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AUG 28 1992
BUREAU OF HAZARDOUS
WASTE FACILITY MANAGEMENT
DIVISION OF
HAZARDOUS SUBSTANCES REGULATION

August 26, 1992

Ms. Jane Leu
Regional Project Officer
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Reference: EPA Contract No. 68-W9-0040; Work Assignment No. RO2-10-03; IBM Corporation, Poughkeepsie, New York; EPA I.D. No. NYD080480734, RCRA Facility Assessment; Second Final Phase II RFA Report; Deliverable

Dear Ms. Leu:

Enclosed please find the second final RCRA Facility Assessment (RFA) Report for the above referenced facility. This report has been prepared in response to NYSDEC and facility comments on the first final RFA report for IBM Poughkeepsie dated July 10, 1992.

All NYSDEC comments have been addressed and, with a couple of exceptions, all facility comments have also been addressed. The changes that have resulted from these comments include:

- The Site Gravel (formerly AOC A) has been deleted as an AOC. It is now being addressed as the receptor of a release from SWMU 59, the Building 004 Still.
- Two AOCs have been added: The Spring Brook Sediments (AOC A) and the Adjacent Hudson River Sediments (AOC B). These two areas received potentially contaminated runoff from throughout the facility.
- Several spills that were reported to NYSDEC have been added to the history of releases section of the report.
- The suggested further action for SWMU 33, the Plating Waste/Organic Rinse Water Tank has been changed. Based on information provided by IBM, no further action is required for this unit.

- Three appendices have been added. These appendices describe the air pollution sources at the facility as they relate to manufacturing processes, the industrial chemicals used throughout, the recent history of the facility, and the facility's SPDES permit.

Based on instructions from the EPA Work Assignment Manager, Mr. Wilfredo Palomino, no changes have been made to the Sampling Visit Work Plan or other parts of the document such as the photograph log or the SWMU map. Because of the previous budget problems with this project, these changes have been made at no charge to the agency. However, additional funding will have to be provided before any more changes can be made to this report.

As instructed by Mr. James Reidy of EPA, three copies of the report are being submitted to NYSDEC and two copies are being submitted to EPA. A word processing diskette containing this report formatted in Word Perfect 5.1 is provided for your convenience. In addition, a copy of the diskette is being provided to Mr. Doug Nevel of NYSDEC.

Please let us know if you have any questions or if there is anything else we can do for you.

Sincerely,

William Goold

William D. Goold
Technical Director

cc: W. Palomino, EPA Region II
P. Counterman, NYSDEC
W. Jordan
L. Poe
J. Surfus
J. Atlas (w/o Att)

FINAL RCRA FACILITY ASSESSMENT REPORT

IBM CORPORATION
Main Plant, Poughkeepsie
Dutchess County, New York

EPA I.D. No. NYD080480734

Prepared for:

Ms. Jane Leu
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Prepared by:

Kearney/Centaur Division
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EPA Contract No. 68-W9-0040
Work Assignment No. R02-10-03

August 1992

TABLE OF CONTENTS

APPENDICES

* This appendix was included with the draft RFA report or first final RFA report only

FIGURES

TABLES

LIST OF ACRONYMS USED IN THIS REPORT

AOC - area of concern
BAT - Bond, Assemble, and Test
BCSF - bulk chemical storage facility
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act of 1980
DI - deionization
DNAPL - dense non-aqueous phase liquid
EDTA - ethylene diamine tetra-acetic acid
EPA - U.S. Environmental Protection Agency
GWPP - Groundwater Protection Program
HSWA - Hazardous and Solid Waste Amendments of 1984
IBM - International Business Machines Corporation
IPA - isopropyl alcohol
IWTP - industrial wastewater treatment plant
NFA - no further action
NGVD - National Geodetic Vertical Datum
NYSDEC - New York State Department of Environmental Conservation
PCB - polychlorinated biphenyls
PR - Preliminary Review
PVC - polyvinyl chloride
RCRA - Resource Conservation and Recovery Act of 1976
RFA - RCRA Facility Assessment
RFI - RCRA Facility Investigation
SPDES - State (New York) Pollutant Discharge Elimination System
SV - Sampling Visit
SWMU - solid waste management unit
TCA - 1,1,1-trichloroethane
TCE - trichloroethylene
TOC - total organic carbon
WTP - wastewater treatment plant

EXECUTIVE SUMMARY

A RCRA Facility Assessment (RFA) was conducted at the IBM Corporation Main Plant, Poughkeepsie, New York to determine if there is a need for corrective action at the facility. A Preliminary Review (PR) of files pertaining to the facility was performed in August 1990. This was followed by a Visual Site Inspection (VSI) of the facility which was conducted on May 14-17, 1991. This document constitutes the draft PR/VSI Report for the facility.

The IBM Corporation Main Plant facility near Poughkeepsie, New York operates under EPA I.D. No. NYD080480734. The property is approximately 423 acres in size, of which two-thirds is occupied by the manufacturing complex. The remainder of the property is undeveloped. The land use in the area is mixed industrial, commercial, and residential.

The facility conducts manufacturing, assembly, and testing of computer systems. Hazardous wastes are generated from photoetching, plating, soldering, cleaning, degreasing, and laboratory activities.

A total of 197 solid waste management units (SWMUs) and two areas of concern (AOCs) were identified and evaluated during the review of the available file materials and the visual site inspection. In addition, the potential for the release of hazardous wastes or constituents from each unit to the environment was assessed. Table ES-1 presents a list of these SWMUs and AOC, their current operating status, and the suggested further action for each. The units are described in detail in Section IV of this report. SWMU and AOC locations are shown in Figure C-1, located in Appendix C.

It is suggested that RCRA Facility Investigations (RFIs) be conducted during a Sampling Visit at 13 SWMUs and AOC or groups of SWMUs and at the AOC. Sampling is suggested at eight SWMUs to confirm if a release has occurred. Integrity testing of one unit is also suggested.

Those SWMUs or groups of SWMUs and AOC suggested for RFIs include:

- SWMU 32 - Building 003 Still
- SWMU 38 - Building 003 Underdrain System
- SWMU 58 - Waste Ammonium Persulfate Tank
- SWMU 59 - Building 004 Still
- SWMU 65 - Building 004 Underdrain System
- SWMU 92 - Carbon Abatement Waste Tank
- SWMU 115 - Former Waste Disposal Site
- SWMU 116 - Former Burn Pit
- SWMU 129 - Former Waste Oil Leach Field
- SWMUs 135-176 - Current Industrial Waste Treatment Plant
- SWMU 186 - Building 025
- SWMU 194 - Former Industrial Waste Drainage System

TABLE ES-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 1 of 4)

SWMU No.	Unit Name	Status[1]	Suggested[2] Further Action
1-3	Metal Mask Cleaning Waste Accumulation Drums (3)	A	-
4-6	Metal Mask Developer Waste Accumulation Drums (3)	A	-
7-8	Molybdenum Line Tanks (2)	A	-
9	Molybdenum Line Etch Room Accumulation Drum	A	-
10	Nickel Plating/Electroform Accumulation Drum	A	-
11	Electroform Cleaning Waste Accumulation Drum	A	-
12	Electroform Developer Waste Accumulation Drum	A	-
13	Former B003 Ion Exchange System	RM	-
14-24	Ion Exchange System	A	-
25	Tin Immersion Area Spill Control Tank	A	-
26	Glycerin/EDTA/Wastewater Storage Tank	A	-
27	Glycerin/EDTA/Wastewater Transport Tank	A	-
28	Hexavalent Chromium Treatment Tank	A	-
29	Hexavalent Chromium Treatment Room Waste Accumulation Area	A	-
30	Metal Mask 90-Day Waste Storage Area	A	-
31	Clark Board 90-Day Waste Storage Area	A	-
32	Building 003 Still	RM	RFI
33	Plating Waste/Organic Rinse Water Tank	RM	-
34-35	Photographic Waste Tanks (2)	RM	-
36	Air Stripper and Waste Tank	RM	-
37	Evaporator	I	-
38	Building 003 Underdrain System	A	RFI
39-45	Carbon Vessels (7)	A	-

[1] A = active
I = inactive
RM = removed
RR = RCRA-regulated

[2] - = no further action
RFI = RCRA facility investigation
SV = confirmatory sampling
IT = integrity testing

TABLE ES-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 2 of 4)

SWMU No.	Unit Name	Status[1]	Suggested[2] Further Action
46	Condenser	A	-
47	Separator	A	-
48	Freon Waste Tank #23	A	-
49	Carbon Abatement Waste Storage Area	A	-
50-51	Waste Xylene Tanks #21 and #22	A,RR	-
52	Drum Fill Station	A	-
53	Waste Xylene Transfer Tank	A	-
54	Pollution Abatement Transfer Tank #13A	A	-
55	Surge Tank	A	-
56	Water/IPA Tank #26	RM	-
57	Plating Waste/General Industrial Waste Tank	RM	-
58	Waste Ammonium Persulfate Tank	RM	RFI
59	Building 004 Still	RM	RFI
60	Building 004 Ion Exchange Units	RM	-
61	Core Area #1	A	-
62	Core Area #2	A	-
63	Core Area #2 Waste Storage Cabinet	A	-
64	Core Encapsulation Area	A	-
65	Building 004 Underdrain System	A	RFI
66	Former Pollution Abatement Transfer Tank #13A	RM	-
67-75	Tool Room Grinding Machine Tanks Tanks (9)	A	-
76-77	Steam Cleaning Area Waste Tanks (2)	RM	SV
78	Steam Clean Waste and Waste Oil Tank #3	RM	SV
79	Core Area A	A	-
80	Core Area A Waste Storage Cabinet	A	-
81	Core Area B	A	-
82	Core Area C	A	-
83	Core Area D	A	-
84	Core Area D Waste Storage Cabinet	A	-
85	Core Area E	A	-
86	B690 90-Day Waste Storage Area	A	-

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TABLE ES-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 3 of 4)

SWMU No.	Unit Name	Status[1]	Suggested[2] Further Action
87-88	B690 Stills (2)	RM	-
89	Former Waste Xylene Tank #18	RM,RR	RFI
90	Former Waste Xylene Tank #19	RM,RR	RFI
91	Waste Xylene/IPA/Water Tank #17	RM,RR	RFI
92	Carbon Abatement Waste Tank #13B	RM,RR	RFI
93	BCSF Truck Loading Area	A,RR	-
94	BCSF Waste IPA Tank	A,RR	-
95	BCSF Waste Xylene Tank	A,RR	-
96	BCSF Waste Glycerin/EDTA/Water Tank	A,RR	-
97	BCSF Carbon Canister System	A,RR	-
98	Truck Crib Sump	A	-
99	Waste Oil Accumulation Drum	A	-
100	Safety Kleen Tank	A	-
101	Oily Debris Container	A	-
102	General and Non-Regulated Waste Storage Room	A	-
103	Caustic Waste Storage Room	A,RR	-
104	Acid Waste Storage Room	A,RR	-
105	Oxidizer Waste Storage Room	A,RR	-
106	Flammable Waste Storage Room	A,RR	-
107	Solvent Dispense Room	A,RR	-
108-109	Flo-Back® Parts Washers (2)	A,RR	-
110	Empty Drum and Miscellaneous Waste Storage Room	A,RR	-
111	B028 Loading Dock	A	-
112	Former Steam Clean Room	I	-
113	Loading Dock Spill Containment Tank	A	IT
114	Former Steam Clean Waste Tank	RM	-
115	Former Waste Disposal Site	RM	RFI
116	Former Burn Pit	RM	RFI
117	Salvage Yard T-58 Drum Storage Area	RM	-
118	Former Crusher	RM	-
119	T-58 Groundwater Recovery Tank	RM	-
120	Former Fire Training Area	I	SV

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RR = RCRA-regulated

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TABLE ES-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 4 of 4)

SWMU No.	Unit Name	Status[1]	Suggested[2] Further Action
121	Former B075 Septic Tank Area	I	SV
122-124	Fuel Blending Boilers	I	-
125	B030 90-Day Waste Storage Area	A	IT
126	Boiler Feed Chemical Delivery Containment Pad	A	-
127	Antenna Drum Storage Area	I	SV
128	B077 Container Storage Area	I	-
129	Former Waste Oil Leach Field	I	RFI
130-132	IWTP Effluent Holding Tanks	A	-
133	IWTP Effluent Spill Containment Tank	A	-
134	Former Effluent Stabilization Pond	RM,RR	-
135-176	Current Industrial Waste Treatment Plant	A	RFI
177-184	Former Industrial Waste Treatment Plant Units	I,RM	-
185	B450 Demolition Landfill	I	SV
186	Building 025	RM	RFI
187-189	B052 Septic Systems	RM	-
190	Miscellaneous Waste Storage Area	A	SV
191	Asbestos Waste Storage Area	A	-
192	Construction Debris Landfill	A	-
193	Current Industrial Wastewater Drainage System and Pump Stations	A	IT
194	Former Industrial Wastewater Drainage System	I	RFI
195	Stormwater Sewer System	A	-
196	Sanitary Sewer System	A	-
197	South Site Demolition Landfill	I	-
AOC A	Spring Brook Sediments	A	SV
AOC B	Adjacent Hudson River Sediments	A	SV

[1]A = active
I = inactive
RM = removed
RR = RCRA-regulated
* = continue interim corrective measures

[2] - = no further action
RFI = RCRA facility investigation
SV = confirmatory sampling
IT = integrity testing

All of these units have either documented or analytically confirmed releases to soil, groundwater, and/or surface water. Further RFI soil and groundwater characterization activities are suggested at these units to determine their impact on the environment at the IBM facility.

