo Arms in 1955. Another company, Houdaille Electronics, located at 11200 Main Street in Clarence, was acquired in 1965 and is still operating.

Strippit produces machine tools for metal forming.

Processes used at the plant since 1956 are heat treating of tool steels, use of coolants and cutting oils for machining, degreasing parts, boiler treatment and painting of machines and parts.

Waste products from these processes include garbage, heat treat sludge, cutting oil compounds and water soluble cutting coolants, chlorinated solvents, alkaline cleaners, water with paint contamination, paint thinners and filters and waste hydraulic oil.

All combustible waste was incinerated on site and buried on site in the same location used previously by Buffalo Arms for disposal of scrap machine gun parts. This disposal was stopped in 1970. Combustible waste (450 cubic yds./yr.) is now disposed of at the Lancaster Sanitary Landfill.

Coolants (20,000 gal./yr.) were also disposed of at this site until 1975. Coolants were disposed of at Lancaster (1975 to 1978) and are now disposed of at Newco Waste Systems in Niagara Falls and SCA in Porter.

Heat treat sludge (3 tons/yr.), cutting oil compounds, solvents, water with paint contamination (20,000 gallons/yr.) and paint thinners and filters were also disposed of on premises until 1975. Since 1975, these wastes have been disposed of at the Lancaster Sanitary Landfill.

Waste oil (660 gallons/yr.) has been hauled from the plant for reclamation by Booth Oil.

TONAWANDA COKE CORPORATION
3875 River Road
Tonawanda

Tonawanda Coke Corporation was incorporated in January, 1978 in New York. At that time, Tonawanda Coke purchased the Semet Solvay Division Coke Plant in Tonawanda from Allied Chemicals.

Tonawanda Coke failed to submit a completed questionnaire to the Task Force. The Company's president has indicated to the Task Force that the Company is "not presently and [has] not operated a waste disposal site" and that the Company has "no waste production so, therefore, no need for waste haulers."

Tonawanda Coke's manager of environmental control did indicate that the company used two on-site lagoons for waste water and that carbonaceous materials settling in the lagoon is reclaimed for use in the plant. In addition, the company has indicated that it generates waste oil.

The Allied Chemical Semet Solvay Division plant, prior to January, 1978, generated the following wastes:

- Charred coal tar
- Dirt
- Ash
- Coal and coke fines
- Tar sludge
- Brick and rubble
- Spent iron oxide and wood shavings.

Much of these wastes were disposed of in on premises dump sites.

TRICO. PRODUCTS CORPORATION
500 Elk Street
817 Washington Street
2495 Main Street
Buffalo

The Trico Products Corporation was incorporated in 1920. There are presently three operating plants in Buffalo: Plant No. 1 at 817 Washington Street, Plant No. 2 at 2495 Main Street and Plant No. 3 at 500 Elk Street. The operations at the three plants are fully integrated. There have been three other plant locations in Buffalo in the past: 956 Washington Street (a warehouse from 1946 to 1959), 990 Niagara Street (Plant No. 4 from 1947 to 1963) and 86-100 Leroy Avenue (Plant No. 5 from 1947 to 1960).

All three operating plants produce auto parts. Processes used at the plants since 1930 are electroplating, degreasing, phosphating, painting, heat treating, burnishing, zinc die casting, machining, buffing and screw machining. Electropolishing was practiced from 1954 to 1960. Plastic molding and powdered metal operations have been used since 1940 and 1949 respectively.

Wastes generated by Trico are paint sludges, plastic purgings (methylene chloride solvent and plastic materials in solution), solid bulk refuse, waste oils and lubricants, scrap polyethylene, paint thinners, degreasing sludge and zinc oxide and ash.

Paint sludges (4,000 to 6,000 gallons/yr.) have been hauled from the plant by William Adamiec of Riverside Avenue, Buffalo and, since 1978, by Newco Chemical Waste Systems of Niagara Falls.

Plastic purgings (700 gallons/yr.) have been hauled by Leonard Kroll of Woodgate Avenue, Tonawanda to an unknown location and by Lancaster Sanitary Landfill, Inc. to the Lancaster Sanitary Landfill.

Solid bulk refuse has been hauled by Rapid Disposal since 1960 to Land Reclamation Site in Depew and/or Seaway Industrial Park in Tonawanda. In 1972, the company estimated it was generating 2,480 tons per year of paper, wood, rubber, plastics, gears and miscellaneous waste.

Waste oil and lubricants (16,000 gallons/yr.) have been hauled by Booth Oil Co. and Southgate Oil Co. for reclamation.

Scrap polyethylene in unknown amounts was reused internally until 1976. Since 1976, it has been hauled and resold by William Shuman and Sons in Depew.

Paint thinners (100 gallons/yr.) have been hauled by Leonard Kroll and Booth Oil for reclamation.

Degreasing sludge (200 gallons/yr.) has been hauled by Booth Oil for reclamation.

Zinc oxide and ash (30 tons/yr.) has been hauled by United Alloys of Hanna Street, Buffalo for reclamation.

TWIN INDUSTRIES
Cayuga Street
Cheektowaga

Twin Industries began operations in Erie County in 1946 at the former Curtiss Wright plant at the Buffalo Airport in Cheektowaga. A former Twin employee has indicated that Twin Coach and Twin Industries were lessees, and not owners, of the land and buildings at the Airport location.

From 1946 to 1962, the company was known as Twin Coach, Inc. In 1962, the company became a part of Wheelabrator, Inc. and its name was changed to Twin Industries. In 1969, Twin Industries ceased manufacturing operations in Western New York.

From 1946 through the early 1950's, Twin manufactured buses. Starting in 1950, the company manufactured airplane parts. The company used the same basic processes to manufacture both products: cadmium plating, cleaning of aluminum, aluminum chemical milling, aluminum and magnesium metal bonding, titanium treatment and alodining.

Wastes generated at the plant included garbage and combustibles, rinse water, acidic waste (e.g., hydrofluoric acid, sodium dichromate and sulphuric acid), alkaline waste and rinse water.

Garbage and combustibles were burned in plant incinerators until the late 1960's. Thereafter, garbage was compacted and hauled away by the Town of Cheektowaga. Until 1957, alkaline and acidic wastes from one part of the plant (Plant No. 4) were treated for removal of hexavalent chrome and discharged to Ellicott Creek. After 1957, these wastes were hauled by Frontier Chemical or Chemical Leaman Tank Lines for neutralization at Frontier's Pendleton Site. S.A. Day of Niagara Street, Buffalo later hauled these wastes. Rinse water from plant 4, however, continued to be discharged to Ellicott Creek. Rinse water from Plant 1 was discharged to the sewer system.

Wheelabrator has advised the Task Force that Twin did not dispose of wastes on premises.

UNION CARBIDE CORPORATION
Carbon Products Division
Highland Avenue, Niagara Falls
Hyde Park Boulevard, Town of Niagara
Buffalo Avenue, Niagara Falls

The Carbon Products Division of Union Carbide Corporation began operations in Niagara County in 1910 as the National Carbon Company. It became a division of Union Carbide in 1949. Today, the division includes three plants in Niagara County: the National Plant on Highland Avenue in Niagara Falls purchased in 1910; the Acheson Plant on Buffalo Avenue in Niagara Falls purchased in 1929 and the Republic Plant on Hyde Park Boulevard in the Town of Niagara purchased in 1934.

Since 1930, the Company has manufactured specialty machined graphite, carbon liners, cathode blocks and electrodes for furnacing. Processes utilized at the plant since 1930 include milling, mixing, forming, baking, pitch impregnation, graphitizing and machining of carbon products.

Waste products generated at the three plants include waste carbonaceous materials (primarily dust from dust collectors), firebrick from carbon baking ovens, scrap wood, solid coal and petroleum tars, demolition debris, silica sand and waste machining, lubrication and hydraulic oils.

Estimated amounts of wastes generated annually:

Carbonaceous material	3250 tons
Firebrick	625 tons
Scrap wood	500 tons
Waste oils	1200 gallons

All of these wastes (including waste oils) have been disposed of at a dump site on premises behind the Republic Plant one half mile east of Hyde Park Boulevard. In the summer, waste oils were used to control dust on plant roads. For several years, Booth Oil has hauled all waste oils from the three plants.

UNION CARBIDE CORPORATION
Linde Division
East Park Drive
Tonawanda

The Linde Air Products Company was founded and incorporated about 1907 in Ohio and began operations in the Buffalo area about 1912. It became a division of Union Carbide in 1917.

The Linde Division was located at Chandler Street in Buffalo before 1938. It operated a plant for the federal government on its Tonawanda property as part of the World War II Manhattan Project from 1942 through 1948 and a silicones pilot plant in Tonawanda from 1948 to 1954. Besides the East Park Drive facility, Linde now also operates plants at Lake Shore Road on the Bethlehem Steel property in Lackawanna and on Broadway in Buffalo. A welding flux manufacturing facility which is part of the Linde Division has been located on Union Carbide's Metals Division property in Niagara Falls.

The Linde Division produces cryogenic hardware for separation, storage, distribution and utilization of atmospheric gases (since 1912), silicone chemical formulations (1948 to 1954), molecular sieve chemical formulations (1966 to 1970) and enhanced tubing (since 1971) at the East Park Drive facility. The Lackawanna plant manufactures liquid and gaseous oxygen, nitrogen and argon. The Buffalo Plant manufactures acetylene and operates as a gas repackaging plant transferring bulk gases (i.e. oxygen, nitrogen, argon, helium and hydrogen) to smaller cylinders.

Estimated annual wastes from the Tonawanda Plant:

Miscellaneous trash	1,820 tons
Scrap metals	750 tons
Spent photographic solutions	720 gallons
Spent pickling liquor	11,000 gallons
Paint sludge solvents	7,000 gallons
Waste oils	6,000 gallons
Caustic aluminum etch	300 gallons
Laboratory wastes containing traces of mercury	1,300 gallons
Spent 2% hydrofluoric acid solution	800 gallons
Spent aluminum brazing fluid	125 gallons
Waste cutting fluid	600 gallons
Waste detergent	5,000 gallons
Waste detergent	8,000 gallons
Coal tar wastes	135 gallons
Barium hydroxide wastes	80 gallons
Dimethyl acetamide	60 gallons
Heavy metals sludge	3,500 gallons
Heavy metals sludge	1,250 gallons
Normal butraldehyde	8 gallons
Hydrofluoric acid	8 gallons
Solids from metals cleaning ventilating ducts	100 gallons
Material cleaned from sewers	60 gallons
Spent ferric chloride	14 gallons
Misc. laboratory packaged chemicals	700 gallons

Miscellaneous trash has been hauled by James Moran Trucking Co. (1925 to 1965) to unknown disposal sites and by Downing Container since 1966 to either Seaway Industrial Park in Tonawanda or Niagara Recycling in Niagara Falls.

Scrap metals have been hauled by W. A. Schneggenburger Co. of Buffalo since 1925 for reclamation.

Spent photographic chemicals have been hauled by Buffalo X-Ray for silver reclamation.

The other wastes identified above have been hauled by Frontier Chemical Wastes of Niagara Falls since 1975 and disposed of at Newco Waste Systems. The same wastes were disposed of at Chem-Trol in Porter (1972 to 1975) and hauled by Frontier Chemical (1966 to 1972).

The company does not know where such wastes were disposed of before 1966. The company also did not indicate where wastes from the Manhattan Project plant or from silicons pilot plant were disposed of.

However, DOE indicated to the Task Force that (a) 8000 tons of uranium ore tailing residues from the Manhattan Project plant were disposed of at the Haist property in Tonawanda now owned by Ashland Petroleum and (b) 33.1 tons of such residues are now stored at the Niagara Falls storage site in Lewiston and Porter.

In addition, DOE indicated that radioactive contamination in and around five buildings at Linde's Tonawanda facility will require disposal of 72,000 cubic yards of soil and 19,000 cubic yards of building materials. A federal survey has indicated that surface contamination may represent a potential problem for personnel involved in construction and maintenance activities directly involving contaminated surfaces.

Wastes from the Lackawanna plant include a container of general office waste per week hauled away by Downing Container and 2,000 to 3,000 gallons per year of waste lubricating oil reclaimed by Booth Oil Company and Frontier Pipe Cleaning Company.

Wastes from the Buffalo plant include lime water (3,650,000 gallons/yr.) which is hauled to Hooker Chemicals in Niagara Falls and general refuse.

Wastes from the Flux Manufacturing plant in Niagara Falls is sludge from a rotary air filter. 9.3 tons per week are hauled to Newco Chemical Waste Systems on Pine Avenue by Newco. Approximately one trash container per week is hauled away by Niagara Recycling.

UNION CARBIDE CORPORATION
Metals Division
137 47th Street
Niagara Falls

The Union Carbide Corporation Metals Division began operations in Niagara County in 1896 under the name Electro Metallurgical Company. The name was changed to Union Carbide Metals Company in 1959, to Union Carbide Corporation Olefins Division in 1964, to Union Carbide Corporation Chemicals and Plastics in 1967, to Union Carbide Corporation Mining and Metals Division in 1968; and to Union Carbide Corporation Metals Division in 1975.

Processes used at the plant include submerged arc, open arc and globar electric furnaces and exothermic and induction furnaces. Products include special alloys, tungsten, ferroalloys, calcium carbide and ferrovanadium ferrotungsten.

Estimated amounts of waste generated at the plant:

	Total Tons (1930 to 1975)
Furnace slag (ferroalloys)	157,500,000
Hydrated lime	63,000,000
Miscellaneous plant waste	950,000

All of the above wastes were disposed of at Union Carbide Corporation's former disposal site (now Newco) at 56th Street and Pine Avenue in Niagara Falls. Wastes were hauled by the Friona Brothers from 1930 to 1956 and by Union Carbide Corporation itself after 1956.

From 1942 to 1953, the plant received uranium tetrafluoride from Union Carbide's Linde Division and for conversion to uranium. DOE advised the Task Force that no radioactive contamination has been detected at the Metals Division plant.

The factory processing of uranium and thorium ores under NYS Radioactive Material License #950-0139 from August 1965 through April 1972 produced 505 tons of slag bearing 9212 pounds of thorium dioxide and 1293 pounds of "yellow cake" (U_3O_8). This slag material was placed in 55 gallons drums and buried in a designated area on plant property in a hole 20 feet deep with four to five feet of soil cover.

Essentially all demolition debris and material from the building used for uranium and thorium processing were land disposed under AEC direction and control at Lake Ontario Ordinance Works in Lewiston and Porter.

All combustible material was incinerated, the ashes monitored, and then disposed of on the Union Carbide Corporation's disposal site now run by Newco in Niagara Falls.

VANCHLOR CO., INC.
1 North Transit Road
Lockport

Vanchlor Co., Inc. began operations in Lockport in 1960. The company manufactures anhydrous aluminum chloride. The only waste product from this operation is aluminum dross (aluminum and aluminum oxides) (265 tons/yr.). This material is sold to ESM, a Pittsburgh, Pennsylvania firm which formulates steel additives from the aluminum dross. The only other waste products are sanitary wastes which are removed by Rural Sanitation, Inc. Refuse has also been taken to the Niagara County Refuse Disposal District Site in Lockport.

VAN DE MARK CHEMICALS CO., INC.
1 North Transit Road
Lockport

Van de Mark Chemical Co., Inc. was incorporated in 1951 in New York. It began operations in Lockport in that year.

The company manufactures silicon tetrachloride (1951 to present), titanium tetrachloride (1953 to 1959) and phosgene (since 1951). The waste materials associated with these production activities include silicon tetrachloride still bottoms, titanium tetrachloride still bottoms and waste chlorine.

From 1951 to 1968, wastes generated by Van de Mark were discharged to 18 Mile Creek. Since 1968, silicon tetrachloride still bottoms (131 tons/yr.) have been land disposed on-site in 55 gallon drums. The drums are buried in numerous limestone lined holes which are dug as disposal space is required. In addition, in 1977, Van de Mark used Newco Chemical Waste Systems for waste disposal of still bottoms.

Refuse from Van de Mark has been hauled to the Niagara County Refuse Disposal District Site in Lockport.

VARCUM CHEMICAL DIVISION
Reichhold Chemicals Inc.
5000 Packard Road
Niagara Falls

Varcum Chemical Corporation began operations in Niagara Falls in 1932. Since 1959, the company has been known as the Varcum Chemical Division of Reichhold Chemicals, Inc.

Since 1932, the company has been involved in the production of resins by phenol-formaldehyde condensation. Products include phenol resins (since 1932), furan resins (since 1952) and urea formaldehyde resins (1962 to 1975).

Varcum Chemical Division has reported that, prior to 1969, all wastes were incinerated at the plant. However, according to the company, no records concerning incineration activities and quantities are available. Since 1969, phenolic resin wastes in 55 gallon drums in the amount of 40 tons per year have been hauled from the plant by Modern Disposal Services, Inc. and by Niagara Sanitation. The destination of these materials is not known, but presumably such material is taken to Modern Disposal's dump site in Model City and to the Niagara Recycling dump site in Niagara Falls.

WESTERN ELECTRIC CO., INC.
Kenmore and Urban Streets
Buffalo

Western Electric was founded in 1869 and incorporated in 1915 in New York. Western Electric leased the Curtiss Wright Aircraft Plant in 1946 and began operation as Western's Buffalo shops that same year. In July 1947, it was renamed Western's Tonawanda Plant. On January 1, 1974, it was renamed Western's Buffalo Works. Western Electric ended operations in Buffalo on November 4, 1977. Manufacturing processes used at the plant included electric tin plating, wire drawing, enameling, color coding and hot dip tinning. Products included textile and polyvinyl chloride insulated cable and wire and enameled and tin plated wire.

Estimated amounts of wastes generated at the Western Electric plant:

	<u>Amount Per Year</u>	<u>Total Amount (1930 to 1977)</u>
Misc. paper products	441 tons	20,727 tons
P.V.C. plastic	550 tons	12,000 tons (1955 to 1977)
Misc. plastic	154 tons	3388 tons (1955 to 1977)
Rubber	2.2 tons	103.4 tons
Restaurant waste	73.5 tons	3454.5 tons
Fly ash	1,000 tons	23,000 tons (1946 to 1969)
Spent cleaning solvent	130,000 gal.	6,110,000 gal.
Waste oils	66 gallons	3102 gallons
Drummage and pallets	750 tons	32,250 tons
Continental enamel	1,000 gal.	470,000 gal.