Nine SWMUs and two AOCs require sampling, either shallow soil samples, soil borings, sludge/water samples or sediment samples to determine if releases have occurred. These include:

COVER LETTER SAYS THIS WAS REMOVED

- ~~SWMU 33 - Plating Waste/Organic Rinsewater Tank~~
- SWMUs 76-77 - Former Steam Cleaning Area Waste Tanks
- SWMU 78 - Former Steam Clean Waste and Waste Oil Tank #3
- SWMU 120 - Former Fire Training Area
- SWMU 121 - Former B075 Septic Tank Area
- SWMU 127 - Antenna Drum Storage Area
- SWMU 185 - B450 Demolition Landfill
- SWMU 190 - Miscellaneous Waste Storage Area
- AOC A - Spring Brook Sediments
- AOC B - Adjacent Hudson River Sediments

Very little information could be provided about most of these units by IBM. IBM has stated that no further information exists about these units, other than the limited information that is included in this report. Suggested further actions for these units discussed in Section VI present the alternatives of either limited sampling supported by further information or more extensive sampling without further information. A suggested Sampling Visit Work Plan is provided for these units in Appendix E.

The Current Industrial Waste Drainage System (SWMU 193) consists of underground piping and a number of surface and subsurface industrial waste pump stations throughout the facility. IBM has provided a list of these pump stations. Since few of the pump stations were observed during the VSI, it is suggested that integrity assessments be conducted of the piping and at all known pumping stations to determine the potential for releases from this unit.

The Building 030 Short Term Waste Storage Area (SWMU 125) had evidence of spillage as well as questionable integrity due to cracks in the floor and walls. Integrity testing of the unit is suggested to determine if confirmatory sampling is required.

SWMUs 106, 107, and 112 have spill containment tanks which apparently have never been used. It is suggested that it be confirmed that these tanks do not contain and have not contained wastes. SWMU 113 should be integrity tested to determine its capability to contain wastes.

I. INTRODUCTION

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) authorize EPA to require corrective action for releases of hazardous waste or hazardous constituents from solid waste management units (SWMUs) and other areas of concern (AOCs) at all operating, closed, or closing RCRA facilities. The intent of this authority is to address previously unregulated releases of hazardous wastes or constituents to air, surface water, soil, groundwater, and from the generation of subsurface gas because of such releases. The first phase of the corrective action program, as established by EPA, is development of a RCRA Facility Assessment (RFA). The RFA includes a Preliminary Review (PR) of all available relevant documents, a Visual Site Inspection (VSI), and, if appropriate, a Sampling Visit (SV).

This report summarizes the results of the PR and VSI of the International Business Machines (IBM) Corporation's Main Plant at 5 South Road near Poughkeepsie, New York, operating under EPA I.D. No. NYD080480734. IBM operates eight separate facilities in the Poughkeepsie area, all with different EPA I.D. numbers. This report only addresses the Main Plant facility, operating under the above number.

The facility conducts manufacturing, assembly, and testing of computer systems. Photoetching, plating, soldering, cleaning, degreasing, and laboratory activities generate hazardous wastes. Sources of information used in this report include RCRA, Water, Air, and CERCLA files from the New York State Department of Environmental Conservation (NYSDEC) at Albany and New Paltz. The VSI was conducted on May 14-17, 1991.

The objectives of the RFA for the IBM-Poughkeepsie facility are to:

1. Identify all solid waste management units (SWMUs) and other areas of concern (AOCs) at the facility.
2. Use information obtained from the file review and VSI to assess the potential for release of hazardous waste or hazardous constituents from each SWMU or AOC.
3. For each SWMU or AOC, determine what further measures, if any, should be taken to safeguard human health and the environment from a release (if those measures have not already been taken).
4. Obtain a thorough understanding of the past and present process and waste management operations at IBM.

This report is organized into six sections and several appendices. Section II provides a general facility description, history of ownership and land use, operations and process descriptions, wastes and waste management practices, regulatory history, and the history of releases. Section III describes the environmental setting of the facility, including information on the location, surrounding land use, climate, topography, surface drainage, soils, geology, hydrogeology, and information on potential receptor populations. Section IV provides a summary of information about each SWMU and AOC. Section V lists the reference materials found either in the regulatory files, received from IBM during the VSI, or other general reference material. Section VI describes the conclusions and suggested further actions according to SWMU and AOC. A summary of the VSI and a log of photographs taken during the inspection are provided in appendices A and B, respectively. Appendix C contains Figure C-1, which shows the SWMU locations. Appendix D contains a copy of the field logbooks used during the VSI. Appendix E contains the Sampling Visit Work Plan.

II. FACILITY DESCRIPTION

A. GENERAL FACILITY DESCRIPTION

The International Business Machines Corporation's (IBM) Main Plant is located south of Poughkeepsie, Dutchess County, New York. IBM's main plant operations are situated on 423 acres which contain more than 50 buildings. Figure II-1 shows the location and general plan of the facility. IBM manufactures, assembles and tests large computer information systems at this facility. In addition, IBM is engaged in research and development of computer and electrical devices. The facility conducts manufacturing, assembly, and testing of computer systems. IBM generates wastes from photoetching/ plating, tin plating, soldering, cleaning/degreasing, and laboratory processes, as well as construction activities (Ref 132).

B. HISTORY OF OWNERSHIP AND LAND USE

IBM has operated at this site since the 1940s. Operations started in the area known as the lower plant site, an area in the southwest corner of the facility where Buildings 020, 077, and 025 are or were located. The first such facility here was a food processing plant (not owned by IBM) located about where Building 077 is now. Building 025 is also known to be the location of a canning factory prior to the 1940s. IBM representatives could provide no further information on the activities that occurred here prior to the beginning of IBM's operations. When IBM first began operations at Poughkeepsie, it used facilities at the lower plant site to manufacture weapons and other equipment during World War II. From the 1940s until the 1960s, IBM used Building 025 as a manufacturing and laboratory facility (Ref 136).

Building 001 was constructed in the 1940s and also used for munitions manufacturing. With the construction of this building, it is believed that the manufacturing emphasis began to switch from the lower plant site to this area (Ref 158). Figure C-1, which shows the locations of the SWMUs and AOCs, also specifies the locations and numbers of buildings at the facility.

C. OPERATIONS AND PROCESS DESCRIPTION

Specific information about current manufacturing processes has been deemed confidential by IBM. Facility representatives have stated that they will not provide further process information. The following summary information has been provided by IBM and is considered to be non-confidential.

The IBM Main Plant is primarily involved in manufacturing, assembling and testing large business machines primarily consisting of computers. The manufacturing process involves cleaning of electric components with solvents, electroplating, photoetching, degreasing, and soldering of components. Electronics research and development activities are also

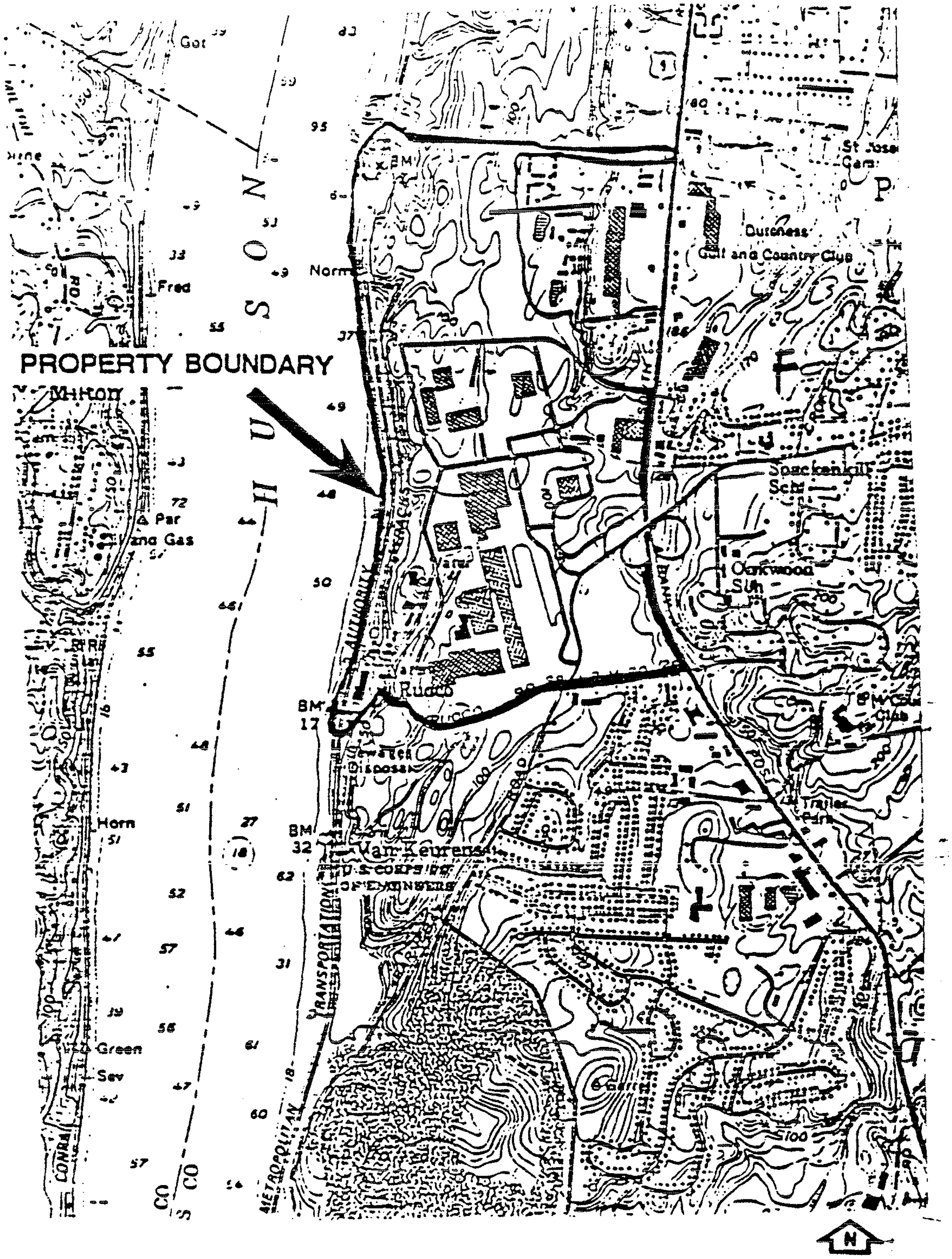

Figure II-1. Location of the IBM Plant,
Poughkeepsie, New York
(Source: Reference 165)

conducted at the facility. Three main manufacturing processes are currently being utilized at IBM Main Plant. They are the metal-mask process line, the BAT TCM process line and the Clark-Board process line.

The metal mask process is located in Building 003. Components used at other facilities for the assembly of computers are produced here. The operation process consists of several cleaning/rinsing/drying steps as well as photo development, etching and stripping. There are five core areas where etching takes place. Metal masks are selectively etched, developed and cleaned, resulting in the generation of cyanide, methyl chloroform and acid-rinse wastes containing metals (Refs. 158, 160).

The BAT TCM line is located in Building 004 and Building 012. It produces computer substrates which are later affixed to the Clark boards. Except for cleaning operations, this line is a non-chemical assembly process. Wastes generated include xylene and isopropyl alcohol in bulk. Air emissions from the carbon abatement system are associated with this process (Ref 158, 160).

The Clark-board process is located in Building 003. Printed circuit boards (Clark boards) are produced in this process. It consists of several cleaning/rinsing steps as well as a plating step, a soldering step, and an inspection by photography. These processes result in the generation of plating, fixer, and developer wastes (Ref 158, 160).

A variety of other manufacturing processes are or were apparently conducted at this facility. However, facility representatives would or could not provide information on these. Therefore, no further information on processes is contained in this report.

D. WASTE MANAGEMENT PRACTICES

Currently, the IBM Main Plant reportedly generates 81 separate waste streams, 50 of which are RCRA-regulated and 31 of which are not. Five of the non-RCRA-regulated waste streams are New York State Department of Environmental Conservation (NYSDEC) regulated PCB-waste streams. A list of wastes managed is shown in Table II-1. Other hazardous and non-hazardous waste streams have been managed in the past at the facility.

Current waste generation and management occurs throughout the main manufacturing area and at supporting facilities throughout the IBM property. Wastes are generally stored in containers or in tanks. They may be treated on-site at the Industrial Waste Treatment Plant, through land disposal, or in various miscellaneous methods. Descriptions of current and past waste management by these methods, including SWMU numbers, is discussed in the following sections.

TABLE II-1 (Page 1 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Sodium persulfate/sodium hydroxide solution	Y	D002	bath solution to clean molybdenum foil prior to a photographic process (Bldg.003)
Sodium ferricyanide/ferrocyanide regenerant waste	Y	F009	sodium ferricyanide/ ferrocyanide regeneration from ion exchange bed (Bldg.003)
Potassium ferricyanide	Y	F009 D002	etching solution (Bldg.003)
Methyl chloroform	Y	F001	degreaser and developer (Bldg.003)
Plating filters/rags/acid-spill cleanup	N		From Bldg.003
Contaminated filters/rags (non-halogenated solvents)	Y	F001 F002 F005 D007 D008	spent filters used to clean solvents and spent rags from solvent cleanup (Bldg.003)
Floor tiles/filters/rags (halogenated solvents)	Y	F001 F002 F005 D007 D008	spent filters used to clean solvents and spent rags from solvent cleanup (Bldg.003)
PF etchant	Y	D002	etching solution (Bldg.003)
Neutra Etch™	N		etching solution (Bldg.003)
Sodium persulfate/ sulfuric acid	Y	D002	cleaning solution (Bldg.003)

TABLE II-1 (Page 2 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
PR 491™	Y	D002 F002 F003	bath solution used to remove photographic resists (Bldg.003)
Nickel sulfamate rinse	N		from Bldg.003
Hydrochloric acid rinse	Y	D002	acidic rinse solution of etching bath (Bldg.003)
AZ 303 Developer™	Y	D002	photographic developer tank solution (Bldg.003)
Neutra Clean™	N		from Bldg.003
Glycerin/EDTA	Y	D007 D008	quenching for wave solder process (Bldg.003)
Penwalt K2 Electrocleaner™	Y	D002 D008	cleaning solution (Bldg.003)
Mixed freons	Y	F001 F003 D008	degreasing (Bldg.003)
Glycerine/EDTA and water	N		quenching for wave solder process (Bldg.003)
MacDermid Stripper™	N		from Bldg.003
Spent activated carbon	Y	F002	carbon absorption system for removing organic solvents (Bldg.004)
Carbon abatement waste	N		from Bldg.004

TABLE II-1 (Page 3 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Waste isopropyl alcohol (IPA)	Y	D001	washing and degreasing (Bldg.004)
Waste xylene	Y	D001 F003	washing and degreasing (Bldg.004)
FC-72™ waste	Y	F003 F005	cleaning solvent (Bldg.004)
Aircraft washdown*	Y	F001 F005 D006 D007 D008	washwater
Waste jet fuel*	Y	D001 D006 D007 D008	fuel oil and water drained from airplane tanks for periodic scheduled maintenance
Uncured epoxy*	N		residual uncured epoxy
Boiler blowdown sludge	N		boiler blowdown from Bldg.020
Antifreeze and water	N		facility-wide activities
Mixed acids	Y	D002 D006 D007 D008 D011	various laboratory waste acids
Contaminated washwater	Y	F002 F005	groundwater from plant operations which may contain solvent residue
Lead acid batteries	Y	D002 D008	scrap storage batteries

* - Generated at another IBM facility but stored at RCRA-Regulated Hazardous Waste Storage Building (Bldg.028)

TABLE II-1 (Page 4 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Spilled diesel/fuel oil	Y	D001 D007	oil fuel (Bldg.028)
Cathode ray tubes	Y	D008 D010	disposal of equipment (Bldg.028)
Asbestos	N		from structural renovation (Bldg.028)
Reproduction waste (Bldg.028)	Y	D006 D007 D011	waste photo reproduction
Lab pack wastes	Y and N	Various	discarded laboratory chemicals
Mercury waste	Y	D009	scrap electrical and lighting devices
Waste lubricating and hydraulic Oil	N		various cutting and hydraulic oils
Oil contaminated scrap metal	Y (NYS only)	B004	old or rebuild IBM business machines
Industrial waste sludge	Y	F006	rinse waters from several acid etching and plating bath operations are treated by chemical precipitation. Settled sludge is dewatered prior to disposal. (Bldg.450)
Transformer fluid with PCBs	Y (NYS only)	B001	old IBM transformers
Dewatered industrial waste sludge	Y	F006	same as industrial waste sludge

TABLE II-1 (Page 5 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Oil/rags/spill absorbent	N		various facility-wide activities
Waste NiCad batteries	Y	D006	various DC powered equipment
Capacitors with	N		various facility-wide activities
DMF/glycol borate			
Capacitors/ballasts with PCBs	Y (NYS only)	B004	capacitors and/or ballasts
Capacitors with phthalates	Y	U102 U107 U028	capacitors using phthalate as capacitor fluid
Mixed flammables	Y	D007 D008 F003 F005	degreasing solutions and waste from laboratories and copiers
Solvent contaminated debris	Y	F002 F005	soil excavation
Non-halogenated solvent tanks and piping	N		from demolition of chemical storage tanks and piping.
Inorganic chemical plating/etching bath tanks/piping	N		tanks and piping
Scrap construction materials (caustic)	N		various facility-wide activities
Empty drums	N		various facility-wide activities
Industrial waste contaminated debris	Y	F006	industrial material contaminated with industrial waste sludge

TABLE II-1 (Page 6 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Debris contaminated with potassium ferricyanide	Y	F009	debris from rearrangement activity (Bldg.003)
Waste ion exchange resin	Y	F009	resin from regeneration system (Bldg.003)
Spent carbon from industrial waste	Y	D007 D011	activated carbon used to remove organics at IWTP
Scrap electrical parts	N	Unknown	various facility-wide activities
Polymer sludge	N		from IWTP
Fire suppressant foam	N		from Bldg.035
Halogenated solvent tanks and piping	Y	F002	from demolition of chemical storage tanks and piping (Bldg.450)
Fuel oil contaminated piping	N		scrap oil piping
Biomedical material	N		several medical stations
Spent carbon from DI system	N		from distilled water plant in Bldg.003
Immersion tin line floor drain waste	Y	D008 D006 D007	rinsewater waste from floor spills in the immersion tin line area (Bldg.003)
Waste resin (unused)	N		various facility-wide activities
Spent carbon from industrial waste	Y	D007 D011	activated carbon used to remove organics at IWTP

TABLE II-1 (Page 7 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Antifreeze spill cleanup	N		various facility-wide activities
Sand contaminated with lead	Y	D008	sand contaminated with lead metal particles from an indoor rifle range
Air filters/debris with lead	Y	D008	scrapped equipment and debris
Contaminated filters/ spill cleanup (glycerin/EDTA)	N		from Bldg.003
Air stripper media	Y	D007 D006	air filters used to strip organics from IWTP
Fuel oil contaminated soil	Y	D008 D007 D011 D006 D009 D005 D010	soil excavation
Scrapped business machines	Y (NYS only)	B004	steam cleaned machines (Bldg.028)
PCB contaminated debris	Y (NYS only)	B007	rip out and closure activity
Metal grindings with oil	Y	D007 D006 D008 D009 D011	tool shop (Bldg.001)
Rustlick B™	Y	D008 D007	rust preventative used in tool shop

TABLE II-1 (Page 8 of 8)
WASTES MANAGED AT THE IBM MAIN PLANT IN 1990
(Ref 155, 174)

Waste Description	Hazardous?	EPA/DEC Haz. Waste Number	Generating Process or Activity
Developer/spent fixer waste	N		developer or fixer waste from B003
SafetyKleen™ solvent	Y	D001	degreasing of electric power vehicle equipment (Bldg.028)
Aerosol cans	Y and N	Various	from Bldg.028

1. Waste Management in Containers

IBM currently operates seven temporary waste-storage areas. These include three areas in Building 003 - the Metal Mask 90-Day Waste Storage Area (SWMU 30), the Clark Board 90-Day Waste Storage Area (SWMU 31), and the Building 003 Ion Exchange 90-Day Waste Storage Area (SWMU 24); the Carbon Abatement Waste Storage Area (SWMU 49) in Building 004; the Building 690 90-Day Waste Storage Area (SWMU 86); the Building 030 90-Day Waste Storage Area (SWMU 125); and the Building 450 Sludge Storage Area (SWMU 174). Wastes are stored at these units for up to 90 days prior to transfer to Building 028, the RCRA-regulated Hazardous Waste Storage Building (SWMUs 103-107) (Ref 158, 160).

As their names imply, the metal-mask and Clark-board waste-storage areas manage hazardous wastes generated on the metal-mask and Clark-board process lines, respectively. Wastes are accumulated at various points in the processes and taken to the temporary storage units. Accumulation points include metal-mask cleaning and developing accumulation waste drums (SWMUs 1-6), molybdenum-line waste accumulation drum (SWMU 9), the nickel-plating waste accumulation drum (SWMU 10), the electroform cleaning and developing accumulation drums (SWMUs 11-12), and the hexavalent-chromium room accumulation drum (SWMU 29) (Ref 158).

The Building 003 Ion-Exchange-System 90-Day Waste Storage Area (SWMU 24) manages wastes from the ion-exchange system. Waste resins from the ion-exchange columns must periodically be removed and replaced. They are drummed and stored in the unit (Ref 158).

Carbon-abatement wastes, consisting of spent carbon, from the carbon-abatement system (SWMUs 39-56) in Building 004 are stored at the Carbon-Abatement Waste Storage Area (SWMU 49). Waste freon from Freon Waste Tank #23 (SWMU 48) is also stored here (Ref 158, 159, 160).

Wastes from the four temporary waste storage areas described above (SWMUs 24, 30, 31, and 49) are taken to the Building 690 90-Day Waste Storage Area (SWMU 86) for staging and temporary storage prior to their transfer to the RCRA-regulated Hazardous Waste Storage Building (SWMUs 103-107). The Building 690 storage area also receives wastes from the Building 001 Tool Room Grinding Machine Tanks (SWMUs 67-75) (Ref 158).

The Building 030 90-Day Waste Storage Area (SWMU 125) receives wastes generated at the Building 020 Power Plant. The wastes consist primarily of waste oils generated during the operation of power plant machinery as well as oil-contaminated material such as rags (Ref 137, 158).

The Building 450 Sludge Storage Area (SWMU 174) manages waste sludge generated in the Industrial Waste Treatment Plant (IWTP). Sludge from the Rotary Vacuum Filter (SWMU 173) is accumulated in Ceco Pak cardboard storage boxes at the unit (Ref 158). The industrial waste treatment process is discussed further in Section II.D.2.

All waste drums from the temporary waste storage areas described above are taken to the RCRA-regulated Hazardous Waste Storage Building (Building 028) for waste storage prior to transfer off site. Wastes are segregated by type in different rooms within the building. These rooms include the General and Non-regulated Waste Storage Room (SWMU 102), the Caustic Waste Storage Room (SWMU 103), the Acid Waste Storage Room (SWMU 104), the Waste Oxidizer Storage Room (SWMU 105), the Flammable Waste Storage Room (SWMU 106) and the Empty Drum Storage Room (SWMU 110). This building began operation in 1978 (Ref 124, 130, 158).

From 1964 until the mid 1980s, non-flammable hazardous wastes in drums were managed at the RCRA-regulated Building 077 Container Storage Area (SWMU 128). The unit was comprised of three bays, two for caustic waste storage and one for acid waste storage. The unit underwent RCRA closure in 1988, but final closure approval has not yet been received from NYSDEC (Ref 130, 160).

Prior to 1964, records are limited as to what was done with drummed hazardous wastes on site. It is known that drums were stored at the Antenna Drum Storage Area (SWMU 127), an outdoor concrete pad constructed for a satellite dish antenna, which was located in the south plant area for many years. During the VSI, evidence of drum rings was found remaining on the concrete. It is also known that drums were disposed in the Former Waste Disposal Site (SWMU 115), located west of the current hazardous waste storage building (Building 028) (SWMU Nos. 103-107). During excavation activities at this site, drums were found buried in portions of the site. IBM also believes that, prior to 1964, drums may have been stored in the former Building 025 (SWMU 186), also located in the south plant area (Ref 130, 158, 160).

2. Waste Management in Tanks

Currently, the primary tank waste management area is the Bulk Chemical Storage Facility (BCSF) located in Building 034. This RCRA-regulated facility contains three above ground waste management tanks as well as spare and spill containment tanks. The waste management tanks are the BCSF Waste Isopropyl Alcohol (IPA) Tank (SWMU 94), the BCSF Waste Xylene Tank (SWMU 95), and the BCSF Waste Glycerin/EDTA/Water Tank (SWMU 96). Waste IPA and xylene are collected at various "core" areas (SWMUs 61, 62, 64, 79, 81-83, and 85) associated with the BAT-TCM line in Buildings 004 and 012 and transferred to the tanks in the BCSF via double-walled stainless steel piping. Waste glycerin/EDTA/water mixture from the Glycerin/EDTA/Wastewater Storage Tank (SWMU 26) located in Building 003 is manually transferred in the Glycerin/EDTA/Wastewater Transport Tank (SWMU 27) to the tank at the BCSF via forklift. Waste xylene from the carbon abatement system in Building 004 is transferred to the Waste Xylene Transport Tank (SWMU 53) and subsequently to the BCSF Waste Xylene Tank (SWMU 95) via forklift. The BCSF facility began operation in 1986 (Ref 130, 158).