From 1946 to 1966, combustible solid wastes was burned in the plant's incinerator and the ashes were sent to Western Electric's materials recycling plant on Staten Island, New York for recovery of copper. Fly ash and rubble were disposed of on Squaw Island, Buffalo. Buffalo Waste Oil of North Tonawanda and Bison Waste of Alden hauled waste oil from the plant. The company did not provide information on the disposal of the rest of the above named wastes from 1946 to 1966.

From 1967 through 1977, all the above named wastes were hauled to the Seaway Industrial Park by the Downing Container Company.

In 1974, 10,000 gallons of plating solution were disposed of and hauled by Chem-Trol to its Porter site.

WESTINGHOUSE MOTOR DIVISION
Westinghouse Electric Corporation
4454 Genesee Street
Buffalo

Westinghouse was incorporated in 1872 in Pennsylvania. It was known under the name Westinghouse Electric and Manufacturing Company, Inc. until 1945. It began operations in Erie County in 1946 when the present plant was acquired.

Products made by Westinghouse are as follows:

AC and DC industrial motor controls	1948 to present
Custom built industrial controls	1947 to present
Large rectifier and inverters	1970 to present
Military and defense control	1955 to present
Selenium rectifiers and surge compressors	1948 to present
Gears	1960 to present
Copper and aluminum - rare	1947 to 1972
Copper and aluminum Insulated	1947 to 1972
AC and DC electric motors and generators	1946 to 1975
ARC welding power supplies	1946 to 1967
Gas engine driven welders	Early 1950's
Welding torches and guns	1946 to 1967
Welding wire drives	1946 to 1967

Principal process used at the plant include wire making, aluminum and copper melting and casting, metal cutting, forming, painting and plating.

The following waste materials are generated: general refuse, waste oil, non-ferrous scrap, ferrous scrap, Westinghouse chemical codes 122-c through 122-z, ultra filter rinse water, iron phosphate solution, deionized resin solution, and waste mineral oil.

These waste materials have been disposed of as follows:

From 1946 to 1966, Westinghouse hauled general refuse in unknown quantities to the Pfohl Brothers Dump adjacent to its plant. Since 1966, Westinghouse has hauled general refuse to the Lancaster Sanitary Landfill, Inc. From 1968 to 1978, Continental Transfer Systems hauled general refuse to unknown sites.

Approximately 11,400 gallons of waste oil have been hauled from the plant for reclaiming by Buffalo Waste Oil Company of Tonawanda since 1975. Since 1972, 6,000 gallons per year of waste oil has also been hauled to Chem-Trol in Porter.

Non-ferrous scrap (360 tons/yr.) has been hauled since 1972 by the Manitoba Corporation of Buffalo for reclamation.

Approximately 500,000 lbs. per month of ferrous scrap (3,000 tons/yr.) has been hauled away for reclaiming by Reback Brothers of Niagara Falls since 1977.

Since 1946, Chapin and Fagin of Buffalo has accepted the following ferrous scrap for reclaiming;

1946 to 1974	15,000 tons/yr.
1974 to 1977	11,000 tons/yr.
1977 to 1978	8,300 tons/yr.

Since 1971, the following chemical wastes have been disposed of at Chem-Trol Pollution Services in Porter annually:

Trichloroethylene	715 gallons
Aqueous waste (containing sodium phosphate, borate, nitrate and other materials)	59,565 gallons
Paint waste (containing toluene and xylene)	6,215 gallons
Metal hydroxide sludge (containing heavy hydrated oxides or hydroxides)	1,815 gallons
Chloride and cyanide salts (containing sodium chloride, barium and sodium cyanide)	275 gallons
Solidified varnish	990 gallons
Waste copper brite	110 gallons
Mercury sweepings and pallets contaminated with mercury	60 gallons
Carbonate and chromic acid	165 gallons

Nitric acid	220 gallons
Liquid PCBs	55 gallons
Solid PCB waste	55 gallons
Varnish water waste	10,278 gallons
Houghto-Safe 620 (containing alcohols and water)	2,695 gallons
Fine still waste	60 gallons
Solid epoxy powder	60 gallons
Chlorinated solvents, varnishes, resins	165 gallons
Sodium sulfite in water	770 gallons
Waste methylene chloride	110 gallons
Freon	55 gallons

The company does not know where the chemical wastes identified above were disposed of before 1971.

Since 1974, Buffalo Sanitary Service of Clinton Street, Buffalo hauled ultra filter rinse water (5500 gallons/yr.), iron phosphate solution (2500 gallons/yr.), and deionized resin solution (200 gallons/yr.) to an unknown location. Booth Oil Company, Inc. hauled waste mineral oil (5000 gallons/yr.) to an unknown disposal site.

WESTWOOD PHARMACEUTICAL, INC.
468 Dewitt Street
Buffalo

Westwood Pharmaceuticals, Inc., a division of Bristol-Meyers Company, was founded in 1969. Prior to this time, the company operated under the name of Foster-Milburn. Founded in 1876, Foster-Milburn operated a small facility on Main Street in Buffalo before relocating to the present Dewitt Street site in 1901. Westwood produces tablets, liquid and suspensions of cosmetics, creams, lotions and gels.

The company has generated the following wastes:

Bulk products and returned goods

Organic waste solvents (chloroform, alcohol and ether)

Bulk products (100 gallons/yr. of liquid and 600 pounds/yr. of solids) have been hauled since 1970 by Downing Container Service to Chem-Trol in Porter. Organic waste solvents (1320 gallons/yr.) are reclaimed at Frontier Chemical in Niagara Falls.

J. H. WILLIAMS
Division of TRW, Inc.
400 Vulcan Street
Buffalo

This company was founded in 1882 and incorporated in New York in 1895. It began operations in Erie County in 1914. From 1930 to 1958, it was called J. H. Williams and Co. and, from 1958 to 1968, the J. H. Williams and Co. Division of United Greenfield.

The company produces mechanics hand tools, machine shop tools, stock forgings and forgings to order.

Processes used at the J. H. Williams plant since 1930 are acid pickling, grinding, steel forging, spray painting, black oxide anodizing and plating of steel forging. Heat treating of steel forgings began in 1947.

Waste products generated at the plant are spent acid, phosphorous acid, wood and paper, plastics, glass, chromium sulphate and nickel, cadmium, iron and zinc hydroxide precipitates, spent cyanide solution, chloride and nitrate salts, cyanide salts, a suspension of grinding stone dust and metal particles in water, waste cutting and lubricating oils, sludge from plating treatment (water and nickel, chromium, iron, zinc and copper hydroxides, soaps and chromium sulfate) and paint.

Spent contaminated nitric acid (500 gallons/yr.) has been neutralized with soda and sent to Frontier Chemical. Phosphorous acid (62.5 tons/yr.) has hauled by Frontier Chemical and Superior Pipe Co. of Woodlawn and treated and/or land disposed.

Wood, paper, plastics and glass (740 tons/yr.) have been hauled to Seaway Industrial Park in Tonawanda.

Chromium sulphate, nickel, cadmium, iron and zinc hydroxide precipitate spent cyanide solution and chloride and nitrate salts (10,000 to 17,000 gallons/yr.) have been discharged to the sewer or hauled by Rural Sanitation to an unknown location.

Waste Oils (4,000 gallons/yr.) were used on-premises for road dust control and probably hauled off-premises by Booth Oil.

Sludge from plating treatment (10,800 to 17,000 gallons/yr.) was hauled from the plant by Rural Sanitation for disposal at an unknown location or discharged to sewers.

Paint skimmings (250 gallons/yr.) were hauled from the plant by Rosen Refuse Service (now I.N.S.) of Tonawanda to an unknown site for disposal.

Unknown amounts of suspension of grinding stone dust and metal particles from the tumbling operation has been hauled by Superior Pipe Cleaning Company to an unknown location. The company has indicated that no waste from the tumbling process is disposed of on premises.

The Task Force has been advised that the company does use an on-premises disposal site for unknown quantities of industrial waste.

WILSON GREATBATCH, LTD.
10,000 Wehrle Drive
Clarence

Wilson Greatbatch, Ltd. was incorporated in New York and began operations in Clarence in 1970. The company assembles heart pacemaker lithium-iodine batteries.

Off-specification batteries and liquid wastes composed of approximately 90 percent acetone, 8 percent iodine and 2 percent polyvinyl pyridine are the only wastes generated from the manufacture of the batteries.

Approximately 6,720 gallons per year of liquid waste were transported by Rural Sanitation Service, Inc. to the Lancaster Sanitary Landfill (1976 to 1978). Frontier Chemical Waste Process, Inc. now hauls approximately 12,000 gallons per year of the liquid waste to its facility in Niagara Falls. Rejected batteries have been hauled to Newco Waste Systems to its disposal site in Niagara Falls since at least 1976.

Before 1976, liquid waste and batteries were stored on site.

Recently, Wilson Greatbatch was informed by Newco that batteries would no longer be accepted unless the lithium is in a chemically combined form. Wilson Greatbatch is now storing rejected batteries on plant property until arrangements can be made for disposal.

WINSMITH
Division of UMC Industries, Inc.
172 Eaton Street
Springville

Winsmith was founded and incorporated in New York in 1901. It began operations in Erie County in the same year and has since been known under several names! Essex and Smith Co. (1901 to 1924), Winfield H. Smith, Inc. (1924 to 1946), Winsmith, Inc. (1946 to 1963) and under its present name since 1963.

Winsmith produces speed reducers and gears. Processes used at this plant are heat treatment, salt bath carbonizing, machining (boring, cutting and facing), degreasing and painting.

The company generates the following waste products:

1. Steel fines, grinding fines (98 percent) mixed with waste coolant oil and water (2 percent).
2. Kolene heat treatment spillage ("Marquench #296", a salt material containing sodium cyanide).
3. Hydrochloric acid neutralized with sodium hydroxide. Some iron is present in this solution.
4. Machine, cutting and cooling oils.
5. Dried paint filters.
6. General industrial wastes.

From 1956 to 1976, all of the wastes identified above (except waste oils) were disposed of at the Chaffee Landfill. In 1976, 3750 gallons of Kolene heat treatment spillage, 600 gallons of hydrochloric acid and 462 square feet of paint filters and unknown amounts of the other wastes were disposed of at Chaffee.

Since 1976, Southtown Sanitation has hauled Winsmith's waste to either the Lancaster Sanitary Landfill or the Chaffee Landfill.

The company has also indicated that it dumped Kolene heat treatment spillage, neutralized hydrochloric acid and sodium hydroxide on a small hill on plant premises.

WORTHINGTON COMPRESSORS, INC.
Process and Gas Division
45 Roberts Avenue
Buffalo

Worthington Compressors was founded in 1840 and began operations in Erie County in the 1890's under the name Snow Steam Pump. Other company names have been the Worthington Pump and Machinery Co. (to 1954), the Worthington Corporation (1954 to 1966), Studebaker Worthington, Inc. (1966 to 1971), Worthington - C.E.I. (1971 to 1973) and Worthington Compressors, Inc. (since 1973). The company is a subsidiary of Studebaker Worthington, Inc.

Worthington now produces compressors. Until 1973, it also made diesel engines.

Processes used at the plant are plating, phosphating and cupola. Plating was discontinued in 1947. Cast iron parts for the compressors are made in the grey iron foundry.

The company has generated the following wastes;

Casting sands, slags, flyash and various binders

Waste oils

Crystallized salts from the "kolene" process

Degreasers (1,1,1, trichloroethylene, grease and dirt)

Polyester sludge

Casting sand and slags in amounts increasing from 4,000 tons per year in the 1930's were disposed at Houghton Park in Buffalo through 1973, and, since then, hauled by Niagara Sanitation in Niagara Falls and by Downing Container Service.

Waste oils (1,000 to 2,000 gallons/yr.) were used until 1974 for dust control off premises by a company employee until 1974. Since 1974, oil has been used for dust control on the plant premises and has been hauled from the plant by Booth Oil and Chem-trol in Porter.

Crystallized salts (100 gallons/yr.) and degreasers (55 gallons/yr.) have been hauled by Niagara Sanitation.

POWER PLANTS AND FACILITIES IN ERIE AND NIAGARA COUNTIES

I. HISTORY

Power has been produced in two areas of Erie and Niagara Counties since 1930.

One area is the site of the Charles Huntley Steam Station in Tonawanda. Built in 1916 the Huntley Station was operated by the Buffalo-Niagara Electric Company until 1950 when the company was merged with others to form the Niagara Mohawk Power Corporation ("NMPC"). It is still in operation today.

The other area of power production is in Niagara Falls. Major power production began in Niagara Falls in the late 1800's with the construction of the Edward Dean Adams Plant on the Niagara River above the Falls. By 1924, the Schoellkopf plant on the Niagara River below the Falls was in full production. By 1930, the owners of the Adams and Schoellkopf facilities had merged to form the Niagara Falls Power Company. In 1950, this company was further consolidated into the NMPC.

Power production from the Adams and Schoellkopf facilities came from water diverted from the upper Niagara River. The Adams Plant was fed by a short intake canal and a discharge tunnel ran almost 100 feet below the surface of the City of Niagara Falls. The Schoellkopf plant was fed by two water sources. Sections A and B of the plant were supplied by a 4,500 foot surface canal (the Hydraulic Canal) which began about a mile up river from the Falls and cut diagonally across the City of Niagara Falls. When Section C was added, a 4,400 foot underground tunnel, 32 feet in diameter was constructed to provide additional water supplies.

In 1956, Sections A and B of the Schoellkopf Plant fell into the Niagara River. Immediately thereafter the Hydraulic Canal serving Sections A and B of the plant was blocked off and filled. Section C of the Schoellkopf plant, with its 4,400 foot tunnel was salvaged. This section and the Adams Plant remained in operation until 1961. In 1961, after three years of construction, the Robert Moses Niagara Power Plant and the Lewiston Pump/Generating Plant were completed. Both of these hydroelectric facilities were and are still operated by the Power Authority of the State of New York ("PASNY").

II. WASTES

All power producing facilities in Erie and Niagara Counties have been either coal burning or hydroelectric. The Huntley Steam Station is a coal burning plant. Its major wastes are fly ash, bottom ash and boiler cleaning fluid. Boiler cleaning fluid may contain some zinc or vanadium.

Power production at the past and present hydroelectric sites in Niagara Falls generates little waste. However, transformers, regulators and capacitors used at the power generating facilities and on the power lines all use some type of cooling or insulating fluid. Generally, the fluid in large transformers and in capacitors have fluids with PCBs. Those on transmission lines do not have PCBs. The oil in regulators does not have PCBs.

III. SUMMARY OF FINDINGS

A. Power Authority of the State of New York

PASNY operates two interconnected facilities in Lewiston to produce hydroelectric power. Water is diverted from the Niagara River via two underground conduits to either the Lewiston Pump/Generating Plant or the Robert Moses Niagara Power Plant. During off peak periods, water is pumped by the Lewiston facility into a 1600 acre storage reservoir. The reservoir is man-made and utilizes dikes to contain the water behind the Lewiston Plant. Water from the reservoir is released through the Lewiston facility during peak demand hours. This station can produce 240,000 kilowatts of power. After traveling through the Lewiston Pump Station, water then goes to the Moses Plant which produces 1,950,000 kilowatts of power. Both the Lewiston and Moses Plant have large transformers. Electricity from the plant is then transmitted by cables in underground power tunnels to a switchyard located between two plants. The cable tunnels contain 138,000 gallons of special insulating oil. The switchyard has five large transformers which step up the voltage to be sent out along 115,000, 230,000, 345,000 volt transmission lines.

The PASNY facilities have generated the following wastes:

- Transformer insulating oils
- Used motor oils
- Debris from intake racks (which include rubber tires, tree stumps, sand, plastic, metal containers)
- Commercial rubbish
- Sewage from septic tanks
- Scrap metals

Since the beginning of its operation in 1961, PASNY has used holding tanks to store any waste oils until they could be removed by a hauler. Since 1961, PASNY has used Booth Oil Company of North Tonawanda for the disposal of transformer insulating oils and used motor oil. Niagara Junk Company of Niagara Falls has hauled scrap metals from the plant. Wolf Septic Services of Lewiston has hauled septic tank wastes from the Robert Moses and Lewiston facilities. Commercial rubbish has been hauled away by Niagara Sanitation, Inc. of Niagara Falls and by Modern Disposal Services, Inc. of Model City.

Between 1961 and 1974, approximately 500 tons per year of debris from the intake racks were disposed of at PASNY's own disposal site located north of the Lewiston reservoir and south of the Upper Mountain Road in Lewiston. In addition, two or three cubic yards of asbestos pipe insulation were dumped there.

Since 1974, PASNY has taken approximately 500 tons per year of intake debris to Newco Wastes Systems in Niagara Falls. In addition, 940 gallons of unused solidified paint were sent to Newco between 1974 and 1978. PASNY indicated to the Task Force that none of the transformer oils or other wastes generated by the Authority contain PCBs. PASNY also indicated that during the construction of the water intakes, plants, storage reservoirs and conduits, for its Lewiston and Robert Moses facilities, it encountered no wastes.

B. Niagara Mohawk Power Corporation

The NMPC operates the Huntley Steam Station and maintains transmission lines throughout Erie and Niagara Counties. Additionally, the company operated the Adams and Schoellkopf Stations in Niagara Falls.

The company could not provide information about the disposal of wastes produced at the Adams and Schoellkopf plants. It did indicate that the intake canals serving the Adams plant and the Hydraulic Canal were filled with clean fill by the City of Niagara Falls pursuant to written agreements between the company and city. Niagara Mohawk has since sold the canal property.

NMPC could not provide information about waste generation and disposal at the Huntley plant before 1957. From 1957 to 1970, approximately 112,000 tons of fly ash and approximately 23,000 tons of bottom ash were taken each year.

to the Seaway Industrial Park in Tonawanda. Since 1970, these wastes were disposed of on NMPC's own "Cherry Farm" disposal site on River Road in Tonawanda.

The Huntley Station has also generated 160,000 gallons per year of boiler cleaning wastes containing water and reagent. Since 1972, these wastes have been sent to Frontier Chemical Waste Process, Inc., in Pendleton and in Niagara Falls. Before 1972, these wastes were dumped in the Niagara River.

The Huntley plant has 89 transformers. Sixty-three of the transformers have PCBs. The company indicated to the Task Force that no waste PCBs have been generated by this equipment. The Company did say that waste capacitors with PCB fluids have been taken to Chem-Trol in Blasdell and then in Porter for several years. In 1976, NMPC indicated that it was disposing of 300 gallons per year of liquid PCB oils and three drums contaminated with PCBs per year together with scrap capacitors at Chem-Trol.

NMPC also indicated that approximately 650 tons of liquid phenol tar from the Durez Plant of Hooker Chemicals and Plastics Corporation were disposed of at Gratwick Park in North Tonawanda pursuant to an agreement between NMPC, the owner of the site, and Hooker. According to NMPC, no Hooker wastes were disposed at the Huntley Plant. Hooker indicated, however, that phenol tar was disposed of at the Huntley Station, while over 100,000 tons of other wastes were disposed of at Gratwick Park.

Finally, NMPC has indicated that no wastes from its Dunkirk Steam Station in Chautauqua County have been disposed of in Erie or Niagara Counties.

C. New York State Electric and Gas Company

NYSEG operates hundreds of miles of overhead and underground transmission lines (34,000 to 345,000 volts) and 50 transmission substations largely in the eastern areas of Erie and Niagara Counties. The company has indicated that it generates the following wastes:

- Obsolete hardware
- Transformers
- Transformer oils
- Rubbish
- Motor oil
- Capacitors (with PCBs)

Prior to 1974, all waste except transformers and transformer oils was taken either to the Lancaster Sanitary Landfill in Lancaster or to the Pfohl Landfill in Cheektowaga. Transformers with transformer oils were delivered to Lancaster Iron and Metals and are now taken to NYSEG's Binghamton plant for rewiring.

Since 1974, capacitors have been disposed at Chem-Trol (now SCA) in Porter and other wastes (except transformers and transformer oils) are hauled by a dozen haulers to unknown disposal sites in the two counties.

FEDERAL GOVERNMENT ACTIVITIES IN ERIE AND NIAGARA COUNTIES

I. HISTORY

Federal government activities which resulted, or may have resulted, in the disposal of hazardous wastes in Erie and Niagara Counties are primarily attributable to the operations of the Department of Defense and the Department of Energy and its predecessor agencies.

Department of Defense activities in Erie and Niagara Counties with the exception of continued operations of military and military reserve installations, were largely concentrated during World War II and, to a lesser extent, the Korean War. The Erie-Niagara area was a substantial contributor to the war material production effort during both these conflicts.

During World War II, the Department of the Army mobilized existing industrial resources in the Niagara Frontier by contracting with local manufacturers for the production of war material such as antiaircraft and steel armor castings, munitions (TNT) and chemical clothing protectors, as well as for the furnishing of combat support services such as the repair and winterization of aircraft, warehousing of aircraft parts, incendiary and napalm bombs and artillery maintenance. Many of these activities were resumed during the Korean War.

The industrial resources of the Niagara Frontier also provided crucial support to the Manhattan Engineering District (MED) and the Atomic Energy Commission (AEC) for the processing of radioactive materials during World War II (MED and AEC related activities have since been consolidated under the aegis of the Department of Energy). After the War, uranium ore processing was continued by a number of corporations under contract to the AEC for the production (full scale and pilot plant testing) of nuclear reactor fuel rods. Nuclear fuel processing in the Erie-Niagara area was gradually phased out and finally discontinued in 1956.

Current DOE involvement continues in the area in connection with the storage of radioactive materials at the Lake Ontario Ordnance Works in Lewiston and Porter. Since the Korean War, the primary DOD industrial-related activities in the area have been the production of aircraft parts and the testing of rocket engines and rocket fuels.

II. WASTES

Most of the industrial activities conducted or supervised by DOD and DOE and its predecessor agencies were performed under contract with private industry in the Erie-Niagara area. Most wastes generated through these activities were disposed of by the individual corporations which were under contract to the government. Consequently, there has been little disposal of hazardous wastes in landfills on government owned property. One notable exception is Air Force Plant #68 located at Lutts Road near Model City where significant quantities of lithium chloride and potassium chloride have been buried on government owned land. This plant is located on part of what once was the Lake Ontario Ordinance Works (LOOW) site.

The LOOW site, located in the Towns of Lewiston and Porter, was used during World War II primarily for the production of TNT. In 1948, 1511 acres of the former LOOW site were transferred from the Army Corps of Engineers to the Atomic Energy Commission. Since 1948, the land area under AEC jurisdiction has been reduced to 191 acres which is currently designated as the Niagara Falls Storage site (NFS).

Uranium processing activities from World War II through the Korean War resulted in the creation of low grade uranium tailings, slag and residues containing uranium and radium. Uranium ore tailing residues were disposed of on two-thirds of a ten acre site in Tonawanda, New York. This site, known as the Haist property, was sold to the Ashland Oil Company in 1960 and has subsequently been used as an oil storage tank farm. In 1974, 6,000 cubic yards of these uranium ore tailing residues were removed from the Haist site and used as landfill on three plots totalling 12 acres at the Seaway Industrial Park located adjacent to the Haist property in Tonawanda.

The NFS site has not been used for the ultimate disposal of radioactive materials, but it was used for the storage of significant quantities of radioactive byproducts. At present, the site is being used for the storage of uranium residues and is maintained by the National Lead Company of Ohio under contract to DOE. The federal government currently maintains by-product residues containing 21,415 pounds of uranium oxide (U_3O_8) on open ground. This ground was covered with topsoil and seeded with grass. Fifteen thousand cubic yards of earth and construction debris from the decontamination and destruction of Manhattan Project facilities have also been buried at the site. An additional 2,941 pounds of uranium oxide (U_3O_8) contained in residues as well as two tons of sand containing 175 pounds of uranium oxide (U_3O_8) are currently stored in a building at the NFS site.

Approximately 60 percent of the radioactive materials stored at the NFS site, however, are the property of the African Metals Corporation. The government contract with this corporation during the Manhattan District era stipulated that only the uranium content of ore imported from the then Belgian Congo (Zaire) was to be the property of the United States, with all other minerals remaining the property of the African Metals Corporation. As a result of this contract provision, an additional 55,756 pounds of U_2O_8 contained in processing residues and two pounds of radium 226 are currently owned by African Metals and stored in concrete structures maintained on the site by the National Lead Company of Ohio.

III. SUMMARY OF FINDINGS

A. Explanatory Note

The following two summaries are compiled from the reports of DOD and DOE in response to EPA questionnaires and communications. These summaries contain a description of the procedures followed by these agencies together with descriptions of the activities conducted or supervised by the federal government. Since most federal activities were performed by industrial contractors, these activities will, in most cases, also be described in the sections of this report describing private companies.

As EPA only received reports from DOE and DOD in late February 1979 and DOE and DOD have indicated that they are continuing to supplement and expand upon their reports, the following is not a definitive narrative of federal government activities in Erie and Niagara Counties. EPA has posed additional questions to these departments and will update the following summaries upon the receipt of additional relevant information.

B. Department of Defense

1. Investigation Procedure

In response to EPA communications, the Deputy Assistant Secretary of Defense for Energy, Environment and Safety requested the Army, Navy, Air Force and Defense Logistics Agency to survey their activities in Erie and Niagara Counties since 1930 and to identify, in particular, any hazardous waste disposal activities. The individual responses of these DOD component agencies were forwarded to EPA.

The Department of the Army investigation encompassed the review of Army real estate records, military installation and military personnel records, interviews with current and former military and civilian personnel who might have knowledge of hazardous waste disposal activities, interviews with private companies which had operated, under government contracts, government owned industrial facilities and an inspection of the former

Lake Ontario Ordinance Works (LOOW). This investigation took Army personnel from New York to Maryland and Missouri and involved the examination of approximately 150 linear feet of records.

The Army identified 24 facilities which were used by the Army and the Army Air Force. The investigation revealed only four activities at two locations that involved the handling of hazardous wastes. Operations at four other locations generated non-hazardous waste. These six locations are described below together with a brief listing of other facilities which were not likely to have generated significant amounts of wastes.

The Air Force provided summaries of activities at eleven locations. Summaries of four of these locations are set forth below together with a brief description of the other seven locations identified. The Navy made a comprehensive survey of all facilities owned, or formerly owned, by the Navy Department, and included summaries of the only two sites where there was a reasonable possibility of hazardous waste generation. The Defense Logistics Agency identified one activity in Massachusetts which ultimately resulted in the disposal of a limited quantity of hazardous wastes in Niagara Falls.

2. Site Summaries

(a) Department of the Army

(i) Niagara Falls Army Chemical Plant

This facility at 3163 Buffalo Avenue in Niagara Falls produced protective clothing impregnate, a chlorinated phenyl urea compound used as a defense against chemical agents. It was operated for the Army by DuPont during World War II and by Hooker Chemicals during the Korean War. Acid wastewaters were neutralized with lime and discharged to the city sewer system and ultimately to the Niagara River. Other waste products which were generated were disposed of by DuPont and Hooker Chemicals. These waste products included unknown quantities of viscous liquid, organic distillation residues as well as floor sweepings and filter cloths. These materials were placed in steel drums and disposed of by DuPont at its Necco Park facility in Niagara Falls. In addition to the filter cloths and sludge from the trichloraniline/hydrochloride still which had been disposed of by DuPont, Hooker Chemicals also placed floor sweepings from a zinc oxide milling operation (an innovation added to the former DuPont process) into steel barrels for disposal at an unknown Hooker landfill, probably, in light of information received by the Task Force from Hooker, Love Canal. (See description of Hooker Chemicals and Plastics Corporation). Evidence indicates that Hooker generated 30 steel drums of waste per month during its operation of the facility.

(ii) Lake Ontario Ordinance Works (LOOW)

The TNT production facility at the LOOW site in Lewiston and Porter was owned by the Army from 1941 to 1946. Active production of TNT (Trinitrotoluene) occurred at the site from October 1942 to September 1943 when the facility was operated by the Chemical Construction Corporation. In addition to TNT production, ammonia oxidation and sodium sulfite intermediates production also occurred at the site. TNT contaminated wastes were burned on site. Unknown quantities of nitric and sulfuric waste acids were neutralized and discharged through plant industrial sewers to the Niagara River. TNT wash waters and red water (containing organic by-products) in a combined flow of approximately 130,000 gallons per day were discharged to a surface drainage ditch leading to the Four Mile Creek and thence to Lake Ontario.

After production of TNT at the LOOW site ceased in 1943, parts of the site were used by the Army for other purposes. From June 1944 to August 1945, a parcel (designated the Northeast Chemical Warfare Depot) was used for the storage of incendiary and napalm bombs, impregnite and aluminum scrap. From April 1955 until Nike-Ajax rocket sites in the area were decommissioned, the Model City Igloo Area of the LOOW site was used as a consolidation point for liquid fuel components for Nike-Ajax rockets. This fuel was then shipped from the Igloo Area to outside destinations, primarily the Edgewood Arsenal in Maryland. Part of the site was used for Nike Battery NF-03 from April 1957 to September 1966. When this site as well as other Nike-Ajax sites in the area were decommissioned, the liquid contents of the Ajax rockets were shipped to the Igloo Area for consolidation as described above. There is no evidence indicating that solid waste disposal resulted from any of the above activities.

The 40th Explosive Ordinance Detachment, stationed at Fort Niagara in October 1953 and relocated to the Niagara Falls International Airport in 1960, used a disposal site in the Model City Igloo Area for destruction of miscellaneous munitions and other explosive devices by burning and detonation until 1969.

(iii) Buffalo Otis Elevator Ordinance Plant

This facility was constructed by the Army in 1942 and operated by the Otis Elevator Company in conjunction with its adjacent foundry. The facility produced steel castings for anti-aircraft and other armament parts. The only waste materials generated were sand molding cores which are believed to have been buried in an Otis Elevator owned lot adjacent to its foundry on Dutton and Northland Avenues, Buffalo.

(iv) Symington-Gould Steel Foundry
(now Dresser Industries, Inc.)

This facility in Depew, New York was acquired by the Army in 1942 and operated by Symington-Gould for the production of steel armor castings for tanks. Waste generated included silica and bentonite clay casting cores as well as scrap metals from chipping and grinding operations. Disposition of these materials is uncertain, but wastes are believed to have hauled off-site for use as construction fill.

(v) Buffalo Modification Center #5

This was an aircraft modification facility adjacent to Buffalo International Airport which was operated by Curtiss-Wright Corporation for the overhaul and winterizing of aircraft. The disposition of scrap metal and refuse from machine operations is not known.

(vi) Aircraft Modification Center #7

This facility was located at Niagara Falls International Airport. Only scrap materials from machine shop operation were generated with an unknown disposition.

(v) Miscellaneous - Army Air Force
Specialized Depots

These facilities at 1695 Elmwood Road and 701 Seneca Street in Buffalo were used for the storage of aircraft parts, although some machine shop activities may have been conducted at the Seneca Street site. No hazardous wastes were generated.

(b) Department of the Air Force

(i) Air Force Plant #38

Located on Balmer and Porter Roads (part of the LOOW site) in Porter, this facility is owned by the Air Force and has been continually operated since 1942 by Bell Aerospace. The facility produces rocket propulsion hardware and lasers. Waste propellants and flush fluids (isopropyl alcohol, N_2H_4 , UDMH, MMH, flammable liquids) are incinerated on site. Black powder explosives are detonated by the New York Army National Guard in on site detonation area. Other combustible wastes are hauled off-site by private contractors. All three disposal activities are approved by New York State.

(ii) Air Force Plant #68

Located on Lutts Road near Model City (part of LOOW site), this facility was active only during 1958 to 1959 when it was operated by the Olin Corporation for the synthesis of alkylated decaborane (high energy fuel containing hydrogen and boron).

Dispersion slurry oil (14,000 gallons) and lithium hydride (4.1 tons) were incinerated on site. Lithium chloride (13 tons) and potassium chloride (14.6 tons) were buried on site in a disposal pit along with an additional 8 tons of lithium chloride contaminated with kerosene, water, oil, and process residuals. Salt contaminated with 20,000 gallons of methanol and 25 tons of lithium chloride is buried in an adjacent plot. Miscellaneous decontamination solutions and small amounts of other unspecified chemicals were also buried on-site. Finally, according to Olin records, there were burning pits at this site used for off-specification borane compounds and other combustible wastes. The residue in the pits was covered over when the burning operation ceased.

(iii) 763rd Radar Squadron, Lockport
Air Force Station

An active base since 1950, this three acre on site area was used primarily for the disposal of domestic type refuse. However, 20 gallons of contaminated transformer oil (probably containing PCBs) was disposed of either on site or by Modern Disposal in Model City in early 1960.

(iv) Air Force Plant #18

Located on 2221 Kenmore Avenue in Buffalo, this facility was operated by Bell Aerospace from 1953 to 1958 for the production of aircraft parts. The industrial processes included fabrication, assembly, metal cleaning, grinding, nitric acid passivating, soldering/welding, forming, tube bending, spray painting and machining. Unknown quantities of brush wash, paint sludge and solvents were placed in five gallon containers and taken to Bell Aerospace's Wheatfield, facility for disposition. The facility was sold to the H Street Company in 1961.

(v) Other Sites

Air Force Plant 40 (2450 Kenmore Avenue, Tonawanda)

This facility was used for the maintenance, repair and testing of rocket engines (short of hot fire) from 1955 to 1958 by Bell Aircraft with no generation of hazardous wastes.

Air Force Plant 49 (60 Grider Street, Buffalo)

This facility has been operated by Curtiss Wright Corporation since 1956 for the extrusion of steel and titanium alloys with support facilities for machining, heat treatment, straightening and sawing. Significant quantities of scrap metals are recycled. Sixty cubic yards per month of refuse (paper, rags, floor sweepings, etc.) are disposed of at the Lancaster Sanitary Landfill in Lancaster.

Air Force Installation XNSG (61 East Park Drive, Tonawanda)

This facility was leased by the federal government from the Union Carbide Linde Division and used from 1964 to 1967 for cryogenic testing. The only wastes generated were oxygen (75 tons) and nitrogen (285 tons) which were diffused to the atmosphere in a gaseous state.

Youngstown Test Site

No waste generation occurred at this site.

Niagara Falls Air Base (Niagara Falls International Airport, Towns of Niagara and Wheatfield)

Lockport Family Housing Annex (Lockport)

Lockport Commissary Facility Annex (Lockport)

The three facilities are reported to generate only domestic type wastes which are hauled off-site by contractors for disposal.

(c) Department of the Navy

(i) Lake Ontario Ordnance Plant
(Porter and Lewiston)

This facility was owned by the Navy from 1958 to 1960 when it was transferred to the Air Force. The facility is the same as that identified by the Air Force as Air Force Plant 68 which was operated by Olin for the pilot plant production of high energy decaborane fuels. Both the Air Force and the Navy report basically the same dates of operation. Unlike the Air Force which has detailed records of waste disposal, the Navy has no records of such disposal and simply states that it believes Olin had diluted boron wastes with water and discharged these wastes directly to the Niagara River. Additional information is presently being sought from both the Air Force and Navy.

(ii) Naval Industrial Reserve Aircraft
Plant (formerly Sterling Engine Company)

This facility was owned by the Navy and operated by FMC from September 1959 to the end of 1960 for research and development on auxiliary power units for aircraft using hydrogen peroxide. The Navy has no record of waste products from this process but suspects that FMC diluted any hydrogen peroxide waste products and flushed them to sanitary sewage lines.

(d) Defense Logistics Agency (DLA)

The DLA reported one disposal action in Wayland, Massachusetts which resulted in the disposal of 150 electron tubes containing three to five ounces of beryllium oxide each at Newco Chemical Waste Systems in Niagara Falls.

C. Department of Energy

(1) Investigation Procedure

The Department of Energy (DOE) report to EPA was based upon information contained in the records of two of its predecessor agencies, the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC). Since the MED was not established until 1942, the DOE's response was limited to the period since 1942. These agencies did not maintain accurate records for nonnuclear materials and chemicals, nor were any records maintained concerning industrial operations at contractor industries except for those activities at the industrial facilities which were directly sponsored by MED/AEC.

In 1973-1974, a general survey program was initiated by the AEC to identify previously utilized MED/AEC sites and to determine the radiological status of such sites. The 1973-1974 survey program was subject to a comprehensive update starting in 1976 when all sites which had been deemed to present potential radiological problems during the former survey were revisited (various sites were also subject to surveys in additional years as well). More than 70 former atomic energy sites in 23 states were surveyed by research and monitoring teams because radiological records were found to be missing or incomplete when the survey program began. The DOE conducted records searches of its predecessor agencies, conversations with site owners, site visits and full surveys at 39 sites. These investigations were initiated by the AEC and continued by the Energy Resources and Development Administration (ERDA) which assumed responsibility for site investigations from the AEC upon its formation in 1975. In October, 1977, ERDA was absorbed into the new DOE which, in turn, assumed responsibility for these surveys.