The BAT Tank Farm preceded the BCSF facility for the storage of waste xylene and IPA. The tank farm consisted of the Former Waste Xylene/IPA/Water Tank #17 (SWMU 91), and the Former Waste Xylene Tanks #18 and #19 (SWMUs 89 and 90). These underground tanks were used in basically the same manner as the current SWMUs 94 and 95. The tank farm also included the Former Carbon-Abatement Waste Tank #13B (SWMU 92) which received a waste IPA and water solution from the carbon-abatement system in Building 004. In addition, the Former Pollution Abatement Transfer Tank #13A (SWMU 66), which was located east of the BAT Tank Farm, served the same function. The tank farm also had a spill containment tank. The BAT Tank Farm operated from 1977 until 1986 and it underwent RCRA Closurein 1988. NYSDEC approval of closure has not yet been received (Ref 130, 158).

The carbon-abatement system for the BAT TCM line located in Building 004 removes waste xylene, isopropyl alcohol (IPA) and freon from the discharged air prior to permitted release. The Carbon Vessels (SWMUs 39-45) are cylindrical tanks containing activated carbon which removes solvents from the air. When steam is run through the vessels, the waste solvents adhere to the steam and are condensed (in SWMU 46, the Condenser) and separated (in SWMU 47, the Separator) into separate waste streams for liquid waste management. Waste xylene is managed in the Waste Xylene Tanks #21 and #22 (SWMUs 50-51), located inside Building 004, and then placed in drums at the Drum Fill Station (SWMU 52). Waste IPA is managed by the Pollution Abatement Transfer Tank #13A (SWMU 54), the Surge Tank (SWMU 55), and ultimately discharged to the Sanitary Sewer System (SWMU 196). Waste freon is collected in the Freon Waste Tank #23 (SWMU 48) until transfer to the Carbon Abatement Waste Storage Area (SWMU 49) (Ref 158, 159). The Carbon Abatement System was deactivasted in April 1992 and has been replaced by a new system.

A variety of miscellaneous tanks have been used or designated for use over the years for waste management and/or spill containment. These include tanks associated with the current Ion Exchange System (SWMUs 14-24) in Building 003; the Molybdenum Line Tanks (SWMUs 7 and 8), managing wastes from the metal mask process; the current Tin Immersion Area Spill Control Tank (SWMU 25), used for spill control in the tin immersion area in Building 003; the current Hexavalent Chromium Treatment Tank (SWMU 28) located in Building 003; the former Plating Waste/Organic Rinsewater Tank (SWMU 33), a waste acid regenerate tank near Building 003-W; the former Photographic Waste Tanks (SWMUs 34-35), located in Building 003; the former Air Stripper Waste Tank (SWMU 36), an organic waste pretreatment tank in Building 003; the former Plating Waste/General Industrial Waste Tank (SWMU 57), a waste ammonium persulfate day tank in Building 004; the former Waste Ammonium Persulfate Tank (SWMU 58) located outside Building 004; the current Tool Room Grinding Machine Tanks (SWMUs 67-75) in Building 001; the former Steam Cleaning Area Waste Tanks (SWMUs 76-77) near Building 001; and the former Steam Clean Waste and Waste Oil Tank #3 (SWMU 78) located in the Building 001 alcove. These units not accompanied by SWMU numbers reportedly never managed wastes. Therefore, they have not been designated as SWMUs (Ref 130, 158).

3. Waste Management by the Industrial Wastewater Treatment Plant

Industrial wastes generated by the various production systems throughout the IBM complex have been collected and routed to industrial waste treatment systems since the late 1940s. A relatively simple treatment tank system operated from the late 1940s until 1983, when a more complex system was installed. In 1989, a more advanced system capable of handling a larger volume of wastewater was installed. This system is currently in place. Each system is described below, starting with the current system and working back in time.

The current industrial waste treatment plant (IWTP) has been in operation since 1989. According to IBM, wastes are generally recovered or treated at the source as much as feasible prior to discharge to the IWTP. The following discussion of the current industrial waste treatment process is taken from Reference 161. Figure II-2 provides a schematic flow diagram of the current industrial waste treatment process.

The wastewater directed to the IWTP is characterized as containing dissolved constituents such as heavy metals or organic chemicals. This wastewater also contains significant concentrations of suspended solids. Due to periodic dumps of various manufacturing processes, it is common to experience wide swings in pH. The IWTP has been designed to reduce the concentration of contaminants in the waste stream to acceptable levels before SPDES-permitted discharge to the river.

Industrial wastes are routed to the IWTP via the Current Industrial Waste Sewer System (SWMU 193). Industrial wastes are received at the outdoor Equalization Tanks (SWMUs 135-136). Influent wastewater flows from the Equalization Tanks via the influent pumps to the First Stage Splitter Box (SWMU 137). The splitter box is used to direct the flow to two identical and parallel trains. From the splitter box, wastewater flows to the First Stage Primary Flash Mix Tanks (SWMUs 138-139).

Here, coagulant (ferric chloride) is added on a flow-paced basis using chemical metering pumps. Preliminary pH adjustment takes place in the tank with the automatic addition of caustic soda and/or sulfuric acid.

This partially conditioned wastewater then flows to the First Stage Secondary Flash Mix Tanks (SWMUs 140-141) for the fine tuning of the pH with caustic soda and/or sulfuric acid. The First Stage Secondary Flash Mix Tanks also act as back-up should there be a failure in the caustic soda and/or sulfuric acid delivery systems for the Primary Flash Mix Tank. Polymer is also added in the Secondary Flash Mix Tanks using a chemical metering pump on a flow-paced basis.

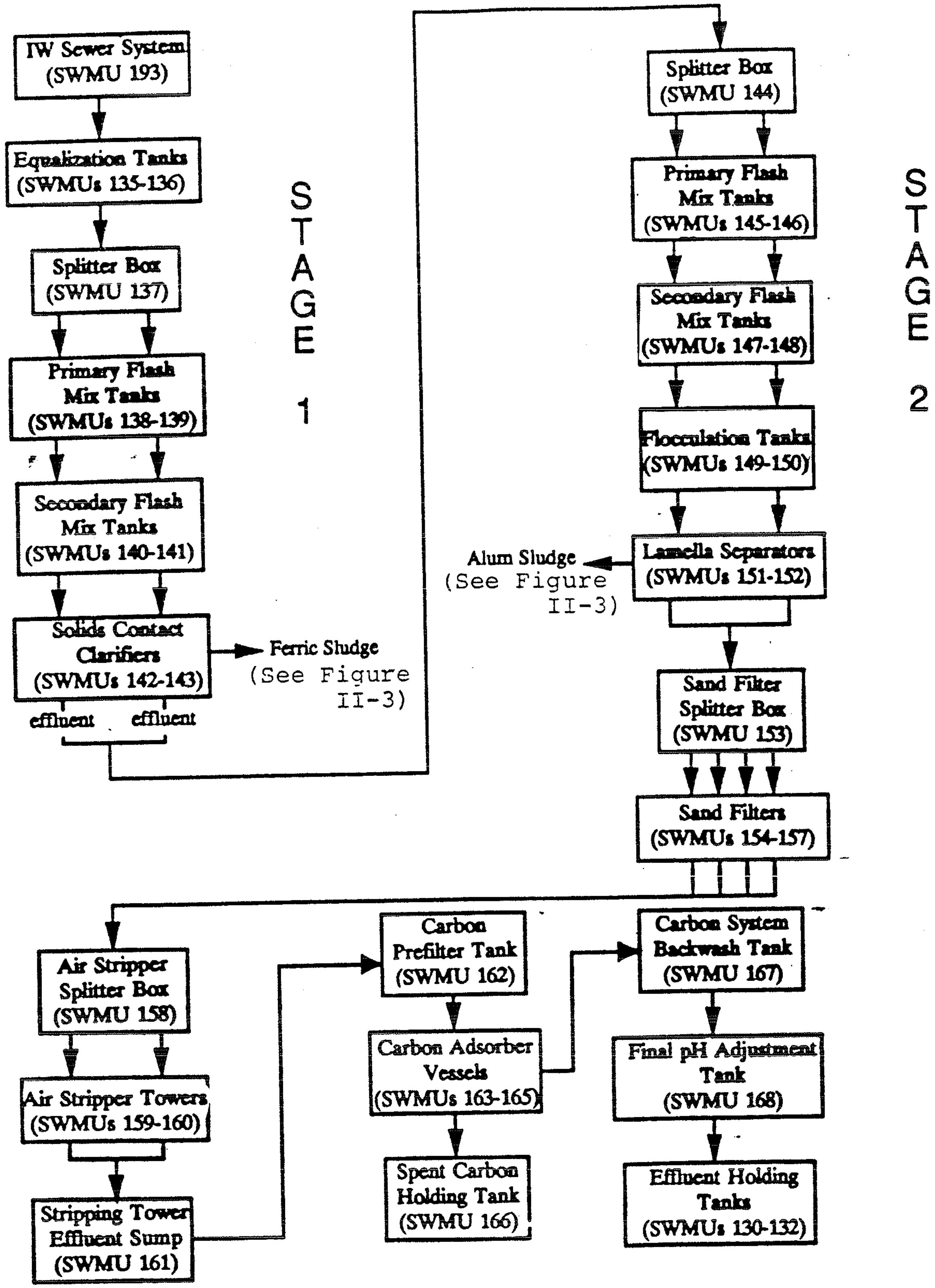

Figure II-2. Flow Diagram of Current IWTP Process
Source: Ref 161

The conditioned wastewater then flows by gravity to the Solids-Contact Clarifiers (SWMUs 142-143). The clarifiers combine flocculation and high volume internal recirculation to promote mixing, flocculation and solids-contact. The internal recirculation is designed to mix the influent wastewater with the previously precipitated solids to promote solids particle growth. The increased contact enhances particle growth which results in improved suspended solids removal.

Once the wastewater passes through the Solids-Contact Clarifiers (SWMU Nos. 142 and 143), it flows to the Second Stage Splitter Box (SWMU 144). The splitter box determines which train or trains flow will proceed through. From the splitter box flow enters the Second Stage Primary Flash Tanks (SWMU 145-146). Here coagulant (alum) is added with chemical metering pumps on a flow paced basis. Recycled sludge is also added to this tank if required. Initial pH adjustment takes place here by adding caustic soda and/or sulfuric acid to provide the desired pH. The low pH of the second stage is to allow additional metal hydroxide formation of those metals like iron and copper which are less soluble at a lower pH.

The wastewater then flows to the Second Stage Secondary Flash Tanks (SWMUs 147-148) for fine tuning of the pH with caustic soda and/or sulfuric acid. The Second Stage Flash Tanks also act as back-ups should there be a failure in the caustic or sulfuric acid systems in the Primary Flash Mix Tank. Polymer is added with a chemical metering pump on a flow-paced basis to the Secondary Flash Mix Tank.

The wastewater is then discharged to the Flocculation Tanks (SWMUs 149-150). The contents of the Flocculation Tanks are gently agitated with a variable speed air mixer. These tanks provide the retention time necessary to allow the previously added polymer an opportunity to form a good floc prior to entering the Lamella Separators (SWMUs 151-152). The Flocculation Tanks can also dampen small pH swings because they have a larger volume than the Flash Mix Tanks.

The flocculated wastewater then flows to the Lamella Separators (SWMUs 151-152). The wastewater enters the separators and, through the upward flow of the water and change in velocity, the solids settle out.

The Lamella effluent then flows to the Sand Filter Splitter Box (SWMU 153). This splitter box distributes the flow to four outflow continuous backwash Sand Filters (SWMUs 154-157). The sand filters act to polish the Lamella effluent of any small volume of fine suspended solids that may have escaped. Backwash is routed back to the Equalization Tanks (SWMUs 135-136). Once the wastewater passes through the Sand Filters the wastewater flows to the Air Stripper Splitter Box (SWMU 158).

The filtered wastewater then flows from the Air Stripper Splitter Box to two parallel Air Stripper Towers (SWMUs 159-160). These are counter-current media packed towers where the organic contaminant laden wastewater flows by gravity down through the tower and over the plastic media while air is blown from the bottom of the tower upward. The liquid/air interface that occurs on the media "strips" the volatile organics from the wastewater and it releases them to the atmosphere.

The stripped wastewater then flows to the Stripping Tower Effluent Sump (SWMU 161) from where it is pumped at a controlled rate to the carbon adsorption system, the first element of which is the Carbon Prefilter Tank (SWMU 162). This prefilter is a multi-media bed filter whose sole purpose is to capture any remaining suspended solids in the wastewater before they would reach the carbon bed.

Filtered wastewater then goes through the downflow Carbon Adsorber Vessels (SWMUs 163-165). This carbon adsorption system is arranged to operate with two columns in series and a third column in stand-by. The Prefilter and the Carbon Vessels are provided with air scour and water backwash capabilities. Spent carbon is placed in the Spent Carbon Holding Tank (SWMU 166).

The effluent from the carbon system then flows through the Carbon System Backwash Tank (SWMU 167) to the Final pH Adjustment Tank (SWMU 168) where caustic soda and/or sulfuric acid are added prior to flowing to the Effluent Holding Tanks (SWMUs 130-132).