After the 1976 survey has been completed, certain sites which were considered to present no radiological problems were deleted from the survey list, while the sites which remained on the list were subject to continuing investigations. Some of the sites which are identified below have been the subject of repeated analysis up to the present time for radiological emissions potential.

The report which DOE submitted to EPA was compiled on the basis of these surveys and additional records of the MED, AEC and ERDA's Oak Ridge National Laboratory and Oak Ridge Operations Office, Oak Ridge, Tennessee. As a result of its investigatory effort, DOE identified nine sites in the upstate New York area: two sites which were used for the disposal of radioactive uranium tailings wastes; five sites which were industrial in nature for which information was available only with respect to radiological activities; the Niagara Falls Storage Site (NFS) which is presently used for the storage of uranium residues owned both by DOE and a private corporation, African Metals and the Boron Isotope Separation Plant which was previously operated at the LOOW site.

Summaries of these nine sites are provided below.

(2) Explanatory Notes

The first two elements of the Federal Radiation Protection Guidance, prepared by the Federal Radiation Council and published in the Federal Register on May 18, 1960, read as follows:

1. There should not be any man-made radiation exposure without the expectation of benefit resulting from such exposure.
2. The term "Radiation Protection Guide" is recommended to be adopted for Federal use. This term is defined as the radiation dose which should not be exceeded without careful consideration of the reasons for doing so; every effort should be made to encourage the maintenance of radiation doses as far below this guide as practicable. (Emphasis added.)

These elements of the guidance gave rise to the acronym "ALARA", i.e., sites should be sufficiently decontaminated to allow unrestricted use with the goal of showing that radiation levels at these sites are "as low as reasonably achievable" (ALARA). In no event, were exposure levels to exceed the levels established by the FRC as Radiation Protection Guides.

This basic guidance was subsequently elaborated on to the extent that no exposure to radiation was to be permitted unless the potential hazard from exposure was outweighed by the reasons for accepting that particular level of exposure. Therefore, the ALARA principle would operate to keep exposure levels below the levels recommended by Radiation Protection Guides unless the reasons for not going to a lower level outweighed the decrease in risk to be expected from reducing the exposure.

It is in basic conformity to these principles that DOE suggests for numerous sites that additional remedial excavation work be conducted to reduce the level of exposure even if exposure levels do not exceed current guidance levels.

The responsibility for making recommendations for Federal radiation guidance has since devolved upon EPA. On November 15, 1978, EPA published for comment its proposed recommendations for Federal guidance entitled "Criteria for Radioactive Wastes" in the Federal Register. When such proposed guidance is finalized, it will be submitted to the President for approval and upon the President's approval will operate as the applicable guidance for all Federal agencies. The proposed EPA guidance would, inter alia, recommend the control of naturally-radioactive residues from uranium processing where exposure to radiation would be increased above that of the preexisting natural state of the area. It would expand upon the ALARA principle by defining as

the fundamental goal the complete isolation of radioactive waste over the hazardous lifetime of that waste to prevent both human and adverse environmental impacts. The proposed guidance would continue and reinforce the existing practice that Federal institutional control should be maintained over a site until "optimal environmental isolation" is accomplished. If such isolation cannot be effectuated, Federal ownership of the land should be extended beyond the normal period of institutional control in order to reduce potential intrusion.

The remedies that will ultimately apply to sites where more work is necessary will be developed through the application of the recently proposed EPA recommendations and a long term management program now being prepared by the federal Interagency Waste Management Task Force.

(3) Site Summaries

(a) Uranium Tailings Disposal Sites

(i) Ashland Oil Company (Haist Property) Tonawanda

The Haist property was leased by MED in 1943 and purchased in 1944. The site was used for the disposal of uranium processing residues generated by Linde Air Products Division of Union Carbide from 1943 to 1946. Sixteen million pounds of uranium ore tailing residues containing .54 percent uranium from refining operations were disposed of on two-thirds of the ten acre site. In 1960, the site was sold to the Ashland Petroleum Company which used the site for the construction of an oil tank farm at its Tonawanda oil refinery.

DOE has estimated that 48,000 cubic yards of soil may require further disposal so that the site may be utilized for unrestricted use. In the Preface to its Final Report on the Radiological Survey for this site, the DOE summarized its findings as follows:

Specific findings indicate the presence of low levels of radiation and contamination in soils on the property. Under current usage of the site there is no hazard to people working in this area. However, certain use conditions could arise in the future that would likely represent an unacceptable situation, hence, the DOE plans to conduct further engineering assessments of this site to identify the necessity and possible options for remedial action.¹

1

Formerly Utilized MED/AEC Sites Remedial Action Program, Radiological Survey of the Ashland Oil Company, Tonawanda, New York, Final Report, May 1978, U.S. Department of Energy (Doc. No. DOE/EV-0005/4) (Available from National Technical Information Service (NTIS)).

(ii) Seaway Industrial Park (Tonawanda)

In 1974, 6,000 cubic yards of uranium ore tailing residues were removed from the Haist property and used as landfill on a ten acre site and two smaller sites owned by the Seaway Industrial Park Development Company, Inc. The 6,000 cubic yards of uranium ore tailings were spread over the disposal sites to a depth of two feet and was mixed with other fill material for a total of 39,000 cubic yards of radioactive contaminated fill material.

The survey results indicate that "the radioactive residue is being scattered somewhat by surface run-off (particularly from the higher elevations on the site)".² Surface runoff containing radioactive residues results from the fact that, in many instances, the fill material residue was not covered, but placed in mounds at the surface. While the contaminated surface runoff at the site merits further scrutiny, DOE's survey reports that "there are not distinct health hazards which result from atmospheric transport of radon from the site".³ However, the site cannot presently be classified for unrestricted use since if buildings were to be constructed on certain areas of the site, radon-daughter⁴ concentrations could develop in these buildings at levels in excess of recommended standards.

(b) Activities on former Lake Ontario Ordinance Works (LOOW) Site

(i) Boron-Isotope Separation Plant

This facility was operated from 1954 to 1958 by Hooker Chemical and from 1964 to 1971 by the Nuclear Materials and

² Formerly Utilized MED/AEC Sites Remedial Action Program, Radiological Survey of the Seaway Industrial Park, Tonawanda, New York, Final Report, May 1978, U.S. Department of Energy (Doc. No. DOE-EV-0005/6) (Available from National Technical Information Service (NTIS), p. 12.

³ Id. at 13.

⁴ Since uranium is radioactive, it spontaneously changes (decays) into radium and gives off radiation. The radium in turn radioactively decays into radon, a radioactive gas. The consequent radioactive decay of radon into "radon daughters" results in the emission of alpha, beta, and gamma radiation, with alpha radiation being the most significant from a human health perspective. Radon and radon daughter radiation emissions may not be significant on an ambient, atmospheric level, but certain buildings may concentrate radon levels to the extent that a human health hazard could be presented.

Equipment Corporation of Apollo, Pennsylvania for the separation of boron isotopes. The separation of boron isotopes was accomplished by the dimethyl (association-dissociation) process. No hazardous materials were associated with the project and no radioactive materials were used in the operation. Since the project did not directly involve the atomic energy program, DOE did not maintain detailed records on this operation and could provide no information on the nature of any waste products which may have been generated.

Spot check radiation surveys in October 1970 indicated that radioactivity exceeded AEC guidelines on certain areas of the former LOOW site. In 1970, newspaper accounts attributed this radioactivity to the boron-isotope plant, but the contamination was, in fact, attributable to the prior storage of uranium refinery residues and contaminated building rubble. Radioactive "hot spots" were decontaminated in 1972 for the whole former LOOW site. Approximately 15,000 to 20,000 cubic yards of radioactive soil and debris were removed from the 6.6 acres where AEC radiation standards had been exceeded. This debris was piled on the remaining AEC site in a fifteen foot high, one acre mound (discussed in the Niagara Falls Storage Site summary below).

(ii) Niagara Falls Storage Site (NFS)

A portion of the LOOW, the DOE Niagara Falls Storage Site (located in the Towns of Lewiston and Porter), is currently managed for the DOE by the National Lead Company of Ohio for the storage of a large quantity of radioactive residues.

The site was first used for the storage of radioactive materials in 1944 when low grade pitchblende, uranium refinery residues from the Linde Division of Union Carbide, was transported there. Following World War II, contaminated debris from Linde Air Products and other plants was disposed of at the site. In 1949, high grade pitchblende residues (K_{65}) from Mollinckrodt Chemical Works, a St. Louis refinery, were shipped to NFS for storage in 55-gallon drums. In 1952-53, these K-65 residues were transferred from the drums to a 165-foot high reinforced concrete silo, Building 434. In the early 1950s, radioactive materials from the University of Rochester were stored at NFS. In 1972, 15,000 to 20,000 cubic yards of soil, gravel and rubble were removed from "local hot spots" (including the vicinity of the Boron-Isotope Separation Plant) and stored in a fifteen foot high mound on a one-acre plot.

In sum, (a) 21,415 pounds of uranium oxide (U_3O_8) are stored on open ground (primarily the residues from the Linde operation) (This area was covered with topsoil and seeded to grass in 1964); (b) 15,000 to 20,000 cubic yards of earth and buried debris (the

15 foot high mound) from "local hot spots" is adjacent to the Linde residue storage site; (c) 2,941 pounds of U_3O_8 contained in pitchblende ore residues are stored in Building Number 410 and (d) an additional 175 pounds of U_3O_8 contained in two tons of sand are stored in an open pit on the second floor of this building. The above materials are all owned by DOE.

Moreover, the African Metals Corporation owns 10,982 pounds of U_3O_8 and two pounds of radium²²⁶ in Building 434; 40,641 pounds of U_3O_8 (Linde pitchblende residues) stored in Building 411 and 4,133 pounds of U_3O_8 also from Linde stored in Buildings 413 and 414.

The African Metals Corporation supplied pitchblende ores from the then Belgian Congo (Zaire) to MED under a procurement contract which expired in 1958. The terms of this contract would have allowed the corporation to abandon these residues upon contract expiration. However, in 1958 a twenty-five year lease was negotiated with AEC whereby the corporation retained title to the residues but was required to remove the residues upon termination of the lease in 1983. African Metals has indicated to DOE that it may not be able to fulfill these terms of the lease and the federal government is considering contingency plans in the event that it must assume responsibility for these materials.

The materials contained in the buildings on site are reported to be adequately maintained by the National Lead Company of Ohio and present no immediate hazard. The wastes stored on open ground, however, do present an immediate short-term problem. This storage area is only 100 feet from a master drainage ditch which drains into Four Mile Creek and thence into Lake Ontario. The land in the area is poorly drained, and surface ponding is common.

Adequate drainage of these storage areas must be maintained to prevent contamination of surface water runoff and subsurface water tables. The potential surface and subsurface water contamination would not be significantly reduced by the removal of the more significant radioactive materials stored in the on-site buildings. Both surface and well water samples are routinely taken on and around the storage site. Concentrations of uranium and radium have been well within concentration guides for water in uncontrolled areas.

DOE is currently evaluating a number of alternatives for the long-term management of this site. The alternatives include the maintenance of the site as a permanent storage facility with additional measures taken to reduce radon exhalation, a partial removal of the material and a consolidation of the remainder and a complete removal of materials and decontamination of the site. To date, no decision has been made on these alternatives.

In the interim, DOE is maintaining its monitoring surveillance of the site. In August, 1978, the DOE Environmental Measurements Laboratory began off-site radon monitoring, both indoors and outdoors, to supplement the property-line monitoring conducted by National Lead. Radon exhalation levels were found to be excessive in only one area, at the fence-line near the central drainage ditch. DOE plans to spray coat some of the residues in this area to temporarily reduce radon exhalation. The results of an aerial survey conducted in October, 1978 are still being analyzed and correlated with ground survey results. DOE is currently in the process of contracting for additional engineering studies of the site to identify more clearly the costs and environmental impacts of the alternatives for future site usage.

(c) Industrial Facilities

(i) Linde Air Products Division, Union Carbide Corporation (Tonawanda)

The Linde Division was under contract with MED to process uranium ore to uranium oxide (UO_2) and to process the uranium oxide to uranium tetrafluoride (UF_4). Five buildings were used for this process at Linde's Tonawanda facility from 1942 to 1948. When the government contracts expired in 1948, the buildings which were constructed by the government were sold to Linde, and four of these five buildings are presently in use. A 1976 DOE survey showed that surface contamination in four buildings was quite extensive and may represent a potential radiation safety problem to personnel conducting maintenance or construction activities directly involving these surfaces. New York State was briefed on these survey results in 1977 and amended its permit²³⁸ for the site.²²⁷ The radiological survey also indicated uranium²³⁸ and actinium²²⁷ contamination of soil in some areas of the site.

DOE estimates that a maximum of 72,000 cubic yards of soil and 19,000 cubic yards of building materials may require further disposal if a remedial action is required for this facility.

(ii) Simonds Steel Division, Guterl Special Steel Corporation (Lockport)

Simonds rolled and forged between 12,500 to 17,500 tons of uranium and 15 to 20 tons of thorium under contract to the AEC (and subcontract to National Lead of Ohio) at its Lockport facility between 1948 and 1956. All residues from the process were returned to AEC or National Lead. High radiation levels in the quench tank area of the plant were successfully reduced following a decontamination effort in 1958. A 1976 survey conducted by the Oak Ridge National Laboratory showed acceptable

levels of residual alpha radiation, but beta-gamma radiation in excess of NRC guidelines for unrestricted use. There were unacceptable levels of uranium and thorium in some soil samples. All soil samples, however, had acceptable levels of radium, and there was no indication of either a radon or water contamination problem. DOE estimates that a maximum of 100 cubic yards of soil and 100 cubic yards of building material may require further disposal.

(iii) Hooker Electrochemical Company
Niagara Falls

Hooker Electrochemical Company (now Hooker Chemicals and Plastics Corporation) had a 1943 contract with MED for the slag recovery of uranium bearing materials (e.g., furnace liners) as a precursor to uranium recovery. An October 1976 DOE survey indicated that residual radioactivity levels were within Federal and State guidelines for unrestricted use.

(iv) Bethlehem Steel Corporation (Lackawanna)

In 1949, the AEC contracted with Bethlehem for weekend-only use of the facility to develop mill pass schedules for the rolling of uranium billets. The data developed at Bethlehem from 1949 to 1951 was used to design the National Lead rolling facility in Fernald, Ohio. All scrap materials were returned to the AEC. A radiological survey conducted in 1976 showed no radioactivity above background levels. As a result, the Bethlehem facility was deleted from the DOE list for further monitoring.

(v) Electromet Corporation, Union Carbide
Metals Division (Niagara Falls)

This facility received uranium tetrafluoride (UF_4) from the Linde facility and further processed it to uranium metal. The facility was constructed by the government and operated from 1942 to 1953. The facilities were sold to Electromet upon termination of the contract. The Oak Ridge National Laboratory conducted a cursory survey in August 1976 and found no indication of contamination. Union Carbide indicated to the Task Force that its Metals Division operated a facility for the processing of uranium and thorium ores from 1965 to 1972. 505 tons of slag from this operation containing 9212 pounds of thorium dioxide and 1293 pounds of uranium oxide were buried on site. Demolition debris and building materials were disposed of at LOOW. Ash from the incineration of combustible material was disposed of at what is now Newco Waste Systems in Niagara Falls.

SECTION IV

WASTE HAULERS

The following pages describe 133 companies that are or have been hauling industrial wastes in Erie and Niagara Counties. The waste haulers were identified from three sources:

1. Current lists of haulers registered pursuant to Part 364 of Volume 6 of the Codes, Rules and Regulations of the State of New York;
2. Current lists of known but unregistered haulers; and
3. Questionnaires submitted to the Task Force by waste generators.

Most of the registered and unregistered haulers (1. and 2. above) were also cited in the completed questionnaires. Only those haulers on the initial list compiled by the Task Force (1. and 2. above) were contacted directly by the Task Force. Those haulers identified by the generators as hauling unspecified wastes or merely garbage, human wastes or trash are not included in this report.

The descriptions also do not cover "common carriers", contract haulers for specific lots of waste, raw material or products, although the following common carriers were investigated:

Matlack, Inc.
2445 Allen Street
Niagara Falls

Frontier Delivery, Inc.
670 Elk Street
Buffalo

Chemical Leaman Tank
Lines, Inc.
470 Fillmore Avenue
Tonawanda

A. R. Gundry, Inc.
370 Sawyer Avenue
Tonawanda

Contract haulers generally do not carry wastes to disposal sites. Residues from tank trucks, however, are disposed of.

The descriptions which follow do not indicate whether or not particular haulers are still in operation. Moreover, for the most part, the descriptions do not indicate where specific wastes from particular companies are disposed of. That is, all of the "wastes handled" do not come from all of the "companies served" and are not disposed of at all of the "disposal sites" identified.

ACME SERVICES

Wastes Handled

Gasoline storage tank sediment and gravity separator sediment

Companies Served

Mobil Oil

Disposal Sites

Niagara Recycling (Niagara Falls)

WILLIAM ADAMIEC

Wastes Handled

Paint sludges

Companies Served

Trico Products

AIRCO ALLOYS
3801 Highland Avenue
Niagara Falls

Wastes Handled

Slags and dust

Companies Served

Airco Alloys

Disposal Sites

Company owned site at Witmer Road, Niagara Falls

ALLIED CHEMICAL - BUFFALO DYE PLANT
South Park Avenue
Buffalo

Wastes Handled

Burnable refuse and miscellaneous laboratory chemicals

Companies Served

Allied Chemical Buffalo Dye Plant

Disposal Sites

Allied Chemical incinerator

ALLIED CHEMICAL INDUSTRIAL CHEMICAL DIVISION
35 Lee Street
Buffalo

Wastes Handled

Sulphuric acid

Companies Served

Ashland Petroleum

Disposal Sites

Allied Chemical Industrial Chemical Division plant

ALLIED CHEMICAL SEMET-SOLVAY DIVISION
3875 River Road
Tonawanda

Wastes Handled

Tar sludge, fly ash, cinders and dredged lagoon solids

Companies Served

Allied Chemical Semet Solvay

Disposal Sites

Allied Chemical Semet-Solvay Sites

ALLIED CHEMICAL SPECIALTY CHEMICAL DIVISION
3821 River Road
Tonawanda

Wastes Handled

Wood, paper, scrap polyethylene and ceramic saddle packing

Companies Served

Allied Chemical Specialty Chemical Division

Disposal Sites

Allied Chemical Specialty Chemical Division (Plastics)
dumpsite no. 1

AMERICAN OPTICAL
Eggert & Sugar Roads
Buffalo

Wastes Handled

Garbage, waste solvents, waste paints and thinners, scrap glass and emery and waste cutting oils

Companies Served

American Optical

Disposal Sites

Pfohl's Dump
Cheektowaga Incinerator
Land Reclamation (Cheektowaga)

ANDERSON TRUCKING
Kenmore

Wastes Handled

Sand and slag

Companies Served

Pratt & Letchworth

APEX AUTO PARTS
444 56th Street
Niagara Falls

Wastes Handled

"Fiberfrax" insulation, silica, grinding wheels, sandpaper
grit, inconel metal and stainless steel studs

Companies Served

Carborundum

Disposal Sites

Newco Waste Systems
Old Creek Bed (Tuscarora Road, Wheatfield)

ASHLAND CHEMICAL
2630 Elmwood Avenue
Kenmore

Wastes Handled

Sodium cyanide and solid pine tar pitch

Companies Served

American Optical

ATCOR
Park Mall
Peekskill

Wastes Handled

Thorium oxide and radium

Companies Served

Bell Aerospace

Disposal Sites

Peekskill

JOE BALL SANITATION SERVICES, INC.
17 Martin Avenue
Blasdell

Began operations in 1945.

Wastes Handled

Mixed municipal, commercial and institutional wastes and demolition materials; spent catalyst from Mobil Oil (1974).

Companies Served

Hanna Furnace
Ramco Steel
Mobil Oil

Disposal Sites

Seaway Industrial Park
Lancaster Sanitary Landfill
Land Reclamation (Cheektowaga)
Pfohl Landfill (Cheektowaga)
Chaffee Landfill
Eden Sanitation
Procknal and Katra

Spent catalyst from Mobil was disposed of at either Land Reclamation or Seaway Industrial Park.

M. BANCROFT & SONS ENTERPRISES
400 South Niagara Street
Lockport

Wastes Handled

Garbage, peroxides, keetox and oxylite wastes, peroxide pastes, starch contaminated with peroxides, cardboard, packaging materials, bags and fiber drums.

Companies Served

Noury Chemicals

Disposal Sites

Wilson/Cambria/Newfane Site
City of Lockport Dump

BASIC CARBON COMPANY
64th Street
Niagara Falls

Wastes Handled

Scrap paper, wood, graphite, carbon and garbage

Companies Served

Basic Carbon Company

Disposal Sites

Town of Wheatfield (Nash Road)

BECK TRUCKING COMPANY
1163 Eggert Road
Egbertsville

Wastes Handled

Slag and sand

Companies Served

Pratt & Letchworth
Chevrolet

BELL AEROSPACE
Niagara Falls

Wastes Handled

Scrap wood, fly ash, clay, heat treat salt caustic, plating tank sludge, plaster molds, salt solids, scrap paint, scrap adhesives and miscellaneous laboratory chemicals

Companies Served

Bell Aerospace

Disposal Sites

Walmore Road and railroad overpass (Wheatfield)
Niagara County Refuse Disposal District (Wheatfield)
Gratwick Park
Lynch Park
Town of Wheatfield (Nash Road)

BETHLEHEM STEEL
3555 Lake Shore Road
Buffalo

Wastes Handled

Slag and other plant waste

Companies Served

Bethlehem Steel

Disposal Sites

Company's on-premises site

BISON WASTE
12866 Broadway
Alden

Wastes Handled

Waste oil

Companies Served

Western Electric

BISON WASTE OIL
186 South Three Rod Road
Alden

Wastes Handled

Oil and oil and trichlorethylene mix

Companies Served

Bell Aerospace
Carborundum

BOOTH OIL COMPANY
Buffalo Waste Oil Service
76 Robinson Street
North Tonawanda

Began operation in early 1930s

Began re-refining in early 1960s

Wastes Handled

Oils (some with PCBs) and solvents

Companies Served

Chevrolet (Tonawanda)	Stauffer Chemical
Chevrolet (Buffalo)	Bell Aerospace
Bethlehem Steel	Amex
Spencer Kellogg	Allied Chemical (Semet-Solvay)
Bengart Memmel	Allied Chemical Specialty Chemicals
PASNY	(Plastics)
Ford Motor Company	Buffalo Pumps Division
Delco Appliance (Rochester)	F. N. Burt
Westinghouse (Buffalo)	FMC Corporation
Conrail	General Electric
General Oil Co. (Detroit)	Roblin Steel
Chrysler (Twinsburg, Ontario)	Republic Steel
New Process Gear (Syracuse)	Trico Products
Landoil Co., Ltd (Canada)	Strippit
Snyder Tank	Union Carbide (Carbon Products Div.)
Western Electric	Worthington Compressor
Hooker (Durez)	Goodyear
DuPont (Buffalo)	Spaulding Fibre
	DuPont (Niagara Falls)

Disposal Sites

From 1930 to 1960, most of the oil was either used on roads to control dust or as a fuel additive after sludge and water were removed. Unusable sludges were landfilled at Gratwick Park in North Tonawanda and at the Seaway Industrial Park where it was mixed with flyash.

Early in the 1960s, re-refining was commenced. Oil was dehydrated and filtered. Additives were introduced and the oil was resold, primarily as hydraulic oil. A portion of the re-refining requires use of sulfuric acid which results in an acid sludge. The sludge was landfilled at the Lancaster Sanitary Landfill, the Niagara County Refuse Agency site at Witmer Road, Wheatfield and Land Reclamation (Cheektowaga).

A portion of the "raw material" is unsuitable for re-refining, since it contains too much water and sludge. This has been used for road oil by municipalities and industrial parking lots primarily for dust control.

Reports submitted to DEC by Booth for 1976-1977 and 1977-1978 indicate that approximately four million gallons of oil per year were collected. Approximately 4000 to 5000 gallons per week of wastes are disposed of at landfills during full production.

Recently, process modification using caustic silicates have been attempted with inconsistent results. The wastes from the new process are allegedly more innocuous than those from the acid treatment.

BUFFALO SANITARY SERVICE
Clinton Street
West Seneca

Wastes Handled

Paint residues, paint sludges, septic tank sludge, ultra filter rinse water, iron phosphate solution and resin solution

Companies Served

General Electric
Allied Chemical Specialty Chemicals Division (Plastics)
Westinghouse

BUFFALO SANITATION
Buffalo

Wastes Handled

Filtration sludges, waste colors and solvents and trash

Companies Served

Allied Chemical Specialty Chemicals Division
(Dye Plant)
Harrison Radiator
Bell Aerospace

Disposal Sites

Lancaster Sanitary Landfill

BUFFALO SLAG COMPANY, INC.
111 Great Arrow Avenue
Buffalo

Wastes Handled

Slag

Companies Served

Hanna Furnace

BUFFALO X-RAY COMPANY
81 Market Street
Buffalo

Began operations in early 1960's

Wastes Handled

Buffalo X-ray is a supplier X-ray film and developing chemicals. The company also supplies buckets of steel wool to their customers. At the customers' facilities, the buckets containing steel wool are placed in a liquid waste stream containing silver solution from X-ray film development. Silver "plates out" as steel wool and corrodes, leaving a metallic silver which is reclaimed. No other waste materials are handled by Buffalo X-ray and no disposal site is used by the company. Thirty "buckets" per year are collected containing approximately 25 pounds of silver.

Companies Served

Union Carbide Linde Division

Disposal Sites

None

BURNS METALS
Clinton Street
Buffalo

Wastes Handled

Copper sludge, lead sulfite sludge and chromium hydroxide sludge

Companies Served

Buffalo Color
Allied Chemical Specialty Chemicals Div. (Dye Plant)

F. N. BURT COMPANY, INC.
2345 Walden Avenue
Cheektowaga

Wastes Handled

Waste adhesives, polyvinyl acetate, dextrans and waste inks

Companies Served

F. N. Burt

Disposal Sites

Altift Realty site

CAN PAC AGRICULTURE PRODUCTS, INC.
213 Chartland Boulevard South
Agincourt, Ontario

Wastes Handled

Pickle liquor

Companies Served

Bethlehem Steel

THE CARBORUNDUM COMPANY
Niagara Falls
Sanborn
Wheatfield

Wastes Handled

Fly ash, fire and brick, dust collector fines, kiln furniture, broken wheels, partially solidified and solidified resins, floor sweepings, waste fillers including calcium carbonate and clays, animal glue.

Companies Served

Carborundum

Disposal Sites

Lynch Park
Niagara County Refuse Disposal District (Wheatfield)
Carborundum's on-premises site (Wheatfield)

THOMAS CARTER TRUCKING AND EXCAVATING
North Ridge Road
Cambria

Wastes Handled

Contaminated soil from Olin premises

Companies Served

Olin Chemicals

Disposal Sites

Newco Waste Systems (Niagara Falls)

CATARACT DISPOSAL INC.
1606 8th Street
Niagara Falls

Wastes Handled

Chlorate sludge and secondary treatment sludge from Olin

Companies Served

Olin Chemicals
Bell Aerospace

Disposal Sites

Newco Waste Systems (Niagara Falls)

ARMAND CERONE, INC.
4625 Witmer Road
Niagara Falls

Wastes Handled

Carbon waste, tars, linseed oil and furnace insulation and a wide variety of organic and inorganic chemical wastes from DuPont

Companies Served

Airco Speer Carbon-Graphite
DuPont

Disposal Sites

Niagara Recycling (Niagara Falls)
Necco Park (Niagara Falls)
Newco Waste Systems (Niagara Falls)

TOWN OF CHEEKTOWAGA DEPARTMENT OF SANITATION
Cheektowaga

Wastes Handled

Metal dust and silicone, plastics, ash garbage, scrap glass, emery and rouge.

Companies Served

American Optical
Twin Industries
Westinghouse

CHEM-NUCLEAR SYSTEMS
3623 Eggert Road
Orchard Park
(Barnwell, South Carolina)

Wastes Handled

Low level radioactive materials, sludge, soiled filters, drummed waste foils and contaminated clothing

Companies Served

AMAX Specialty Metals
EAD

CHEM-TROL CORPORATION
Avon, Ohio

Wastes Handled

Solvents, paint and paint thinners

Companies Served

American Optical

CID REFUSE SERVICE
7121 Parkside Drive
Hamburg

Began operations in 1972

Wastes Handled - Mixed municipal, commercial, institutional wastes and demolition and clean-up material.

Companies served

Unknown

Disposal Sites

Lancaster Sanitary Landfill
Land Reclamation (Cheektowaga)
Seaway Industrial Park
Chaffee Landfill

At present, all material is disposed of at the Chaffee Landfill.

CLINTON DISPOSAL SERVICE, INC.
1273 Seneca Street
Buffalo

Began operations in 1964

Wastes Handled

Mixed commercial, institutional and municipal wastes, demolition and building rehabilitation debris.

Companies Served

Dresser Industries
AMAX Specialty Metals

Clinton has no major industrial accounts at present.

Disposal Sites

Squaw Island
Buffalo Incinerator
East Side Transfer Station (Buffalo)
Land Reclamation (Cheektowaga)
Seaway Industrial Park
Lancaster Sanitary Landfill
Pfohl Landfill

Flyash from Dresser Industries was taken to Dresser's on-premises site or Land Reclamation in Cheektowaga.

COLE-ZAISER, INC.
Little Pond Road
Williamsville

Wastes Handled

Waste oil

Companies Served

Anaconda

COMMERCIAL CHEMICAL COMPANY
211 Hertel Avenue
Buffalo

Wastes Handled

Synasol solvent

Companies Served

Chevrolet

Disposal Sites

Hukill Chemical Co. (Cleveland)

COMMUNITY DISPOSAL SERVICE
Hand Road
Chaffee

Wastes Handled

Rubbish, garbage, non-returnable oil drums, steel fines,
Kolene heat treatment spillage, hydrochloric acid, machine
cutting and cooling oils and dried paint filters.

Companies Served

Ford Motor Company
Winsmith

Disposal Sites

Chaffee Landfill

CONTINENTAL TRANSFER SYSTEM, INC.
2450 William Street
Cheektowaga

Wastes Handled

Paper, paper dust, wood, general refuse, oil sludge and drums

Companies Served

Arcata Graphics
Ford Motor Company
Westinghouse

Disposal Sites

Village of Depew
Lancaster Sanitary Landfill
Seaway Industrial Park
Land Reclamation (Cheektowaga)

COUNTRYSIDE DISPOSAL, INC.
1853 Saunders Settlement Road
Lewiston

Wastes Handled

General refuse

Companies Served

Bell Aerospace
Lockport Air Force Base

CRAYGO COMPANY, INC.

Wastes Handled

Gasoline storage tank sediment and crude oil tank sediment

Companies Served

Mobil Oil

D & D DISPOSAL
St. Catharines, Ontario

Wastes Hauled

Spent caustic wastewater and para-tertiary octyl phenol wash water

Companies Served

Hooker (Durez)

Disposal Sites

Interflow (Oakville, Ontario)

DAVIS SCRAP AND SERVICE CO.
427 Hertel Avenue
Buffalo

Wastes Handled

Lauroyl peroxide sludge

Companies Served

Pennwalt Lucidol

Disposal Sites

Seaway Industrial Park

S. A. DAY
Niagara Street
Buffalo

Wastes Handled

Alkaline and acidic wastes

Companies Served

Twin Industries

DOWNING CONTAINER SERVICE
191 Ganson Street
Buffalo

Began operation in 1952

Wastes Hauled

Plastics, solvents, paint sludges and filters, dust collector wastes, phenolic and other plastic resins, solvent sludge, still bottoms, pharmaceutical powders, heavy metal sludges, ink, oil and greases mixed with solids, sand, rubber, spent refractories, carbon blacks, Fuller's earth contaminated with waste oil, cutting oils, glass fines, lubrication oil, solvents, paint, paint thinner and paint waste sludge, laboratory sample bottles, waste colors, food processing, paper, packaging materials and domestic garbage.

Companies Served

Allied Chemical Specialty Chemicals Div. (Plastics)	Pratt and Lambert
Allied Chemical Specialty Chemicals Div. (Dye Plant)	Chevrolet
Worthington Compressor	Mobil Oil
American Optical	Macnaughton-Brooks
Bernel Foam Products	Pratt and Letchworth
Blaw Knox	Donner-Hanna
Dunlop Tire & Rubber	FMC Corp.
Fibron Products	Anaconda
Greater Buffalo Press	Ramco Steel
Madison Wire Works	Western Electric
Polymer Applications	Roblin Steel
Spencer Kellogg	Computer Printing
The Witteman Company	Union Carbide Linde Division
	Westwood Pharmaceuticals

Disposal Sites

Past

Altift Realty (Tifft Street, Buffalo)
Pfohl Landfill
Niagara County Refuse Disposal District
(Wheatfield)

Present

Lancaster Sanitary Landfill
Land Reclamation (Cheektowaga)
Seaway Industrial Park
Niagara Recycling (Niagara Falls)
Niagara County Refuse Agency (Lockport)

E. I. du PONT de NEMOURS AND COMPANY, INC.
Buffalo Avenue
Niagara Falls

Wastes Handled

A wide variety of organic and inorganic chemical wastes

Companies Served

DuPont

Disposal Sites

Necco Park (Niagara Falls)
Newco Waste Systems (Niagara Falls)
Niagara County Refuse Disposal District (Wheatfield)
Frontier Chemical (Pendleton)

ELMWOOD TANK CLEANING CORPORATION
62 West Market Street
Buffalo

Wastes Handled

Oils, solvents, degreasers, pit sludge, crude oil storage tank sediments, distillate storage tank sediments, unreacted phenol and resinous material

Companies Served

Allied Chemical Semet-Solvay Division
Roblin Steel
Chevrolet
Dunlop Tire and Rubber
Polymer Applications
Mobil Oil

Disposal Sites

Newco Waste Systems (Niagara Falls)
Other unknown sites

FERRY CONCRETE CONSTRUCTION CO.
3179 Walden Avenue
Depew

Began operations in 1961

Wastes handled

Foundry sand, slag, lubrication oil, brick, phenolic binders and slurry from sand washing (with bentonite clay)

Companies Served

Dresser Industries (1961 to present)
Chevrolet (1978)

Disposal Sites

1961-1976

Dresser Industries on-premises site

1976-present

Lancaster Sanitary landfill
Land Reclamation (Cheektowaga)
Lancaster Reclamation site
Various sites for construction fill

FMC CORPORATION
100 Niagara Street
Middleport

Wastes Handled

Waste kerosene with traces of pesticides, spent caustic, laboratory chemicals, furadan aqueous sludge, furadan and clay, plant floor sweepings and duct house bags, mixed liquid pesticide, polyram and clay, ferric hydroxide sludge with traces of arsenic, acidic calcium hydroxide sludge and water, empty pesticide containers and refuse.

Companies Served

FMC

Disposal Sites

SCA (Porter)
Newco Waste Systems (Niagara Falls)
Niagara County Refuse Disposal District (Lockport)

FMC CORPORATION
34 Sawyer Avenue
Tonawanda

Wastes Handled

Yard trash, scrap perborate, wood pallets and fly ash

Companies Served

FMC

Disposal Sites

Seaway Industrial Park

FRIONA BROTHERS, INC.
4806 Henry Avenue
Niagara Falls

Wastes Handled

Slag, hydrated lime, carbon, graphite, coal dust, solid pitch, wood and plant debris

Companies Served

Airco Alloys
Union Carbide Metals Division
Great Lakes Carbon

Disposal Sites

Union Carbide dump (now Newco Waste Systems) in Niagara Falls

FRONTIER CHEMICAL WASTE PROCESS, INC.
4626 Royal Avenue
Niagara Falls

Began operations in 1958

Wastes Handled

Waste oils, halogenated and non-halogenated solvents, acids (including nitric and sulfuric acid wastes), bases, heavy metal sludges, cyanide, sludges and filter cakes, tars and carcinogens.