When an Effluent Holding Tank is full, it is then recirculated, agitated, sampled and analyzed. If this final analysis is within the limits of the New York SPDES discharge permit and IBM Corporate Facilities Practice (CFP) guidelines, the treated wastewater is released to the Hudson River. However, should final analysis show that the treated wastewater is outside the limits of the SPDES discharge permit, the wastewater is then returned to the system at the equalization tank.

The solids processing of sludges generated by the metal precipitation process consists of two systems, one for ferric sludge and the other for alum sludge. The ferric sludge, normally generated in the first stage, is treated separately from the second stage sludge to prevent reintroduction of removed metals to the liquid waste stream. Figure II-3 portrays the management of the ferric and alum sludges.

Ferric sludge is pumped from the Solids-Contact Clarifier to the Ferric Sludge Thickener (SWMU 169). Polymer is mixed in with the sludge as it is being pumped to the thickener to generate thicker sludge. The thickened ferric sludge is then pumped to the Ferric Sludge Holding Tank (SWMU 170). From here the ferric sludge is pumped to the Rotary Vacuum Filter (SWMU 173) for final sludge dewatering. The filtrate flows to the Building 450 Sump (SWMU 175) from which it is pumped to the Equalization Tanks (SWMUs 135-136). The dewatered filter cake, accumulated at the Building 450 Sludge Area (SWMU 174), is then taken to the General and Non-Regulated Waste Storage Room (SWMU 102) at the RCRA-regulated waste storage building.

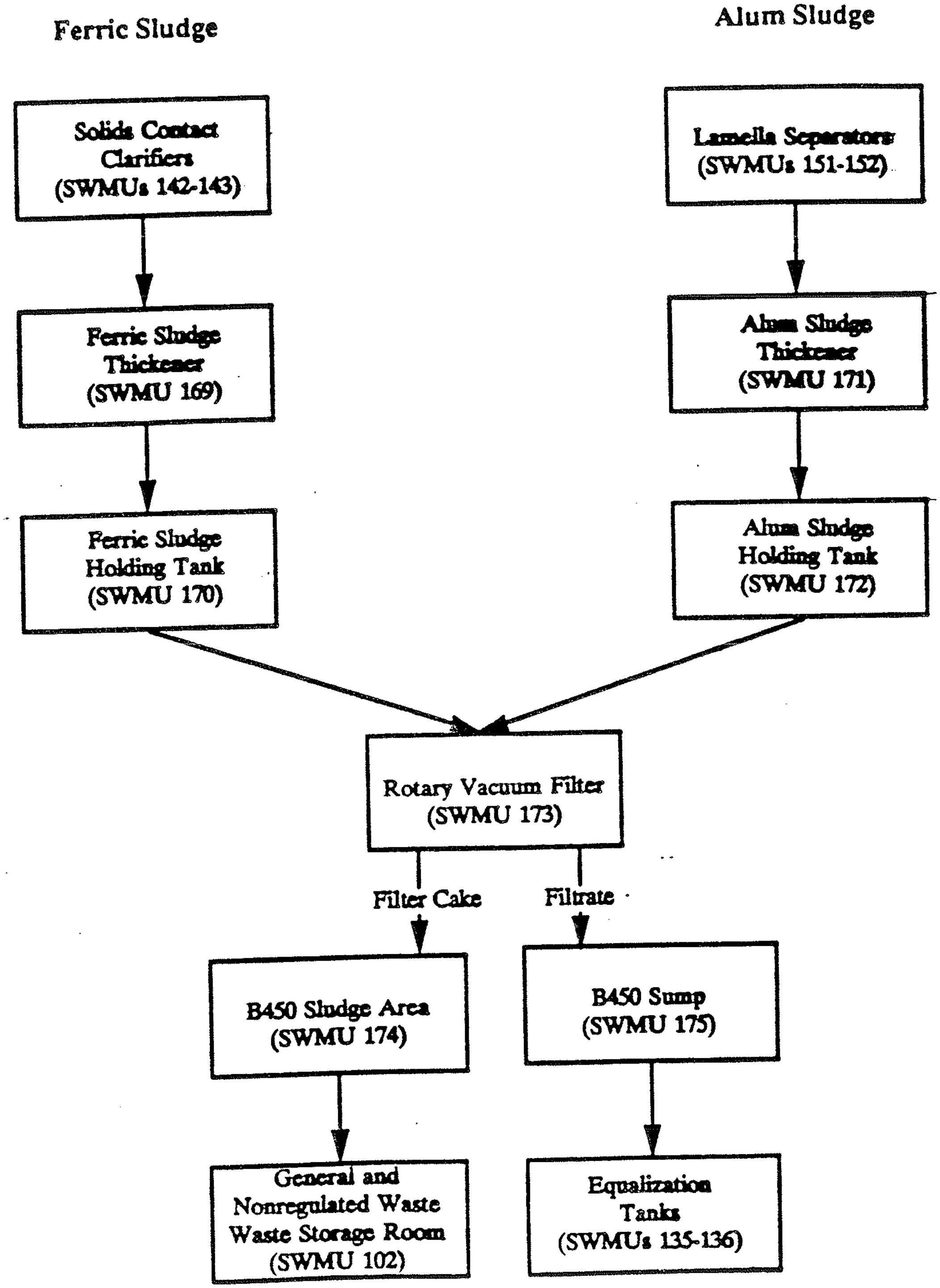

Figure II-3. Flow Diagram of IWTP Sludge Management
Source: Ref 161

Alum sludge is pumped from the Lamella Separators to the Alum Sludge Thickener (SWMU 171). Polymer is mixed in with the sludge as it is being pumped to the thickener to enhance solid/water separation. The thickened alum sludge is then pumped to the Alum Sludge Holding Tank (SWMU 172). From there the alum sludge is pumped to the Rotary Vacuum Filter (SWMU 173) for sludge dewatering.

The facility's former Industrial Wastewater Treatment Plant, depicted in Figure II-4, was installed in 1983-1984 to treat conventional pollutants, metals, halogenated hydrocarbons, and aromatic hydrocarbons. Process effluent was routed via the Former Industrial Waste Drainage System (SWMU 194) to the Equalization Tanks (SWMUs 135-136) and by way of an influent pump to two Static Mixers (currently used as part of the Lamella Separators, SWMUs 151-152). Flocculant and polymer were then added in the Flocculation Tank (SWMU 149) with the wastewater passing back through a Lamella Filter (SWMU 151). Supernatant was passed through a Sand Filter (SWMUs 154-157) while backwash was sent back to the Equalization Tanks. Filter overflow was next treated in the Air Stripper Towers (SWMUs 159-160) and then pumped to the Carbon Adsorption System (SWMUs 162-166). Carbon adsorption system effluent water was stored in the Effluent Holding Tanks (SWMUs 130-132) before testing and discharge to the Hudson River through SPDES Outfall 003 (Ref 110).

Sludge from the Lamella Separators was concentrated and then mixed in a Sludge Tank (SWMUs 181-182). The Rotary Vacuum Filter (SWMU 173) was used to dewater the sludge with the filtrate being returned to the Equalization Tanks and the sludge emptied into Ceco-Paks at the Building 450 Sludge Area (SWMU 174) (Ref 110).

From the late 1940s until 1983, industrial waste treatment was a much less complicated process. Treatment took place in the current Equalization Tanks (SWMUs 135-136). Treatment by chemical addition took place in a batch process in one tank while the other tank was being filled. Each tank normally underwent a seven hour cycle (Ref 22). Treated effluent was discharged to the Former Effluent Stabilization Pond (SWMU 134) prior to discharge to the river. Sludges were managed in the Clay Drying Beds (SWMUs 177-178) until they were replaced by the Concrete Drying Tanks (SWMUs 179-180) in 1978 (Ref 130).

4. Waste Management by Land Disposal

A variety of hazardous and non-hazardous wastes were disposed at the Former Waste Disposal Site (SWMU 115) in the 1940s and 1950s. As previously mentioned, drummed wastes were among the wastes placed in the unit. Other wastes managed include sludge from sanitary and industrial treatment plants, incinerator ash ("incinerator" is actually open burning at the unit), construction debris and soils, heavy metal salts with chromium, copper, nickel, iron and possibly cadmium from plating baths, cyanide briquets and possibly other chemicals. It is estimated to have contained 26,000

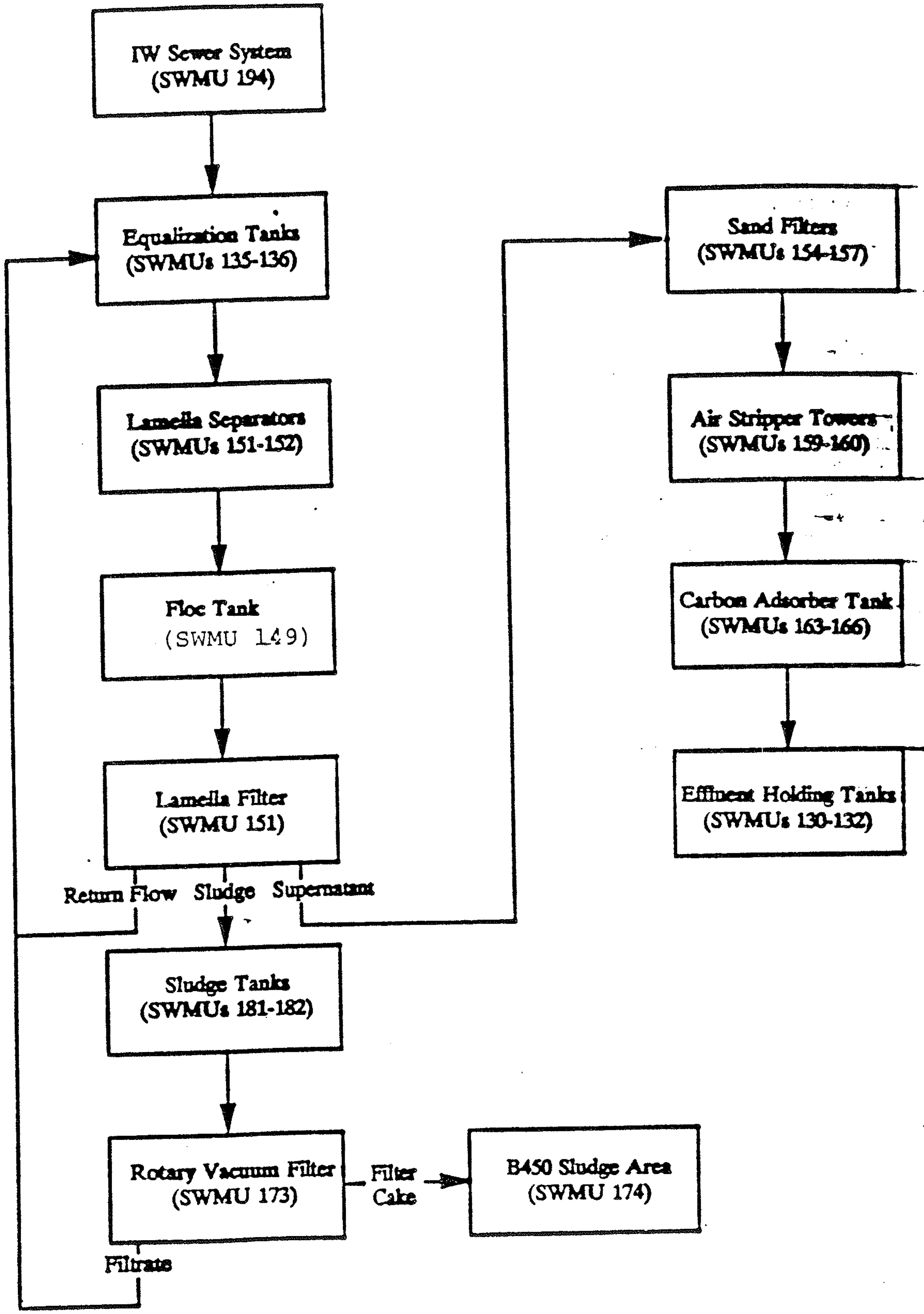

Figure II-4. Flow Diagram of Former IWTP Process, 1984-1989
Source: Ref 107

cubic yards of material. During the 1950's and 1960's construction debris was also disposed of at the site. In 1980, a total of 35,000 cubic yards of wastes and some contaminated soil were reportedly removed and disposed in a secure landfill. Sampling conducted in association with the removal determined that remaining soil was clean but groundwater under the unit was still contaminated (Ref 2, 16, 130).

Until recently, land disposal took place at one location, the Construction Debris Landfill (SWMU 192). The landfill was reportedly used only for disposal of construction debris. It operated under a construction and debris permit. This landfill is now inactive and is undergoing closure under the facility's NYSDEC Part 360 permit. Other construction debris landfills have operated at various locations throughout the IBM facility over the years, including the Miscellaneous Waste Storage Area (SWMU 190), the Building 450 Demolition Landfill (SWMU 185), and the South Site Demolition Landfill (SWMU 197) (Ref 7, 130).

Known former septic tanks at the facility include the Former Building 075 Septic Tank Area (SWMU 121) and the Building 052 Septic Tanks (SWMUs 187-189). Facility representatives reported that no hazardous wastes were disposed at the units (Ref 28, 158).