Companies Served

181 companies including:

J. H. Williams
Union Carbide-Linde Div.
Twin Industries
Pratt and Lambert
Roblin Steel
Ford Motor Co.
Buffalo Color Corp.
FMC Corporation
Harrison Radiator
Shanco Plastics
Bell Aerospace
Mobil Oil

Arcata Graphics
Columbus McKinnon
Noury Chemicals
Lucidol
Allied Chemical Semet
Solvay Division
Allied Chemical Specialty
Chemicals Div. (Dye Plant)
Wilson Greatbatch
Westwood Pharmaceutical
Carborundum
DuPont (Niagara Falls)

Disposal Sites

Past: From 1958 to 1975, the company maintained a site on Town Line Road, Pendleton, Niagara County. Operations at that site included incinerators, neutralized distillation, oxidation and reduction (chemical) and recovery of saleable by products. An abandoned clay quarry, having a volume of approximately 108 million gallons (330 acre feet) was used to neutralize waste acids, including pickle liquor, containing iron, copper, zinc, nickel and other metals. The excess of precipitation over evaporation resulted in an increase in water elevations and a discharge into Bull Creek. This concentration of metals, as well as ammonia, exceeded effluent standards for Bull Creek. In addition, odors emanating from the pond caused complaints by neighboring residents. Odors also emanated from stored organic materials on the site. In 1976, the firm moved to its present location in Niagara Falls where tankage for storage and treatment as well as sanitary sewers for discharge of treated wastes are available. Stored drums were removed from the Town Line Road site and soil contaminated by spillage and leakage was scraped into a pile for future removal off-site to an acceptable disposal area yet to be determined. Plans for ultimate reclamation of the Pendleton facility are currently under review by the Department of Environmental Conservation.

Present: The present plant facilities are located in a former chemical production facility in the City of Niagara Falls. Wastes are received by tank truck, owned by Frontier and by contract haulers (common carriers), in drums and in bulk shipments. Frontier currently handles the following wastes:

Waste oil
Halogenated solvents
Solvents (non-halogenated)
Solvents (mixed)

Spent acids
Spent acids containing heavy metals
Spent acids containing metals
Spent acids containing organics
Emulsified oils
Spent caustic solutions
Spent sulfide and cyanide solvents
Cyanides & solvents containing heavy metals
Heavy metals and heavy metals sludges
Filter Cake and precipitates
Aqueous waste containing inorganics and organics
Waste paint and paint sludge inks
Packaged laboratory chemicals
Chemical contaminated materials (filter cartridges,
clothing, sweepings, etc.)
Organic chemical-waste liquids and solids
Ammonium fluoride solution
Calcium hypochlorite
Iron sludge

After the wastes are analyzed, a recovery/treatment/ disposal format is established for the wastes. Recovery involves distillative precipitation of metallic salts, blending for fuel purposes and other methods for reutilization of valuable materials. Reuseable drums are sold to drum reconditioners. Treatment involves neutralization of acids and bases, precipitation of solids, removal of water and undesirable materials, destruction of cyanide and other steps that will permit proper disposal. Disposal practices involve landfilling of materials not considered to be toxic or hazardous (drums, pallets, packaging materials) and disposal of other solids in a secure land burial site for toxic and hazardous solids, drummed sludges and carcinogens. The primary disposal site is Newco Waste Systems in Niagara Falls. The treated liquids are discharged into municipal sewers. Liquids unacceptable for discharge are trucked from the site for either incineration or deep well injection. Incineration has taken place at Tricil Limited, Berslan, Ontario. Deep well injection is done at Ohio Liquid Disposal, in Freemont, Ohio. Certain liquids having sufficient heat value are sold as fuel.

FRONTIER PIPE CLEANING CO.

Wastes Handled

Waste lubricating oil

Companies Served

Union Carbide Linde Division (Lackawanna)

FRONTIER TRUCKING SERVICE, INC.
489 Walden Avenue
Buffalo

Wastes Handled

Chloroethane, tar sludge, fly ash and cinders

Companies Served

Allied Chemical Semet-Solvay Division

Disposal Sites

Allied Chemical Semet-Solvay on-premises site

GEORGI SANITATION SERVICE
5337 Abel Road
Hamburg

Wastes Handled

Waste oil

Companies Served

Ford Motor Company

Disposal Sites

Lancaster Sanitary Landfill

THE GOODYEAR TIRE & RUBBER COMPANY
5408 Baker Avenue
Niagara Falls

Wastes Handled

Thiazole polymer blends

Disposal Sites

River Site (east of Olin's 102nd Street Site)

GREAT LAKES WRECKING CORPORATION
340 Elk Street
186 Warwick Avenue
Buffalo

Wastes Handled

Cooling water silt and demolition debris

Companies Served

Mobil Oil

Disposal Sites

Mobil Oil's on-premises site (Elk Street, Buffalo)

P. J. GROVE
Dallas, Texas

Wastes Handled

Copper sulfide sludge

Companies Served

Allied Chemical Specialty Chemicals Division
(Dye Plant)

C. A. HACKETT, INC.
2175 Military Road
Tonawanda

Wastes Handled

Slag

Companies Served

Bethlehem Steel

HARBISON BROTHERS
32 Appenheimer Avenue
Buffalo

Wastes Handled

Non-returnable drums

Companies Served

Ford Motor Company

HARRISON RADIATOR
Upper Mountain Road
Lockport

Wastes Handled

Cardboard, paper, metals and wastewater treatment sludge

Companies Served

Harrison Radiator

Disposal Sites

Lockport City dump
Niagara County Refuse Disposal District (Lockport)

HASLEY TRUCKING, INC.
10315 Lockport Road
Niagara Falls

Wastes Handled

Slag, wood, paper, rags, abrasive grain, scrap sandpaper,
incinerator ash, solidified resins, floor sweepings, waste filler
and animal glue

Companies Served

Airco Alloys
Bell Aerospace
Carborundum

Disposal Sites

Seaway Industrial Park
Lynch Park
Niagara County Refuse Disposal District (Wheatfield)
Niagara Recycling (Niagara Falls)
Carborundum's on-premises disposal site (Wheatfield)

HECKETT ENGINEERING CO.

Wastes Handled

Sludge, slag, iron oxide scale and dust, flue dust, carbon dust and pickle liquor.

Companies Served

Republic Steel

Disposal Sites

Republic's disposal site at Marilla and Hopkins Streets

C. H. HEIST
505 Fillmore Avenue
Cheektowaga

Wastes Handled

Sludge from cleaning sewers

Companies Served

Olin Chemicals

Disposal Sites

Newco Waste Systems (Niagara Falls)

HENDRICKS SALES CO., INC.
1325 Millersport Highway
Buffalo

Wastes Handled

Forging steel scale

Companies Served

Chevrolet

HOOKER CHEMICALS AND PASTICS CORPORATIONS
Niagara Falls
North Tonawanda
Grand Island

Wastes Handled

Wide variety of organic and inorganic chemical wastes

Companies Served

Hooker Chemicals

Disposal Sites

Love Canal

Hyde Park

On premises sites (Buffalo Avenue, Niagara Falls)

Niagara County Refuse Disposal District (Wheatfield)

INDUSTRIAL OIL TANK & CLEANING
Rome, New York

Wastes Handled

Crude oil storage tank sediment

Companies Served

Mobil Oil

INTERFLOW SYSTEMS
K & D ENTERPRISES
80 Bronte Road
Oakville, Ontario

Wastes Handled

Ink solvents, lubrication oils, nitric acid wastes and solvents

Companies Served

F. N. Burt

Arcata Graphics

JAMERIC, INC.
Dallas, Texas

Wastes Handled

Lead sulfide sludge

Companies Served

Allied Chemical Specialty Chemicals Div.
(Dye Plant)

KELSO CONTRACTING CO.
1853 Cleveland Avenue
Niagara Falls

Wastes Handled

Used machinery and equipment

Companies Served

Carborundum

KEPCO CONSTRUCTION COMPANY
113 Amherst
Buffalo

Wastes Handled

Scrap polyurethane, toluene diisocyanate and scrap waste

Companies Served

Bernel Foam

KILLIAN-BLACK TRUCKING, INC.
100 Katherine Street
Buffalo

Wastes Handled

Radioactive wastes

Companies Served

Carborundum

Disposal Sites

West Valley

KNAB BROTHERS
1800 Military Road
Kenmore

Wastes Handled

Phenolic wastes

Companies Served

Shanco Chemicals

R. C. KNAPP
28 Alliger Drive
Tonawanda

Wastes Handled

Baled paper, rubbish and broken pallets

Companies Served

Pratt & Lambert

WALTER S. KOZDRANSKI CO., INC.
Third Street
Niagara Falls

Began operations in 1936

Wastes Handled

Dry solids including building demolition debris, rubbish, broken or unsatisfactory grinding wheels, contaminated soils, paper and trash, iron catalyst salts, accelerator sewer sumps, polyvinyl chloride floor sweepings and polyvinyl chloride emulsion berries and skins. The company has indicated that it does not handle chemical wastes.

Companies Served

Hooker Chemicals
Moore Business Forms
Union Carbide Carbon Products Division
Carborundum
International Paper Company
Goodyear
Olin Chemicals

Disposal Sites

Lynch Park
Niagara County Refuse Disposal District (Wheatfield)
Olin's 102nd Street Site
River Site (east of Olin's 102nd Street Site)
South end of Newco Waste Systems property (west of
Route I-190 (possibly Basic Carbon site)
Hyde Park
Newco Waste Systems (Niagara Falls)

LEONARD KROLL
19 Woodgate Road
Tonawanda

Wastes Handled

Plastic purgings and paint thinners

Companies Served

Trico Products

LASHER
Niagara Falls

Wastes Handled

Wide variety of wastes

Companies Served

Hooker

Disposal Sites

Love Canal

LAUR & MACK CONTRACTING CO.
1400 College Avenue
Niagara Falls

Wastes Handled

Fly ash, fire brick, dust collector fines, kiln furniture
wood, carborundum wheels and paper

Companies Served

Carborundum

Disposal Sites

Lynch Park

LORBER TRUCK SERVICE, INC.
Tonawanda Tank Transport, Inc.
1140 Military Road
Kenmore

Wastes Handled

Phosphoric acid, elemental sulfur, ortho-ditolyl thiourea and ortho-toluidine mixture, waste kerosene with traces of pesticides, laboratory chemicals, furadan sludge, floor sweepings and dust house bags, ferric hydroxide sludge with traces of arsenic, acidic calcium sulphate sludge and water, compacted empty pesticide containers, polyram and clay, secondary treatment sludge, sodium methylate, filter residue, caustic, filter cakes and caustic, contaminated soil and retort ash.

Companies Served

FMC
Milward Alloys
Goodyear
Olin Chemicals

Disposal Sites

SCA (Porter)
Newco Waste Systems (Niagara Falls)

MADISON INDUSTRIES
Old Works Road
Old Bridge, New Jersey

Wastes Handled

Heavy metal oxides

Companies Served

Anaconda

MANITOBA CORPORATION
69 Vandalia Street
Buffalo

Wastes Handled

Non-ferrous scrap

Companies Served

Westinghouse

MCCORMACK'S HIGHWAY TRANSPORTATION, INC.
Campbell Road
Schenectady

Wastes Handled

Low-level radioactive wastes

Companies Served

NRD

METALWORKING LUBRICANTS
6785 Telegraph Road
Birmingham, Michigan

Wastes Handled

Waste oil

Companies Served

Ford Motor Company

MODERN DISPOSAL SERVICE, INC.
4746 Model City Road
Model City

Began operations in 1964

Materials Handled

Mixed commercial, institutional, municipal refuse and industrial wastes including calcium fluoride sludge, paint filters, waste oil, polyvinyl chloride emulsion berries and skins and floor sweepings, filter cake, waste lube oils, dust collector residue, phenolic resins, thiazole polymer blends, accellerator sewer sumps, iron catalyst salts, graphite, coal dust, bricks, coke, steel and fibre drums, fumed silica, zircon-zirconia sludge, waste kerosene with traces of pesticide, spent caustic, laboratory chemicals, furadan aqueous sludge, furadan and clay, floor sweepings, liquid pesticides, polyram and clay and ferric hydroxide sludge with traces of pesticide.

Companies Served

Chisholm Ryder
Du Pont
Goodyear
Norton Laboratories
Solvent Chemical
Varcum Chemical
Pfeiffer Foods
Airco Speer

Great Lakes Carbon
NL Industries
Bell Aerospace
Noury Chemicals
Carborundum
FMC
Lockport Air Force Base
PASNY

Disposal Sites

Niagara Recycling
Niagara County Refuse Disposal District (Lockport)
Niagara County Refuse Disposal District (Wheatfield)
SCA (Porter)
Newco Wastes Systems
Modern Disposal (Model City)

MORGAN CHEMICAL
Buffalo

Wastes Handled

Copper sulfide sludge

Companies Served

Allied Chemical Specialty Chemicals Division (Dye Plant)

RAY F. MORNINGSTAR, INC.
528 Young Street
Tonawanda

Began operations in 1962

Wastes Handled

Paper sludge, metal treating sludge, acid sludge, degreaser sludge, zinc phosphate sludge, rotary furnace sludge, construction and demolition debris and cutting oils

Companies Served

Columbus McKinnon
International Paper
Continential Can

Disposal Sites

Seaway Industrial Park
City of Tonawanda (Wales Avenue)
Niagara County Refuse Disposal District (Wheatfield)
Columbus McKinnon on-premises site

HARVEY NEWMAN & SONS
Shawnee Road
Wheatfield

Wastes Handled

Mill scale and lime and phosphate sludges

Companies Served

Roblin Steel

Disposal Sites

Shawnee Road, Wheatfield

NIAGARA SANITATION COMPANY, INC.
262 Pullman Street
Buffalo

Began operations in 1956

Wastes Handled

Mixed municipal, commercial, institutional, industrial refuse, sludges, animal and vegetable fats, still bottoms, phenolic sludges, phenolic resins, heavy metal sludges, paint spray filters, oil contaminated material, spent foundry sand, carbonaceous furnace insulation, refractories, carbon materials, tar, linseed oil, burnable laboratory refuse, "Corian", "Tedlar" and "Vexar" netting.

Industries Served

Carborundum (Niagara Falls and Wheatfield)
DuPont (Niagara Falls and Buffalo)
Hooker (Niagara Falls and North Tonawanda)
Allied Chemical Industrial Chemicals Division
Allied Chemical Specialty Chemicals Division (Plastics,
R & D and Dye Plant)
Allied Chemical Semet Solvay Division
Dunlop Tire and Rubber
Airco Speer
Bell Aerospace
Ford Motor Company
Strippit
Varcum Chemical
Westinghouse
Bisonite
Buffalo Color Corp.
Chevrolet (Tonawanda and Buffalo)
Grand Island Biological
Herculese Division Richardson Corp.
Worthington Compressor
Niagara Falls Waste Water Treatment Plant
Niagara Falls Air Force Base (Porter Road)
Stauffer Chemical
Noury Chemical
Spaulding Fibre
PASNY

Disposal Sites

Past

Niagara County Refuse Disposal District (Wheatfield)
Niagara Falls Incinerator (Niagara Falls)
Town of Niagara, Wheatfield (Nash Road)
Lynch Park
Town of Lewiston Landfill

Present

Lancaster Sanitary Landfill
Land Reclamation (Cheektowaga)
Newco Waste Systems (Niagara Falls)
Niagara County Refuse Disposal District (Lockport)
Seaway Industrial Park
Wilson/Cambria/Newfane Site

All chemical wastes are now taken to Newco Waste Systems.

TOWN OF NIAGARA SANITATION DEPARTMENT
Niagara

Wastes Handled

Fumed silicon
Paper bags
Zircon-zirconia sludge

Companies Served

NL Industries

NORTHEAST OIL SERVICE
2802 Lodi
Syracuse

Wastes Handled

Wash oil, oil sludge

Companies Served

Ramco Steel
Chevrolet
Ford Motor Company

NOURY CHEMICAL
Route 78
Burt

Wastes Handled

Garbage, keetox and oxylite waste, starch contaminated with peroxides and waste peroxide pastes

Companies Served

Noury Chemicals

Disposal Sites

Wilson/Cambria/Newfane Dump

OHIO LIQUID DISPOSAL
Freemont, Ohio

Wastes Handled

Sulfuric acid, hexachlorocyclopentadiene and leachate from Hyde Park

Companies Served

Hooker Chemicals

Disposal Sites

Ohio

PIKOWSKI TRUCKING
Kenmore

Wastes Handled

Sand and slag

Companies Served

Pratt & Letchworth

PINTO EQUIPMENT RENTAL INC.
66 Bird Avenue
Buffalo

Began operations in 1976

Wastes Handled

Soil contaminated with fuel oil, catalytic cracking catalyst, gravity separation sediment, gasoline tank sediment, lead-contaminated angle iron, soil with spent caustic, yard sewer sediment, kerosene tank sediment, asphalt, construction and demolition debris, cooling water silt and air flotation unit sediments

Companies Served

Mobil Oil

Disposal Sites

Newco Waste Systems (Niagara Falls)
Mobil's on-premises site (Elk Street, Buffalo)
Other unknown sites

PRATT & LAMBERT
75 Tonawanda Street
Buffalo

Wastes Handled

Solvent paint waste, waste acid and aqueous waste

Companies Served

Pratt & Lambert

Disposal Sites

Newco Waste Systems (Niagara Falls)
Frontier Chemical

PRATT & LETCHWORTH DIVISION
189 Tonawanda Street
Buffalo

Wastes Handled

Sand and slag

Companies Served

Pratt & Letchworth

Disposal Sites

Squaw Island (City of Buffalo)

RAPID DISPOSAL
22 Metcalf Street
Buffalo

Began operations in 1958

Wastes Handled

Mixed commercial, institutional and industrial wastes, building demolition debris, scrap metal, paper, trash, containerized sludges, precipitated metal salts, laboratory sample bottles, waste colors, off specification undercoating, polyvinyl chloride and resins, "Corian", "Tedlar" and "Vexar" netting

Companies Served

Du Pont (Buffalo)	Carborundum
Quaker State	Buffalo Pumps Division
Pierce and Stevens	F. N. Burt Co.
Dresser Industries	Bell Aerospace
Chevrolet	Dunlop Tire and Rubber
Trico Products	Mobil Oil
Allied Chemical Specialty Chemical Div. (Dye Plant)	

Disposal Sites

Past

Altift Realty
Pfohl Landfill
Niagara County Refuse District (Wheatfield)
Squaw Island (Buffalo)

Present

Lancaster Sanitary Landfill
Land Reclamation (Cheektowaga)
Seaway Industrial Park
Niagara Recycling (Niagara Falls)
Buffalo West Side Incinerator
Buffalo Transfer Station (No. Ogden Street,
Buffalo)

REBACK BROS.
Lockport Road
Niagara Falls

Wastes Handled

Fumed silica
Wood pallets
Sludge
Refractories
Linseed Oil

Paper bags
Debris
Ferrous scrap
Sand
Carbonaceous furnace insulation

Companies Served

NL Industries
Westinghouse
Airco Speer

Disposal Sites

Niagara Recycling (Niagara Falls)

RIVERSIDE SERVICES CORPORATION
7 Austin Street
Buffalo

Wastes Handled

Oil sludge, fly ash, pit sludge, waste sand, core pieces, slurry residue

Companies Served

Chevrolet

Disposal Sites

Seaway Industrial Park
Lehigh Valley Railroad site
Niagara Frontier Transportation Authority site
(Buffalo)
Lancaster Reclamation site
Wickwire-Spencer on premises site (Tonawanda)
Strassman site
Squaw Island (Buffalo)

ROBLIN STEEL
101 East Avenue
North Tonawanda

Wastes Handled

Pickle liquor

Companies Served

Roblin Steel

Disposal Sites

Wickwire-Spencer on premises site (Tonawanda)

ROSS STEEL ERECTION CORP.
8555 Packard Road
Niagara Falls

Wastes Handled

Scrap tanks

Companies Served

Olin Chemical

Disposal Sites

Newco Waste Systems (Niagara Falls)

RURAL SANITATION
5040 Hillcrest Drive
Clarence

Began operations in 1958

Wastes Handled

Septic tank pumpings, holding tank wastes, waste oils, industrial sludges (heavy metals, chromic acid) and food processing wastes (animal and vegetable fats)

Companies served

J. H. Williams
Mennen Greatbach
Freezer Queen
Wilson Greatbatch

AMAX Specialty Metals
Strippit
Vanchlor

Disposal Areas

Landspreading for septage on site

Sewage treatment plants (Buffalo Sewer Authority, Amherst SD #1, Cheektowaga) for holding tank wastes and food processing wastes.

Lancaster Landfill for septage and heavy metal sludges

SAN WAY SERVICE
500 Salt Road
Clarence

Began operations in 1960

Wastes Handled

Septic tank sludge, holding tank wastes and waste oils

Companies Served

Gilbralter Steel (no longer served)

Disposal Sites

Septage is spread on land and taken to Lancaster Sanitary Landfill.

Holding tank wastes are taken to municipal treatment works.

Oil was taken to Lancaster Sanitary Landfill.

SICOLI & MASSARO, INC.
8525 Porter Road
Niagara Falls

Wastes Handled

Contaminated soil

Companies Served

Olin Chemicals

Disposal Sites

Newco Waste Disposal (Niagara Falls)

RAYBURN SMITH, INC.

Wastes Handled

Casting cores (silica sand and bentonite clay) and
scrap metal

Companies Served

Dresser Industries

SOUTH BUFFALO RAILWAY CO.
2602 Hamburg Turnpike
Lackawanna

Wastes Handled

Sludge
Iron oxide scales
Slay
Flue dust

Iron oxide dust
Carbon dust
Pickle liquor

Companies Served

Republic Steel

Disposal Sites

Republic's disposal site at Marilla and Hopkins Streets

SOUTHGATE OIL SERVICES, INC.
2699 Transit Road
Elma

Began operations in 1976

Wastes Handled

Waste oils and solvents

Companies Served

Chevrolet (Tonawanda)	Buffalo Pumps Division
Chevrolet (Buffalo)	Ramco Steel
Ford Motor Co.	Anaconda
American Can	Roblin Steel
Allied Chemical	Simonds Steel
Conrail	Trico Products
DuPont (Niagara Falls)	

Disposal Sites

Newco Waste Systems (Niagara Falls)

The collected oil is stored and separated from any water and sold for fuel. Bottom sludge and water are used for road oil. Heavy oils are incorporated in paving materials.

VILLAGE OF SPRINGVILLE
Springville

Wastes Handled

Steel fines, kolene heat treatment spillage, hydro-chloric acid, machine, cutting and cooling oils, dried paint filters and general industrial wastes

Companies Served

Winsmith

KEN STAUB TRUCKING, INC.
4786 East River Road
Grand Island

Wastes Handled

Fly ash, pit sludge and casting sand

Companies Served

Chevrolet

Disposal Sites

Lancaster Sanitary Landfill
Newco Waste Systems (Niagara Falls)
Seaway Industrial Park
Altift Realty site

STAUFFER CHEMICAL
Lewiston Road
Niagara Falls

Wastes Handled

Concrete cell parts, asbestos, graphite, refractor
linings, scrap sulfur, scrap metal, silicon, zirconium and
titanium oxides

Companies Served

Stauffer Chemical

Disposal Sites

Upper Mountain Road site
Art Park
PASNY site

STRIPPIT
12975 Clarence Center Road
Akron

Wastes Handled

Garbage, heat treat sludge and coolant

Companies Served

Strippit

Disposal Sites

Lancaster Sanitary Landfill

HOOVER E. STRONG
119 West Pepper Street
Buffalo

Wastes Handled

Mercury

Companies Served

Harrison Radiator (Lockport)

SUPERIOR PIPE CLEANING
168 Woodlawn Avenue
Woodlawn

Began operations in 1971

Wastes Handled

Oils
Solids from pipes and conduits
Sludges

Companies Served

Bethlehem Steel	Tonawanda Coke
Allied Chemical Semet-Solvay Div.	Chevrolet
Mobil Oil	J.H. Williams
Harrison Radiator	Ford Motor Co.
Allied Chemical Specialty Chem. Div.	

Disposal Sites

Bethlehem Steel - waste oils are pumped into tank cars by Superior on Bethlehem property and reclaimed at Booth Oil.

Mobil Oil - oil from separators is pumped to storage tanks by Superior and blended with crude oil and reprocessed by Mobil at the Mobil facility.

Harrison Radiator Division (Clyde Avenue) - water solution containing caustic base paint stripper and paint solids has been hauled to Chem-Trol in Porter by Superior.

Ford Motor Co. - Small quantities of oil are removed from Rush Creek and mixed with oils from other customers by Superior and reprocessed at Booth Oil.

Chevrolet (Buffalo and Tonawanda) - Oil is removed from sewers and treatment facilities and placed in storage tanks by Superior for either burning or for reprocessing at Booth Oil. Water and furan was also hauled by Superior in 1975 from 1975 to 1977 and water and sand contaminated catalyst in 1977. Core oil and sludge has been hauled by Superior to SCA in Porter.

J. H. Williams - Sand and lime sludge is disposed of by Superior in low land on J. H. Williams property. Phosphorous acid, dust and metals are hauled from the plant.

Tonawanda Coke - Tars removed are either used as fuel by Tonawanda Coke or taken to Newco Waste Systems in Niagara Falls by Superior.

Allied Chemical (Semet-Solvay) - Oil skimmings were removed from on premises lagoon and hauled to Bethlehem Steel.

TERRA VAC INDUSTRIAL SERVICES, INC.
7 Stephens Court
Lancaster

Wastes Hauled

Pit sludge

Companies Served

Chevrolet

Disposal Sites

Newco Waste Systems (Niagara Falls)

TLC DISPOSAL

Wastes Handled

Pretreatment sludge with heavy metals
Filter sludges with organics, colors and metals
Liquid still bottoms

Companies Served

Allied Chemical Specialty Chemicals Division (Dye Plant)

Disposal Sites

Seaway Industrial Park

TRICO PRODUCTS CORPORATION
Buffalo

Wastes Handled

Refuse, scrap polyethylene and paint thinners

Companies Served

Trico Products

Disposal Sites

Lancaster Sanitary Landfill

UNITED ALLOYS AND STEEL
41 Hanna Street
Buffalo

Wastes Handled

Zinc oxide, ash and lead sulfite sludge

Companies Served

Trico Products
Allied Chemicals Specialty Chemicals Div. (Dye Plant)

VAN DE MARK
1 North Transit Road
Lockport

Wastes Handled

Silicon tetrachloride

Companies Served

Van de Mark

Disposal Sites

Newco Waste Systems (Niagara Falls)

J. VITULO TRUCKING CO.
3640 Packard Road
Niagara Falls

Began operations in 1930s

Wastes Handled

Brine sludge	"Black" cake
Lime sludge	Graphite
Retort ash	Concrete
Trichlorophenol	Fly ash
Trichlorobenzine	BHC cake
V-tetrachlorobenzine	
Miscellaneous demolition and construction materials	

Companies Served

Olin Chemicals
Hooker Chemicals

Disposal Sites

Past

Niagara County Refuse Disposal District (Wheatfield)
102nd Street Site of Olin
Sites throughout Niagara County

Present

Newco Waste Systems (Niagara Falls)
Niagara Recycling (Niagara Falls)
Hyde Park

CARL WAGNER
2216 Tuscarora Road
Niagara Falls

Wastes Handled

Wide variety of organic and inorganic chemical wastes

Companies Served

Hooker Chemicals

Disposal Sites

Love Canal
Hyde Park

WATSON INDUSTRIES
Buffalo

Wastes Handled

Copper sulfide sludge

Companies Served

Allied Chemical Speciality Chemicals Division
(Dye Plant)

WHEATFIELD WAREHOUSES, INC.
North Tonawanda

Wastes Handled

Scrap vulcanized fibre
Vulcanized fibre sheet
Thermosetting plastic and trimmings

Companies Served

Spaulding Fibre

Disposal Sites

Seaway Industrial Park
LaSalle Expressway (Niagara Falls)

WILLIAM BUSH TRUCKING
152 Dexter Street
Tonawanda

Wastes Handled

Coal ash

Companies Served

Tonawanda

WINSMITH
172 Eaton Street
Springville

Wastes Handled

Steel fines, kolene heat treatment spillage, hydro-chloric acid, machine, cutting and cooling oils, dried paint filters and general industrial waste

Companies Served

Winsmith

Disposal Sites

Chaffee Landfill

WIZARD METHOD, INC.
5320 Buffalo Avenue
Niagara Falls

Wastes Handled

Calcium fluoride sludge, process wastewater containing calcium sulfate, sodium sulfate, ammonium sulfate and trace quantities of contaminants from dithiocarbamate processes and regenerant and sludge from cleaning sewers.

Companies Served

Hooker Chemicals
FMC
Olin Chemicals

Disposal Sites

Niagara Recycling (Niagara Falls)
Newco Waste Systems (Niagara Falls)

WORTHINGTON COMPRESSOR
45 Roberts Avenue
Buffalo

Wastes Handled

Foundry wastes and slag

Companies Served

Worthington Compressor

Disposal Sites

Houghton Park

WRIGHT & KREMERS, INC.
661 Main Street
Niagara Falls

Wastes Handled

Fly ash, sand, fire brick, dust collector fines, kiln furniture, wood carborundum wheels and paper

Companies Served

Carborundum

Disposal Sites

Lynch Park

WYOMING WASTE DISPOSAL CO.
22 Grant Street
North Tonawanda

Wastes Handled

Laboratory chemicals

Companies Served

Bell Aerospace

YOUNG'S TRUCKING
Niagara Falls

Wastes Handled

Wide variety of organic and inorganic chemical wastes

Companies Served

Hooker Chemicals

May also have hauled carbon wastes for Union Carbide Carbon Products Division to Union Carbide's Republic site.

Disposal Sites

Love Canal

SECTION V

RECOMMENDATIONS FOR MANAGEMENT AND CONTROL OF INACTIVE SITES

The Task Force has set forth below its general recommendations for the management and control of the inactive Priority I and II sites identified in this report. The recommendations do not apply to active sites because such sites are subject to the ongoing regulatory programs of DEC. The recommendations also do not apply to those inactive sites which have been placed in the Priority III category because the Task Force has concluded that these sites are unlikely to have received significant quantities of hazardous wastes.

The Task Force has made these recommendations in order to present the range of possible actions which should be considered by state and federal agencies with respect to inactive sites in general. The recommendations are not site specific.

The Task Force believes that whatever actions are deemed appropriate for specific sites, these actions should be undertaken by the present owners of the disposal sites and the parties responsible for the disposal of hazardous materials there. The government should require appropriate management and control activities and approve any such activities planned by owners and disposers but should not itself undertake the activities unless the site owners or parties responsible for disposal cannot be identified or such parties are financially incapable of undertaking the necessary activities.

1. Investigation of Site Conditions

The Task Force has gathered information about the quantities and types of wastes disposed of at particular sites and general information about the manner of disposal of such wastes and existing site conditions. However, before a determination can be made as to whether remedial actions should be undertaken at particular sites and what specific remedial actions are appropriate, more detailed information must be secured about existing site conditions.

The Task Force, therefore, recommends that a series of representative surface water and soil samples should be taken at each of the Priority I and II sites and that, where appropriate, hydrogeological studies using soil borings and on-site monitoring wells should be carried out to determine the depth of the water table, the direction of groundwater flow and the presence or lack of hazardous materials at each site.

This site specific investigatory program would not be necessary, of course, when sufficient information is already available about existing site conditions.

2. Identification of Area Impacts

After detailed information has been gathered about existing conditions at the disposal site itself, information should be secured about the impacts of such wastes on the area around the site likely to be impacted by such wastes.

The Task Force, therefore, recommends that surface water, stream and river bed sediment, water wells, water treatment and distribution facilities and storm and sanitary sewers in the area around each disposal site which are likely to be impacted by such wastes should be tested for the presence of hazardous materials. The area in which such tests should be made and the specific substances for which tests should be taken would be based on the hydrogeologic information gathered about the disposal site itself.

3. Initial Management and Control Actions

If the study of on-site conditions indicates that hazardous substances exist on or near the surface of the site, access to the site by people and animals should be prevented.

If significant impacts on the area around the disposal site are identified, immediate steps should be taken to insure that no further disposal occurs at such sites. This can largely be accomplished by making it physically impossible for waste hauling vehicles to gain access to the site by physically blocking any waste conduits to the site.

Moreover, immediate steps should be taken to reduce the generation of leachate at the disposal site and the movement of leachate from the site. In the short term, this can be accomplished by (a) grading and contouring the site itself, (b) placing relatively impermeable soils on top of the site and (c) collecting and treating any surface leachate running from the site.

4. Long Term Remedial Actions

There are several long term remedial actions that may be appropriate for specific inactive hazardous waste disposal sites. These remedies focus on the long term prevention of infiltration of water and the collection and treatment

of leachate emanating from the site, the treatment of waste materials in the ground at the disposal site and the excavation and incineration or land disposal of the wastes.

Prevention of infiltration and the leachate collection and treatment are an extension of the short term management actions noted above. In the long term, materials placed on top of the landfill may help to prevent water infiltration. In addition, leachate collection in the long term could deal with underground movement of leachate as well as surface run-off. Leachate moving underground can be collected by underground drains and troughs placed below the bottom of the landfilled waste. Long term reliance on these remedial measures must be coupled with continuous monitoring of the integrity of the cover and drains as well as surveillance of the area outside of the landfill to ensure that leachate is not escaping.

The prime advantages of this remedial measure are the relatively simple engineering techniques involved, its moderate cost and the fact that the waste disposed of is not disturbed or exposed. The major disadvantages are the continuing presence of the waste, the difficulty of preventing infiltration through the bottom of the landfill and through the top liners and the related need for continuous and perpetual monitoring.

More sophisticated containment actions involve slurry trenching and grouting. The purpose of the slurry trench is to act as a barrier against the movement of leachate beyond the confines of the disposal site. A narrow trench is dug (to a depth dependent on the location of an impermeable layer) around the perimeter of the site and filled with a relatively impermeable substance like bentonite slurry thus containing the wastes between the slurry trench and any natural impermeable geologic formation. Grouting involves the injection of binding and cementing agents around the landfilled waste. The practical value of these containment measures has not been established to date.

On site treatment of wastes may include chemical detoxification and microbial inoculations. Both methods are not easily applicable to large dumps with a variety of complex chemicals. Therefore, these methods would be more effective in smaller one-waste dumps than in those dumps that have accepted a wide range of waste products.

A third type of long term solution is the excavation of hazardous wastes and their transfer to secure landburial facilities or an incineration facility. Excavation and

burying have already been followed at some of the smaller hazardous waste sites in New York State. It is not an appropriate solution for larger hazardous waste sites because there is no available secure facility with the capacity to accept the large amount of materials disposed of there. In addition excavation of the site may cause fires and explosions and serious health or injury to workers.

Incineration of combustible organic hazardous wastes in high temperature rotary kiln incinerators is now practiced at two locations in Europe. Each facility burns wastes at high temperatures generating both steam which is used as fuel by the facility and sold to outside energy users and an inert residue which must be landfilled.

Privately owned rotary kilns are in operation at several locations in the United States including the Kodak facility in Rochester. The Kodak facility does not, however, accept liquid or solid wastes generated elsewhere. In fact, there are now no operating commercial facilities for incineration of hazardous wastes in New York. Rollins Environmental Services does operate three rotary kilns in Louisiana, New Jersey and Texas which do accept hazardous wastes generated elsewhere.

Cement kilns, which now exist across this country, also generate enough heat to destroy wastes. However, their applicability to inactive sites is limited by their inability to burn solids. They could be used to burn liquid wastes from buried drums. While the rotary kiln incinerators are designed to handle wastes now being generated, they could also burn wastes and soil excavated from inactive sites. The chief disadvantages of the rotary kiln are its high construction cost and siting problems. In addition, use of the kilns for inactive sites would require the excavation of wastes and, possibly, their transfer to the incineration site. The chief advantage is the fact that they would effectively destroy hazardous materials and eliminate the need for perpetual care of disposal sites.

The Task Force strongly recommends that careful consideration be given to the construction of rotary kiln incinerators to destroy wastes retrieved from the Priority I disposal sites indentified in this report.

SECTION VI

RECOMMENDATIONS FOR LEGISLATION

On the basis of its review of hazardous waste disposal practices in Erie and Niagara Counties, the Task Force has concluded that existing statutory law is seriously inadequate for the control of inactive hazardous waste disposal sites in New York State. The Task Force believes that new laws are necessary to provide a mechanism both for an immediate governmental response to acute problems at disposal sites and for long term removal or containment of hazardous wastes. In addition, substantial funding must be made available for any short term or long term response and control mechanisms. Finally, new laws concerning reporting of past hazardous wastes disposal practices, listing of hazardous waste disposal sites and clear time limits for state investigations of long term hazardous waste management practices as well as a revision of the statute of limitations applicable to civil actions related to inactive hazardous waste dumps will enhance the ability of the State to control inactive landfills.

The Task Force also strongly supports the enactment of Federal legislation which would amend the Solid Waste Disposal Act to provide federal funding for state programs to control inactive landfills.