The Former Waste Oil Leach Field (SWMU 129) was apparently used from the 1940s until the 1960s for disposal of waste cutting oils. Site drawings have indicated that an associated waste pipeline ended in the area of the unit and it is believed that waste oils were routinely transported to the unit via the pipeline for disposal (Ref 136) in the ground.

5. Miscellaneous Waste Management

The main manufacturing buildings have underdrain systems, the Building 003 Underdrain System (SWMU 38) and the Building 004 Underdrain System (SWMU 65), which have been found to manage contaminated groundwater from known and suspected releases. Underdrain systems are designed to collect shallow groundwater from underneath a building to aid in stability. These units discharge to the Stormwater Sewer System (SWMU 195) which also manages parking lot and other surface runoff. This in turn discharges to Spring Brook via SPDES Discharge Point 009 (Ref 130, 158).

The Sanitary Sewer System (SWMU 196) is used for the disposal of waste isopropyl alcohol/water mixture from the carbon abatement system in Building 004. This non-regulated waste has been disposed in this manner since 1987. This is conducted under agreement with the Arlington Sewer Treatment Plant, located near IBM (Ref 158, 160).

E. REGULATORY HISTORY

In November 1980, IBM filed a Federal Part A permit application and acquired interim status as a treatment, storage and disposal (TSD) facility. The Part A application was last updated in 1990. In

1984 IBM received interim status as a TSD facility in the State of New York. Interim status covered the BAT Tank Farm facility (SWMUs 89-91), the Building 028 Hazardous Waste Storage Building (SWMUs 103-107), and the Former Effluent Stabilization Pond (SWMU 134) (Ref 136).

On September 28, 1984, IBM received a final RCRA Part B permit for the BAT Tank Farm and the Building 028 Hazardous Waste Storage Building. On December 10, 1986, EPA approved IBM's clean closure of the Former Effluent Stabilization Pond with no post-closure care requirements (Ref 136).

Subsequently, on June 30, 1988, IBM modified its Federal Part B permit for the new Bulk Chemical Storage Facility (BCSF) (SWMUs 94-96). IBM submitted a closure plan for the BAT Tank Farm facility which was approved by EPA and NYSDEC (Ref 136). As of the writing of this report, final closure approval for the units has not yet been received.

IBM also received interim status as a TSD facility from NYSDEC. In May 1988, NYSDEC notified IBM that the site's Part 373 (final status) permit application would be due on November 8, 1988. The application was for the same units as those addressed under Federal requirements and was submitted on November 4, 1988 (Ref 136).

NYSDEC Part 373 has the same corrective action requirements as the Federal HSWA provisions. NYSDEC requested that, as part of the permitting process, IBM submit information regarding SWMUs on the site and IBM responded with a 2-volume document, submitted in August 1988. This document has been designated Reference 130.

In anticipation of continuation of the corrective action process by NYSDEC, IBM submitted in March 1989 the 5-volume document (Ref 136) <u>Compliance Report, Title 6, New York Code of Rules and Regulations, Subsection 373-2.6(1), Corrective Action for Releases from Solid Waste Management Units</u>. The intent of this report was to document that IBM has essentially carried out the corrective action requirements through its Groundwater Protection Program (GWPP) and that only compliance monitoring is necessary as part of the corrective action module of the Part 373 permit (Ref 136).

According to the project files, annual RCRA compliance inspections were conducted from 1985 to 1989. The inspection reports indicated that there were no significant deficiencies detected during any of the inspections (Ref 74, 92, 129, and 146). The purpose of these inspections was to evaluate current RCRA-regulated units only, and not to evaluate other SWMUs or releases.

The IBM Main Plant first came under Superfund jurisdiction in April 1980 when the site was listed on the New York State registry of inactive hazardous waste disposal sites (the State's equivalent to the Superfund National Priorities List). It was listed due to the existence of the Former Waste Disposal Site (SWMU 115). In June 1987, NYSDEC determined that a post-remedial groundwater monitoring program was necessary at IBM and that, since the site is an inactive hazardous waste disposal site in the New York State Registry, activities must be conducted under a Consent Agreement and Order (Ref 103). IBM submitted a draft Consent Agreement and Order in September 1987 to NYSDEC for post-remedial monitoring. No actions on the document have been taken to date (Ref 136).

IBM operates nine discharge outfalls under New York State Pollutant Discharge Elimination System (SPDES) Permit #NY000541 (Ref 66). Outfalls include the following:

- 001 Non-contact cooling water
- 002 Non-contact cooling water
- 003 IWTP Effluent Process water, cooling tower blowdown and boiler blowdown
- 009 Building 012 foundation drain, non-contact cooling water, steam condensate and stormwater runoff
- 013 Non-contact cooling water, stormwater runoff and steam condensate
- 018 Surface water runoff from oil storage tank spill containment and steam condensate
- 019 Surface water runoff from spill containment for oil storage tanks
- 020 Non-contact cooling water
- 023 Non-contact cooling water

Outfalls 001, 002, 003, 020 and 023 discharge directly to the Hudson River. Outfalls 009, 013, 018 and 019 discharge to Spring Brook, which flows to the Hudson. Treatment prior to discharge only occurs at Outfall 003.

In general, most of the outfalls are monitored bimonthly for only flow, BOD, temperature, and pH, but Outfall 003 is monitored for organics and metals, Outfall 009 is monitored for suspended solids and total phenolics, Outfall 013 is monitored for suspended solids, ammonia nitrogen, and total iron, and Outfall 018 is monitored for oil and grease as well. In addition, less frequent discrete and composite samples are analyzed for further parameters, particularly at Outfalls 003, 009, 013, and 017 (Ref 66, 135). Violations of the SPDES limits are discussed in the History of Releases section below. A new SPDES permit is in effect at IBM (i.e. the newly proposed Appendix H).

IBM has registered air emission sources with the NYSDEC Division of Air for manufacturing tools, storage tanks, treatment tanks, the IWTP and other units. This registration permits release to the atmosphere of specified quantities of volatile materials (Ref 9). Air discharges are addressed in the Facility Process Emission Summary (the newly proposed Appendix F).

F. HISTORY OF RELEASES

The IBM Main Plant has a documented history of releases of hazardous wastes or constituents to environmental media, particularly groundwater, where contamination has been documented throughout the Site Gravel. Releases have also impacted surface water and soils at the facility. Documented releases to these media are discussed in this section. Although few releases affect only one media, the following releases are organized by the primary media affected.

1. Releases to Surface Water

Releases to surface waters have occurred both at permitted outfalls and elsewhere. The facility has had numerous instances of exceedance of outfall limits. These were mainly caused by line breaks or overflow of containment areas (Ref 10, 14 and 20). Releases to surface waters due to specific incidents include:

- On January 4, 1980, a portion of the Former Industrial Wastewater Drainage System (SWMU 194) line was broken during excavation activities. The line at this location contained cooling tower blowdown, rinses from a photo lab, rinses from a fork lift truck maintenance and cleaning area, and processed non-contact cooling water. Approximately 4,000 gallons (plus 10 gallons of waste oil) was released to Spring Brook during remedial activities. The line was repaired and contaminated soil was sampled with unknown results (Ref 10).

- On October 11, 1980, while replacing a tile section of the Former Industrial Wastewater Drainage System (SWMU 194) piping near Building 004 with plastic pipe, it was noted that leaking was occurring at the cement seal around the new pipe. A pump was installed and discharged the waste water from a collection pit to downstream of the break. During repairs the pump was shut down. This resulted in the SPDES limits for copper and ammonia being exceeded from discharge point 013 (Ref 14).

- In October 1981, IBM discharged halogenated hydrocarbons in excess of their permitted level. After flushing the Former Industrial Wastewater Drainage System (SWMU 194) line, and removing the heavy material collected in the manholes, the remaining muddy water was sent through the industrial waste system. This mud contained hydrocarbons and resulted in a discharge of 4.4 pounds on October 2, and 17.2 pounds on October 3 (Ref 20).

- On November 25, 1981, approximately 5,000 to 40,000 gallons of untreated industrial wastewater leaked from the underground piping of the Former Industrial Wastewater Drainage System (SWMU 194) surrounding one of the Equalization Tanks (SWMUs 135-136). The wastewater soaked into the ground and some reached Spring Brook. The extent of remediation is unknown, but it is believed that the soil was removed during construction of the second IWTP (Ref 22).

- In October 1982, an accidental discharge of trichloroethylene along the banks of the Hudson River was reported (Ref 30). No other information was available on this release.

- On January 16, 1984, approximately 1,500 gallons of untreated industrial waste was released to Spring Brook (2,500 gallons released total) due to a valve left open in the vault discharge line causing the discharge vault associated with the IWTP to overflow. The contaminated soil was reportedly removed (Ref 130).

- On May 25, 1984, during installation of a fence at the IWTP, a construction vehicle augering for fenceposts struck and broke an underground fiberglass pipe connecting the Equalization Tanks (SWMUs 135-136) with the Effluent Holding Tanks (SWMUs 130-132). Approximately 1,000 gallons of effluent from the equalization tank discharged to the ground and a tributary brook discharging into Spring Brook. Pooled water was reportedly collected and contaminated soil was removed (Ref 130).

- The Site Gravel discharges to Spring Brook in the vicinity of the Industrial Waste Treatment Plant. The stream in this area is reportedly receiving chlorinated solvents from the Site Gravel and, perhaps, the Stormwater Sewer System (SWMU 195), via SPDES Outfall D009. The major species detected are TCE and trans-1, 2-dichloroethylene (Ref 136).

- On April 15, 1988, one quarter of a gallon of motor oil was spilled at Bldg. 938. Water with a sheen reportedly entered a storm drain. The spill was reportedly cleaned up.

- On January 12, 1989, one gallon of motor oil was spilled. Some material may have entered a storm drain. The spill was reportedly cleaned up.

- On July 7, 1989, 2,000 gallons of an unknown waste material spilled at Bldg. 690 when an industrial waste tank line was bypassed. Contents of the discharge were reportedly within SPDES Permit limits.

- On January 2, 1992, 15,000 gallons of 0.2% sulfuric acid material spilled from Bldg. 004. The spill possibly occurred on December 31, 1991. Two valves froze and ruptured. The spill went out a roof drain to storm drain and then into Spring Brook. There were no related cleanup activities.

- On January 14, 1992, two gallons of gasoline were spilled from a passenger vehicle's gas tank onto pavement east of Bldg.003 and then into a storm drain to Outfall 009. Speedi-dry and pads were reportedly put down.

2. Releases to Soil

Summarized below are documented releases to soils that are described in further detail in the file materials.

- In 1968, chemical storage tanks within Building 025 (SWMU 186) containing Furfasol M-17 (a mixture of methylene chloride, 1,1,1-trichloroethane, and tetrahydrafuran) developed leaks. 7,500 gallons of solvent were reportedly released to the underlying soil. No information was available regarding any cleanup of this leak and associated contaminated soil (Ref 23).
- In January 1979, the pipe leading into the Waste Ammonium Persulfate Tank (SWMU 58) ruptured and spilled approximately 1,400 gallons of waste ammonium persulfate to the ground. The spilled material entered a depression (approximately 8 feet by 70 feet in size) to the northwest of the tank which was bisected by rails. The contaminated soil was reportedly removed (109,860 pounds) to an average depth of three feet in the area (Ref 4, 130 and 136).
- On March 6, 1981, a line at the Former Industrial Wastewater Drainage System (SWMU 194) servicing Building 006 was broken during excavation activities. The affected soil was reportedly removed and the line repaired (Ref 130).
- On October 28, 1983, approximately 20,000 gallons of treated water was released to the ground due to the lack of a sleeve in the pump pit at the IWTP during excavation activities (Ref 130). The extent of remediation is unknown.
- On October 31, 1983, a leak in the return line from the Former Effluent Stabilization Pond (SWMU 134) was observed. A crack in a welded joint allowed approximately 5,000 gallons of treated waste to release to the ground. The wastewater was being routed to treatment tanks for further treatment due to a high iron content. No remediation was reportedly conducted (Ref 130).
- On October 1, 1985, excavation activities broke a fiberglass line between the Equalization Tanks (SWMUs 135-136) and the Effluent Holding Tanks (SWMUs 130-132). Approximately 200 gallons of waste with a pH of 11.5 was discharged to the ground. The contaminated soil was reportedly removed and disposed (Ref 130).
- On June 20, 1988, a transformer leaked onto a concrete pad in an unspecified location. Booms and pads were used to clean up visible contamination.
- On August 22, 1988, ten gallons of No. 6 fuel oil was spilled onto concrete and soil next to Bldg. 020. Speedi-dry was applied and soil was excavated and put in drums for offsite disposal. The concrete containment was reportedly cleaned up.

- On January 16, 1989, four gallons of epoxy adhesive resin was spilled when a contractor ran over a contasiner and material came out. Absorbent material was put on a spill and cleaned up by IBM. A facility employee disposed of the container in one of the on-site landfills.

- On May 16, 1991, ten gallons of diesel fuel was spilled on soil and crushed stone when a tank failed southwest of Bldg. 454. Spilled material was reportedly cleaned up and put in drums to be disposed of.