1. Short Term Response

When an abandoned hazardous waste disposal site is discovered, the state government may often be called upon to take some immediate action both to address existing health and environmental problems and to insure that sites with a significant potential for causing such problems are adequately controlled. This action may consist solely of fact finding (i.e., a determination of what wastes have been disposed of at the site, where the wastes may have spread and how the environment and public health may have been affected). In many cases, however, the state government, as the protector of the environment and public health, is also asked to take steps to insure that (a) the hazardous wastes disposed of at a site do not move from the site, (b) if such wastes are already moving from the site and leaching into the surrounding environment, that the discharge or leaching is abated and (c) people and animals will not inadvertently or intentionally gain access to the disposal site.

All of these governmental responses require specific legal tools. If the government is to find facts, it must have the authority to request that the owner of the property where wastes have been disposed of or to which wastes have leached or been discharged provide such information or, failing that, the authority to enter the property and secure such information itself. If the government is to prevent the discharge or leaching of wastes from the disposal site, it must have the power to require the abatement and control of such discharges and leaching by the landowner and, failing that, the power to do the work itself. If the state government is required to keep people and animals out of disposal sites, it must be empowered to require present landowners to prevent access, and, failing that, the power to build fences and do whatever else is necessary to bar such access to dump sites.

At present, DEC and DOH, the state agencies directly concerned with preserving the state's environment and protecting public health, have some, but not all the necessary powers described above. DEC has the power to enter privately owned property both to investigate actual or suspected sources of pollution [ECL §3-0301(2)(g)] and to develop and enforce regulations under the Industrial Hazardous Waste Management Act of 1978 [ECL §27-0915].

However, the general power to investigate does not specifically permit the drilling of test wells, the taking of samples or on-going monitoring, all common methods for determining the extent and nature of wastes placed underground. Moreover, the powers under the Industrial Waste Management Act of 1978 do not apply to currently inactive sites since such sites are not subject to that act. Therefore, there is a need for legislation granting additional authority to DEC to enable that agency to conduct appropriate tests and surveys of hazardous waste disposal sites.

DOH has the power to "enter, examine and survey all grounds, erections, vehicles, structures, apartments, buildings and places [PHL §206(2)], the power to make "examinations" concerning nuisances or health questions when so requested by the Governor [PHL §1301(1)] and the general power to take any reasonable and necessary actions in the case of great and imminent peril to public health from landfills [PHL §1388]. Local boards of health and health officers may enter, inspect and examine premises "where nuisances or conditions dangerous to life and health" exist [PHL §1303(1)].

Once sufficient information is available to determine what short term abatement and control is appropriate, DEC and DOH must have the power to insure that the necessary work is done. DEC now has the power to order a summary abatement of conditions or activities which present "an imminent danger to the health or welfare of the people of the state or [result] in or [are] likely to result in irreversible or irreparable damage to natural resources" [ECL §71-0301]. Any person who violates a DEC summary abatement order is liable to a civil penalty and may be enjoined from continuing such violation.

However, if there is no identifiable property owner or that property owner does not have the funds to control a hazardous waste disposal site, civil penalties and injunctions may not effect the desired results. Therefore, there is a need for legislation authorizing DEC to enter property and carry out the necessary control and abatement activities if a summary abatement order issued by the Department has not been complied with.

Furthermore, DEC may now only exercise its summary abatement powers when the condition sought to be abated "relates to the prevention and abatement powers of the commissioner" [ECL §71-0301]. In order to remove ambiguity as to whether the control of inactive disposal sites is part of DEC's prevention and abatement powers, there is a need for at least a legislative declaration that is the case.

In addition, DEC's authority to condemn hazardous waste disposal sites, if such action is necessary to control the wastes at the site, should be clarified. DEC has, among its general powers, the right to condemn property [ECL §3 0301(2) (1)]. Section 3-0305(1) of the ECL authorizes DEC to condemn property when the Commissioner deems it "necessary for any of the purposes or functions of the department."

While the control of adverse environmental impacts from hazardous waste disposal sites should clearly fall within DEC's general powers and duties, a statement to that effect among the general powers of the department would enhance its ability to condemn property where hazardous wastes have been placed when that is necessary to abate and control such wastes.

Under Section 16 of the Public Health Law, the Commissioner of Health, when he has determined that a person is maintaining a condition which constitutes a "danger to the health of the people", may order the person to "discontinue such dangerous condition". Under Section 1301 of the Public Health Law,

the governor may, on the basis of a DOH report, declare a public health nuisance and order the change, abatement or removal of such nuisances. Local boards of health may order the "suppression and removal of all nuisances and conditions detrimental to life and health" [PHL §1303(3)] and, when the owner or occupant of premises where the condition or cause of the condition fails to comply with an order, the local board of health may enter the premises and suppress or remove the nuisance [PHL §1305(2)].

The Commissioner of Health may direct the local board of health to take steps deemed by the Commissioner to be necessary for the public good [PHL §1303(4)]. Under section 1388 of the Public Health Law, described above, the Commissioner of Health may also declare the existence of an emergency and take all necessary steps to preserve and protect the public health.

While the power of DOH to carry out abatement activities is significantly greater than that of DEC, DOH is still required to work through the local boards of health which may not have the inclination or independence to control disposal sites used or owned by large local companies. Therefore, there is a need for legislation authorizing DOH itself to order the abatement of public health hazards created by disposal sites and to abate such hazards when DOH orders are not complied with.

In addition, the conditions necessary to trigger DOH orders and unilateral abatement activities should be defined clearly and at a level of seriousness short of a health emergency. If DOH can only act when it determines that there is a health emergency, its ability to respond to the particular health problems posed by hazardous waste landfills across the state will be severely constricted.

2. Long Term Solutions

Factfinding, fence building and immediate containment activities are not the long term solutions to the environmental and health problems posed by inactive hazardous waste disposal sites. Long-term technical solutions include containment of wastes at the present site, chemical fixation and solidification at the present site, removal of wastes to a more secure site and high temperature incineration. Acquisition of inactive disposal sites by the state may be necessary to effect such solutions. Each of these solutions represents a costly construction and/or transportation operation.

DEC has the general power to control pollution, to acquire land by condemnation and to enter into contracts to carry out the department's functions [ECL §3-0301]. DEC may provide state and technical assistance to municipalities for the construction of "solid waste management facilities" [ECL §§27-0503 and 27-0703]. However, DEC does not have the specific power to construct or operate any of the facilities necessary for the long term control of hazardous wastes. DOH has no power to construct or operate such facilities.

The Industrial Hazardous Waste Management Act of 1978 [ECL §27-0900, et seq.] empowered the Environmental Facilities Corporation to construct hazardous waste treatment, storage and disposal facilities [Public Authorities Law §1285-c]. The definition of such facilities is very broad and includes disposal sites and thermal processing systems and incinerators [PAL §1281(23)]. However, the new act does not specifically address existing hazardous waste disposal sites and does not include the containment of wastes on site, the exhumation of wastes and the transport of wastes to new sites as sanctioned EFC activities. Therefore, there is a need for legislation expanding EFC's powers to include these other aspects of long term control of inactive hazardous disposal sites.

At the same time, EFC should only attempt to effect long term solutions on the advice of other state agencies, like DOH and DEC, with the technical expertise and experience in hazardous waste control, and on the advice of representatives of communities where landfills are found. One possibility is to convene a board made up of representatives of DOH, DEC and other state officials as well as representatives of the particular affected local community to advise EFC on long term solutions for each inactive hazardous waste disposal site identified.

3. Financing

If the State can identify particular waste generators, waste haulers or disposal site owners and operators who are responsible for the creation of a specific hazardous waste dump now posing environmental and health problems, the state should look first to those entities for the recovery of funds expended by the state to control wastes at such sites.

For example, if DEC abates pollution and health problems at an abandoned dump after a landowner has failed to comply with a DEC summary abatement order, the costs of such abatement by the State should be charged to the landowner and be the basis of a lien on the property in question if the landowner does not pay the charge.

Similarly, in the case of long term solutions, the EFC, DOH, DEC and other State agencies should be required by statute to attempt to recover the costs of long term remedial activities from the parties responsible for the creation of the hazards, waste generators, waste haulers or disposal site owners and operators.

In some cases, however, the particular parties responsible for the creation of a hazardous waste disposal site may not be identifiable, or if identifiable, may be unable or unwilling to contribute to the costs incurred by the State in controlling the sites. Moreover, even if State expenses are eventually recovered through voluntary or court ordered payments by responsible parties, there must be funds available to the State initially to carry out the desired work immediately.

These funds could come from several sources:

- a. A tax or fee imposed on past generators and haulers of hazardous wastes and owners of disposal sites at the time of disposal.
- b. A tax or fee imposed on present generators and haulers of hazardous wastes and present owners of inactive disposal sites.
- c. A tax on the consumption of goods the production of which generates or has generated hazardous wastes.
- d. Local government appropriations.
- e. State government appropriations.
- f. Federal government appropriations.

It would be very difficult to impose taxes or fees on past generators, haulers and owners of hazardous wastes disposal sites. Many past haulers are no longer in operation. There is not enough information on the amounts and types of wastes hauled in the past to enable the State to adjust a tax or fee to the volume or toxicity of wastes carried by particular haulers.

A tax or fee on the owners of property at the time such property was used as a hazardous waste disposal site could be imposed more easily than a tax or fee on haulers because, at least in Erie and Niagara Counties, many presently inactive sites are owned by the very generators who disposed

of wastes there. Difficulties would be encountered, however, if a site was used for many years during which ownership changed, a site was used without the knowledge of its owners or where the past owners of sites are unavailable. The same problem posed by imprecise information would limit the State's ability to adjust taxes and fees to the quantities and toxicity of wastes disposed of at a particular site.

A tax or fee on past generators of wastes could be imposed since most major past generators of hazardous wastes are still in operation today. Again, it would be extremely difficult to tie the amount of a fee or tax to the quantity of toxicity of wastes disposed of in the past.

Taxes or fees on present generators, haulers and owners of sites would be easier to impose. Since current disposal sites and haulers must be approved by or registered with DEC, an additional filing fee could be imposed at the time of registration or approval. Disposers and haulers could pass along the cost of the additional fees to the generators who employ their services. The major obstacles to such taxes or fees are that (i) if the tax or fee is imposed in New York State alone, in-state generators would be burdened with a cost their out-of-state competitors would not bear and (ii) any additional tax or fee would penalize good operators for the health and environmental problems created by others in the past. To reduce the costs of collection of such a tax or fee, it should be imposed on only one level of the disposal operation (e.g., on disposal site operators) and not as a separate fee on each level of the disposal operation (i.e., generators, haulers and disposal site operators).

A tax on the consumption of goods the production of which has involved the generation of hazardous wastes would be difficult to calculate. Most products in today's economy have some connection with hazardous waste generation through the raw materials, the production processes or the machines and equipment used in production. The State would have to identify certain products most clearly related to hazardous waste generation and impose a fixed tax on those products. While such a tax would not place an additional competitive burden on in-state generators of wastes because the products of even out-of-state companies sold in the State would be taxed, industries and ultimately private consumers in New York would bear the burden of this tax.

Local government contributions for the control of hazardous waste disposal sites may be limited by the lack of local funds, although local governments have in-kind services

that should be made available for the control of waste site problems. It would be unfair, however, to place special financial burdens on communities with privately owned hazardous waste disposal sites since these communities already bear the burden of the environmental and health costs imposed by such disposal sites and hazardous wastes disposed of in a community are often generated elsewhere. On the other hand, to the extent municipalities have permitted the disposal of hazardous wastes at their own municipal dumps, they should bear some responsibility for solving the resulting problems.

A state appropriation for controlling the health and environmental problems raised by disposal sites would spread the burden across all communities in the state although it would add to existing state budgetary problems and ignore the fact that wastes are and have been brought to New York from other states.

The federal government is the preferable source of funds for the control of inactive sites. In addition to having greater resources from which to draw, the federal government could distribute the cost of dealing with the problem across the nation and so not place one state at a competitive disadvantage with respect to other states that may be less concerned about inactive hazardous waste disposal sites.

The Task Force believes that some combination of the sources of funds described above would be most appropriate. A state and federal appropriation would constitute recognition that government has until now failed to protect the health of its citizens and their environment from a serious hazard. At the same time the generators of hazardous wastes as a group have failed to dispose of wastes properly and have not assumed the financial burden proper disposal would have placed, at least initially, on them. Therefore, a tax or fee imposed on generators or passed along to generators by haulers or disposal site owners would be appropriate. This fee or tax should be imposed on a nationwide basis by the federal government. Legislation would, of course, be required for any new taxes or fees.

There is also a question as to how the money drawn from the sources described above should be made available for state agency activities. One sound solution appears to be the creation of a fund fueled by fees and charges, by state appropriations and, in large part, by federal appropriations. This fund could be drawn upon by state agencies for emergency or long-term remedial work including the purchase of property by condemnation.

4. Reporting of Past Disposal Activities, Listing of Inactive Sites and State Studies

DEC has the general power to conduct investigations and compel the attendance of witnesses and production of accounts, books and documents [ECL §3-0301(2)(h)]. The new Industrial Hazardous Waste Management Act requires any person who generates, stores, treats, transports, disposes of or otherwise handles hazardous wastes to provide DEC with access to all records "relating to such wastes" [ECL §27-0915]. The authority under the new act may only be exercised, however, to develop new regulations or to enforce the provisions of the new act. There is no reference to wastes generated, hauled or disposed of in the past which are not subject to the new act.

While industries in Erie and Niagara Counties generally cooperated with the Task Force, a growing industry reluctance to reveal data to the government has recently been reported in the press. In view of the great importance of industry data about generation and disposal of hazardous wastes in any effort to determine the location, quantity and nature of hazardous wastes disposed of in the State, legislation is needed to require companies to furnish all records of past industrial waste disposal activities to DEC at DEC's request and pursuant to regulations to be promulgated by DEC which would insure appropriate protection for trade secrets.

Once the information about a site is gathered, either through disclosure of information by private companies or through testing and monitoring conducted by DEC and DOH themselves, the State government should have the duty to advise the public of the nature of and hazards posed by hazardous waste disposal sites. This duty could be fulfilled by mandating through legislation that DEC and DOH jointly maintain a public statewide list of hazardous waste disposal sites with summaries of all information known to the agencies about the quantities and types of wastes disposed of at each site, the substances there now and the environmental and health problems, if any, posed by such sites. Much of this work is already being done by DEC and DOH.

5. Studies

As indicated above, there are several possible long term technical solutions to the problem of controlling hazardous wastes that have been land disposed. It is important to develop expertise on the subject in order to guide future DEC, DOH and EFC activities with respect to both inactive and active hazardous waste disposal sites.

Current law is confusing as to what agency is to conduct such studies and when the results of such studies must be presented. Section 1285-d(2) of the Public Authorities Law requires EFC to report to the Governor on long term control of hazardous wastes by September 1, 1979. Section 27-0197 of the ECL requires DEC to evaluate methods of long term control and maintenance by March 1, 1979, to promulgate long term maintenance regulations by September 1, 1979 and, at some unspecified time, to report to the Legislature. EPA is also conducting studies on long term maintenance.

New state legislation is necessary to clarify whether DEC or EFC should be the agency to study long-term maintenance, when regulations are to be promulgated and to whom reports are to be made. Alternatively, if EFC and DEC are to defer to ongoing EPA studies, then this should be made clear. Since the focus of these studies will be on future hazardous waste disposal sites and facilities, the expertise gained will clearly be applicable to existing inactive sites. Therefore, the time allowed for studies and regulations should be limited. At the same time, the Legislature must appropriate adequate funds for any studies it determines should be conducted by state agencies.

6. Statute of Limitations

State legal actions for money damages caused by inactive hazardous waste landfills have to be brought within three years [CPLR §214]. Actions for injunctive relief and abatement have to be brought within six years [CPLR §213].

Such time periods are ususally measured from the date of injury. If the date when hazardous substances first escape from their disposal site and enter other property or are ingested by persons is considered the date of injury, the statutes of limitations will expire before the state even knows of a threat to public health much less has had an opportunity to bring suit for damages or for elimination of the threat. Love Canal, for example, was not used as a dump site after 1953, the entry of hazardous wastes into property and person may have occurred sometime soon thereafter and, in some cases, may have ceased long before the discovery of the Love Canal related environmental problems in 1976.

Since it is only possible to know the impacts of a hazardous waste landfill when the impacts are observed, there is need for legislation to provide that the statute of limitations for actions related to hazardous waste landfills begin to run only with the discovery of the personal injury or property impact related to that landfill.

This would be analagous to the statute of limitations applicable to foreign objects left in patients by surgeons. No one knows a foreign object has been left by a surgeon until the object is actually discovered. Similarly no one knows that there has been leaching of wastes underground until impacts on property, water supplies and individuals appear. In some cases, the existence of the dump site itself is not even suspected before those occurrences.

7. Federal Legislation

The Task Force strongly supports the enactment of federal legislation concerning inactive hazardous waste disposal sites. This legislation should include the following provisions:

a. Specific federal standards for state programs dealing with inactive sites: States with programs meeting standards should be entitled to federal financial aid. If a state program does not satisfy the federal standards, the federal government should carry out its own program, at the expense of the defaulting state, in that state. This will help to insure that the problem of inactive sites is addressed everywhere in the country and that states with aggressive programs to deal with the problem do not lose industry to states that are more lax.

b. A high level of federal funding for state programs: States like New York with secure landburial facilities for hazardous wastes are already accepting wastes from across the country. Inactive sites posing health and environmental problems are located across the country. In recognition of the scope of the problem and the inability of some states to fund the clean-up and remedial work as easily as others, the federal government should bear the burden of financing state programs.

c. Imposition of fees on generators, haulers and disposal site operators across the country: As indicated above, the Task Force supports the imposition of fees on generators, haulers and site operators. These fees can only be imposed nationally because fees imposed by one state will only encourage the movement of wastes (and industry, in general) out of that state.

d. Encouragement of new technology: Incineration, and not disposal of hazardous wastes in landfills, is, in the view of the Task Force, the long term solution to the hazardous waste problem. In fact, even existing inactive disposal sites may only be properly controlled by the removal of wastes from the ground and incineration. The

federal government should encourage the development of incineration technology and the construction of incinerators, through grants, tax incentives and technical assistance.

e. Provision of emergency assistance: The federal government should be able to provide a substantial amount of emergency assistance to states when emergency situations like the Love Canal arise.