- On October 24, 1991, five gallons of petroleum was spilled at the Bldg. 001 loading dock when a line on a truck burst. The spill was reportedly contained on pavement and cleaned up.

3. Releases to Groundwater

Summarized below are documented releases to groundwater that are described in further detail in the file materials.

- During groundwater investigations apparently conducted in 1979, an area near the northwest corner of Building 004 was excavated. It was found that a line associated with the Former Industrial Waste Sewer System (SWMU 194) exiting the building was broken. A ground shift sheared the clay tile pipe at the point it penetrated the building wall. It is believed that synthetic organics found in groundwater in the area and in Spring Brook may have resulted from this condition (Ref 5).

- On October 14, 1980, a line associated with the Former Industrial Waste Sewer System (SWMU 194) servicing Building 708 was broken during excavation. Waste was reportedly immediately routed to drums and the line was repaired (Ref 14).

- In early 1982 the BAT Tank Farm (SWMUs 89-91) was the site of leakage of solvents through defective flanges. Nine borings were installed in 1982 to investigate the loss. Elevated groundwater levels of ammonia and TOC were found in the majority of the borings. T-107S, the boring in the middle of the tank farm, revealed significant concentrations of organics, 15 million ppb of IPA, and 150,000 ppb of acetone. A second phase of borings concentrating in the tank farm area revealed high groundwater levels of aromatics including high levels of ethylbenzene, toluene, m-xylene, and o,p-xylene. Free product of xylene was found in one well. Remediation included removal of free product (29 gallons) and removal of soil (459 tons) and groundwater (8622 gallons) containing xylene (Ref 130, 136).

- On October 20, 1983, 500 gallons of industrial waste was released to Manhole #20, part of the Current Industrial Waste

Sewer System (SWMU 193). The untreated waste was contained at the Bldg.450 Sump (SWMU 184) and mixed with other liquids. The subsequent mixture was apparently 15% untreated waste mixed with steam condensate, groundwater, and city water. Analysis of the waste revealed that groundwater standards for pH, iron, phenols, acetone, and tetrahydrofuran were exceeded (Ref 130). Further information on the release was not available. Approximately 2,000 gallons were released to the groundwater from the Bldg.450 Sump (SWMU 184) through inadvertent pumping.

- A spill occurred on August 6, 1984 during the transfer of steam condensate (97% water, IPA, toluene, xylene, and ethylbenzene) from the Former Pollution Abatement Transfer Tank #13A (SWMU 66) to the Carbon Abatement Waste Tank #13B (SWMU 92). Approximately 800-900 gallons of liquid was discharged to the ground. Approximately 100,000 gallons of groundwater in the vicinity of the spill was removed and treated (Ref 130, 136).

- IBM has confirmed that widespread losses of TCE in the Building 004 area took place. This was attributed to the heavy usage in Building 004 of TCE, resulting in spillage of large amounts of the solvent. There were apparently many sources of the solvent within Building 004, including the Building 004 Still (SWMU 59). Sampling of the site gravel (AOC A) for priority analysis has been carried out since 1981. A large amount of data on the groundwater plume has been generated. Concentrations of TCE in groundwater in site gravels have been detected as follows:

  4309 ppb in monitoring well T-8S,
  1322 ppb in monitoring well T-22S,
  3270 ppb in monitoring well T-38S,
  446 ppb in monitoring well T-39S,
  1108 ppb in monitoring well T-40S,
  2602 ppb in monitoring well T-42S.

  TCE in the site gravel aquifer has been documented to have released and is currently releasing through a seep to Spring Brook (Refs 136, 158).

- Past investigations for the Building 003 Area indicated that a virgin TCE solvent distribution tank which was located in the area is known to have leaked. Further details and the extent of leakage could not be provided by IBM representatives. The tank was removed in 1981. Groundwater sampling in 1978 and 1979 revealed concentrations of TCE at several hundred parts per billion and low concentrations of 1,1,1-TCA. These chemicals continued to be found in further investigations through 1981 (Ref 136).

- In investigations associated with the Former Waste Oil Leach Field (SWMU 129), various organic chemicals were found in the groundwater. Waste oil was reportedly discharged to the ground in this area according to IBM. A detailed investigation of the area was conducted in late 1981 and early 1982. It was found that 1,1,1-trichloroethane and trichloroethylene dominate the plume chemistry in the area. Maximum groundwater concentrations of chemicals found in the investigation are as follows:

1,1,1-trichloroethane	51,000 ppb
trichloroethylene	5,500 ppb
1,1-dichloroethylene	770 ppb
trans-1,2-dichloroethylene	640 ppb
1,1-dichloroethane	370 ppb
toluene	130 ppb
vinyl chloride	91 ppb
tetrachloroethylene	67 ppb
1,1,2-trichloroethane	17 ppb

IBM contends that the source of the organic contaminants is not the Former Waste Oil Leach Field and that a source cannot be found (Ref 136, 158).

- On October 6, 1988, 300 gallons of sanitary waste was spilled into an excavation at Bldg. 006. Sanitation contractor reportedly would be cleaning up spill, however, no confirmation of this has been received.
- On November 21, 1991, one gallon of diesel fuel spilled to soil during tank replacement. One drum of soil was excavated and stored for subsequent offsite disposal.

III. ENVIRONMENTAL SETTING

A. Location and Surrounding Land Use

The IBM Poughkeepsie Main Plant is located approximately one-and-a-half miles south of Poughkeepsie in Dutchess County, New York. The geographical location of the center of the main plant is 41°39'20" latitude and 73°56'35" longitude. The facility property encompasses approximately 423 acres, of which two-thirds is occupied by the manufacturing complex. The remaining land is forested and undeveloped. In addition to the main plant property, IBM owns or leases other non-contiguous properties in the Poughkeepsie area with separate EPA I.D. numbers which are not described in this report.

The land use around the main plant is mixed. It is bounded by the Conrail railroad tracks and the Hudson River to the west, Route 9 on the east, Arlington Sewage Treatment Plant and Duchess County Resource Recovery Agency (municipal solid waste incinerator) on the south, and mixed commercial/residential properties on the north and south (Ref 161). It is estimated that within one mile of the facility there are over 1,300 homes with a population of over 4,000. The area within one mile of the site also includes at least two schools and several businesses, primarily east of Route 9 (Ref 130, 165).

B. Climate and Meteorology

The climate of Dutchess County is characterized by moderately cold winters and warm, humid summers. The area is under the influence of continental air masses, which migrate east across the United States and southeastward from Canada, and the Atlantic maritime air masses. The polar air masses are usually prevented from reaching Poughkeepsie by the mountains to the west and northwest. As a result, the area rarely experiences the extremes of cold found in the more westerly portions of New York State (Ref 157).

The average annual temperature for Poughkeepsie is 49.1°F. Summer averages 73°F. and winter averages 28.5°F. Summer temperatures in excess of 90°F. are common and accompanied by high relative humidity. Up to 90% of the days in winter record freezing temperatures. Temperatures during summer are more variable from year to year than winter (Ref 157).

Precipitation is well distributed throughout the year, with an average of 40 inches at Poughkeepsie. Approximately half of the rainfall occurs during the growing season of May 1 to September 30, and is almost always sufficient for all crops. On the average, it rains more than 0.1 inches between 5 and 7 days each month. From November through April, some of this precipitation is snow (Ref 157).

The prevailing wind is from the west-northwest and rarely reaches speeds high enough to cause serious wind damage. The average wind speed is 8 mph, with the highest average of 10 mph occurring during

April. Wind direction follows an annual cycle; winds are more frequent from the west and north in the cooler months and from the southwest in the warmer months. Imposed on the regional wind pattern is the influence of the Hudson River. Compared to winds outside the valley, the river channels the winds in the valley and increases the frequency of northerly and southerly winds. Tornadoes and hurricanes occur infrequently, with the most severe hurricane having occurred in 1938 (Ref 157).

C. Topography and Surface Water

The Poughkeepsie area lies within the Hudson Lowland subprovince of the Valley and Ridge physiographic province. The Hudson Lowland is a southwest to northeast trending low relief area between the Appalachian Uplands to the west and the New England Uplands to the east. The Hudson Lowland is characterized by flat to gently rolling topography in an area along the Hudson River (Ref 162, 163).

The topography of the IBM Main Plant is primarily the result of the latest Pleistocene glaciation, which eroded much of the land, and deposited sequences of unconsolidated clays, slits, sands and gravels on top of shale and limestone bedrock. The facility is located on two gently rolling terraces adjacent to the Hudson River. Elevations range from 185 feet above the National Geodetic Vertical Datum (NGVD) at Highway 9 to 10 feet above NGVD near the river. Most of the facility, however, is located at an elevation of approximately 100 feet above NGVD on the lower terrace. The northeast corner of the main plant is located on the upper terrace which has an approximate elevation of 185 feet (Ref 165).

Surface drainage is toward the Hudson River, as the topography slopes gently toward the river. Two streams cross the facility. In the northern, undeveloped portion of the property, an unnamed, ephemeral stream flows from the apartment complex east of the facility in a west southwestward direction toward the Hudson River. This stream is near no known sources of hazardous wastes or constituents. Spring Brook, also referred to as waterway H107, flows in a southwestward direction across the developed portion of the site (Ref 136, 160).

Spring Brook originates approximately one mile northeast of the IBM Main Plant. The stream is either artificially channelized or culverted its entire length east of Route 9. The stream enters the facility through a culvert just north of Spackenkill Road and flows westward at the surface to the paved parking area east of Building 004, where it is culverted to pass under manufacturing buildings and emerges just southwest of Building 006. Spring Brook is joined underground by a tributary flowing from the northern portions of the developed parts of the facility (Ref 136).

A majority of the surface drainage from the main portion of the plant goes to Spring Brook from where the stream extends from west of Building 004 to near Building 020, goes through a culvert for some distance, and then down a series of natural and manmade water falls to the Hudson River. The remaining drainage from the main plant goes directly to the Hudson River. The entire site is above the 100-year floodplain except for a small area adjacent to the river at the southwest corner of the plant. However, no SWMUs are located in this area (Ref 101, 136, 165).

D. Soils and Geology

The geology of the IBM Main Plant consists of lower-to-mid-Paleozoic sedimentary rocks overlain by unconsolidated glacial and fluvial sediments of recent origin (Ref 136).

Bedrock underlying the site belongs to the Normanskill Shale of Middle Ordovician age, and the Wappinger Limestone of Upper Cambrian to Lower Ordovician. The contact between the limestone (Wappinger Group) and shale (Normanskill Formation) on the Main Plant is a thrust fault with the limestone on the up-thrown side. The fault is located across the southeastern portion of the facility, east of active and developed portions of the plant. The general orientation of this fault is north 40-50° east with a significant bend in the fault in the area immediately east and southeast of the manufacturing buildings. Figure III-1 shows the location of the fault, demonstrating that the majority of the plant is underlain by the Normanskill shale (Ref 136).

The Normanskill shale crops out along nearly the entire western border of the property, underlying the 70- to 90-foot "cliff" along the Hudson River. Lithologies represented include dark gray calcareous shale, dark gray to black slate and shale, dark brown to olive graywacke (sandstone), and quartzite (Ref 136).

The bedrock of the Main Plant is overlain by a variable sequence of unconsolidated sediments of glacial, periglacial, glaciofluvial, and recent alluvial and lacustrine origin. The eastern two-thirds of the site is almost completely covered by sediments more than 10 feet thick except for limited areas in the south-central portion (see Figure III-1). (Ref 136)

Along the western edge of the site, the prominent cliff area along the Hudson River is underlain primarily by shallow shale bedrock; unconsolidated sediments more than 10 feet thick are very limited. There is a predominance of the unconsolidated sediments on the eastern two-thirds of the site and high, shallow bedrock on the western margin. In this regard, there appears to be a wedge of unconsolidated sediments that thickens from the west to the east, reaching a maximum thickness of 94 feet near the eastern edge (Ref 136).

The lowermost unconsolidated unit at the site is a glacial till horizon, which is not always present at the base of the unconsolidated sediments. Where it is present, it is generally a dense, well-graded material of low permeability that separates the bedrock from more permeable sediments (Ref 136). Above this till is a sequence of lacustrine deposits and outwash sands and gravels

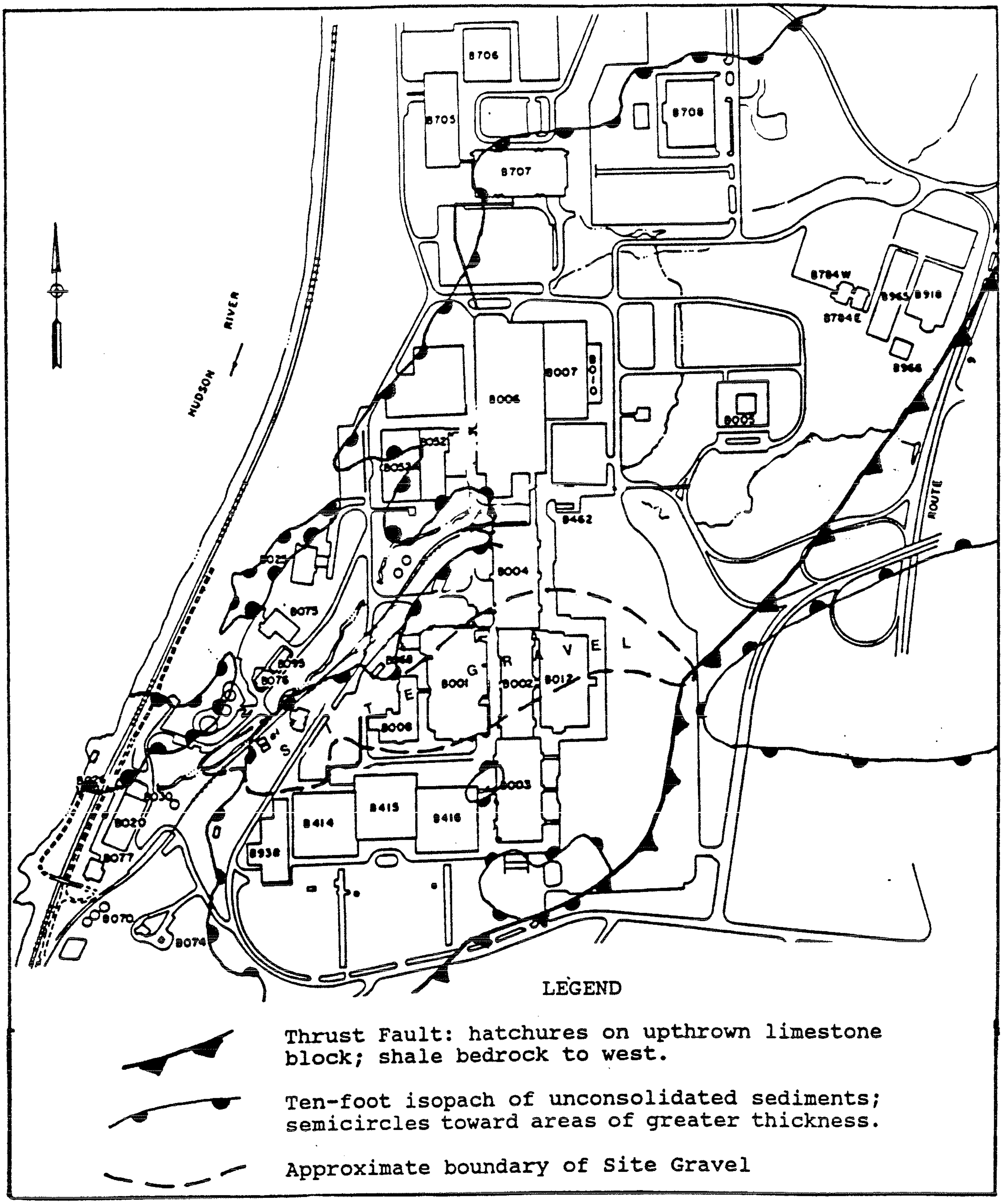

Figure III-1. Geologic Characteristics of the IBM Main Plant, Poughkeepsie. Source: Ref 136 that generally interfinger beneath the Main Plant. These deposits are considered to be associated with the development of kames, kame terraces, and associated glacial lake deposits along the valley of the Hudson River. Although the distance of transport of some of the sands and gravels is probably not very great, there has been significant rounding of some gravels. Due to the variable bedrock topography and interfingering with finer - grained sediments, there is no single persistent sand and gravel layer beneath the entire site. However, some of the sand and gravel channel deposits are sufficiently extensive to be traceable from one area of the Main Plant to another (Ref 136).

A continuous fluvial gravel deposit is present in the southern part of the Main Plant at a depth of approximately 30 feet to 50 feet. Termed the "site gravel", this unit extends from approximately 400 feet east of Building 012, westward underneath buildings 002, 004, 001 and 008 to intersect the surface at Spring Brook in the vicinity of Building 450. The extent of this unit is shown on Figure III-1 (Ref 136).

Overlying these glacial and periglacial deposits of recent alluvial and floodplain environments. These deposits range from clays, silts, and some peat associated with swamps or lakes, to some fine sand and limited gravel deposits associated with re-working of the kame terrace materials (Ref 136).

In addition to this alluvial material, the shallow, unconsolidated materials beneath the site include a large volume of fill (well-graded clay, silt, sand, and gravel) that must have been hauled to the site from local sources since its texture and provenance are similar to the on-site glacial and periglacial deposits described above (Ref 136).

E. Groundwater

The majority of the site is underlain by saturated shale bedrock with relatively low groundwater storage and transmitting capabilities. Groundwater movement within the bedrock beneath all of the principal manufacturing buildings is toward Spring Brook (also classified as stream H107), which then discharges into the Hudson River. In the area immediately along the Hudson River, groundwater movement within the bedrock is directly into the river itself. In the area between Spring Brook and the Hudson River, a groundwater divide separates two components of shallow groundwater flow, one toward each of these discharge zones from a groundwater high in the vicinity of the salvage yard. Finally, along the southern edge of the manufacturing area there is a minor component of groundwater movement across the fault between the limestone and the shale bedrock that discharges to another tributary to the Hudson River. Based on 48-hour pumping tests, the representative hydraulic conductivity of the shale is believed to be on the order of 0.1 feet per day (Ref 136).

Figure III-2 shows groundwater flow directions in both the bedrock

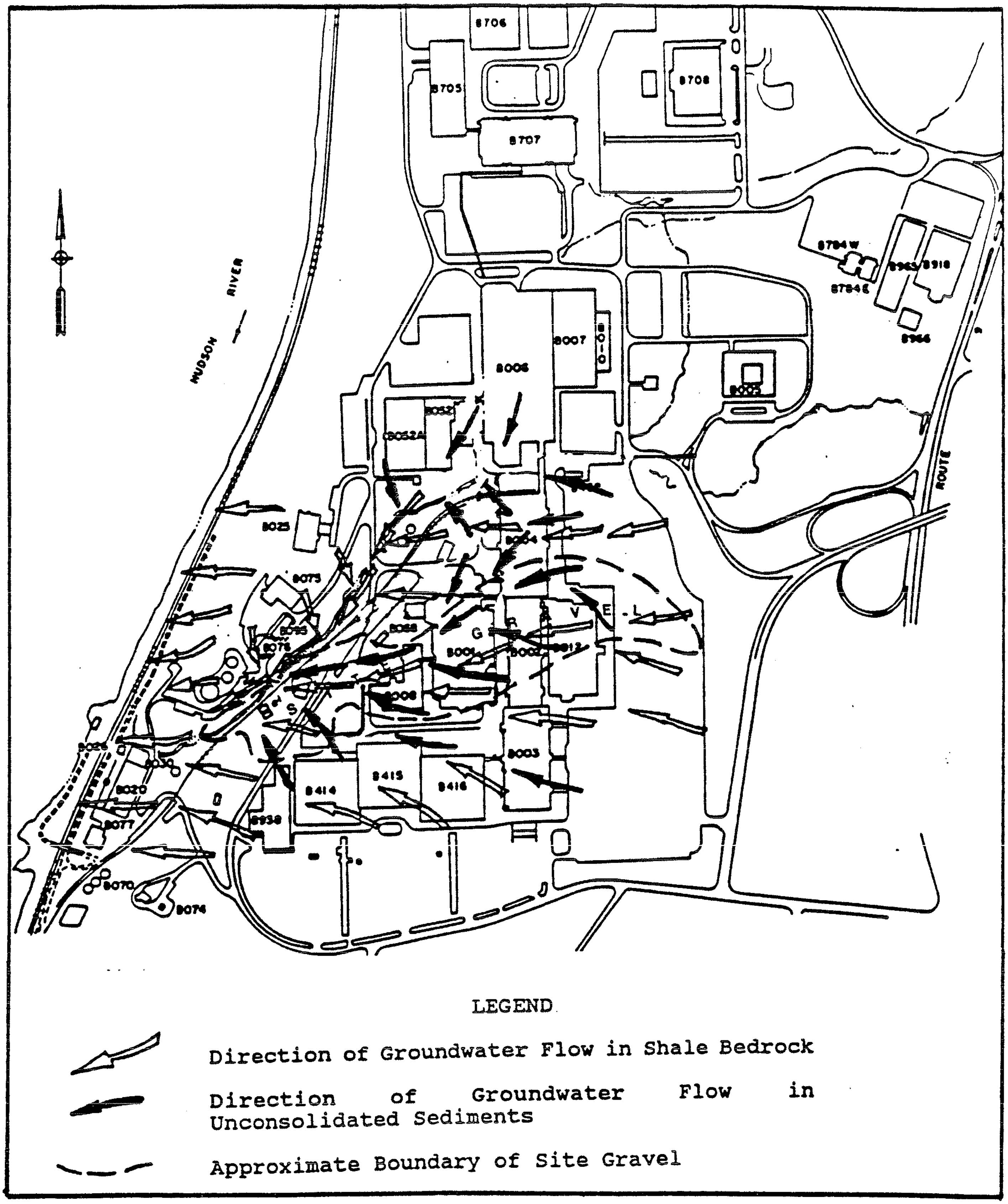

Figure III-2. Groundwater Flow at IBM Main Plant, Poughkeepsie. Source: Ref. 136

and the unconsolidated sediments in the manufacturing area of the Main Plant. The manufacturing area is underlain by a somewhat discontinuous layer of saturated sediments as a result of the limited areal extent and thickness of unconsolidated sediments and the irregular bedrock topography. In the northern portion of the manufacturing area, shallow groundwater movement in the saturated sediments is toward Spring Brook. South of the groundwater divide in the area of the former BAT tank farm and Building 004, the direction of groundwater movement is toward the site gravel. Groundwater flow in the saturated sediments within the remainder of the manufacturing area (other than limited areas immediately adjacent to the Hudson River) drains into the site gravel, from which it then discharges to Spring Brook in the area of the Industrial Wastewater Treatment Plant (Building 450). (Ref 136)

The remaining limited area of saturated sediments and fill along the Hudson River is characterized by direct groundwater movement into the Hudson River itself, except where springs occur. This includes areas associated with the antenna site, Building 025, Building 020/077, the overpass area, and the oil leach field area. (Ref 136)

The range in hydraulic conductivities for site gravels determined from pulse tests was from 17 to 27 feet per day, averaging 22 feet per day. Most of these tests were performed in the site gravel west of the manufacturing buildings, between these buildings and Spring Brook (Ref 136).

F. Receptors

The IBM Poughkeepsie site extends for approximately one mile along the eastern bank of the Hudson River, the primary pathway to potential receptors in the area. IBM owns all of the land from its eastern property boundary to lands of Metro North (commuter railroad) which form the site's west boundary. Metro North owns a narrow strip of land on which their tracks are located. To the west of Metro North lies the Hudson River. This strip of land is used solely for the purposes of rail transportation. Therefore the possibility for downgradient groundwater use between IBM and the ultimate receptor of groundwater, the Hudson River, is highly unlikely. Furthermore, because of the facility's urban location, homes and businesses in the vicinity of are served by the City of Poughkeepsie's municipal water supply and do not use ground water for drinking (Ref 136).

The Hudson River in this region is a Class A river, meaning that it has been determined by NYSDEC that its best use is as a source of drinking water. The City of Poughkeepsie withdraws its water supply from the Hudson River approximately 26,000 feet upstream of the IBM facility. The Hudson Valley Veterans Administration Hospital withdraws water from the river at Chelsea, which is approximately 39,000 feet downstream of the Poughkeepsie site, and New York City withdraws stand-by water approximately 31,000 feet downstream of IBM (Ref 136).

IV. DESCRIPTION OF SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

A total of 197 solid waste management units (SWMUs) and one Area of Concern (AOC) have been identified at the IBM Main Plant, Poughkeepsie, based on the file review, the visual site inspection (VSI), and continued communication with IBM personnel. The information gathered regarding each specific unit is summarized in this section.

Section IV describes SWMUs at the facility. Units are grouped by building, based on association and/or vicinity. Within buildings, units are generally organized to follow the flow of waste. Table IV-1 identifies the SWMUs and AOC. Their locations are shown on Figure C-1, located in Appendix C.

Photographs were not taken of several units. The primary reason for this is that facility representatives would not allow photographs to be taken in some indoor areas because of the fire hazard associated with the flash. In addition, no photographs were taken of units that are or were located underground or were detected from information received following the VSI.

In each SWMU description the IBM designated SWMU number is listed in parenthesis following the SWMU number. This IBM number corresponds to the number IBM assigned in their SWMU description document, Reference 130. Units for which no IBM number is listed were not identified in IBM's submittal.

Table IV-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 1 of 4)

SWMU No.	Unit Name	Status
1-3	Metal Mask Cleaning Waste Accumulation Drums (3)	A
4-6	Metal Mask Developer Waste Accumulation Drums (3)	A
7-8	Molybdenum Line Tanks (2)	A
9	Molybdenum Line Etch Room Accumulation Drum	A
10	Nickel Plating/Electroform Accumulation Drum	A
11	Electroform Cleaning Waste Accumulation Drum	A
12	Electroform Developer Waste Accumulation Drum	A
13	Former B003 Ion Exchange System	RM
14-24	Ion Exchange System	A
25	Tin Immersion Area Spill Control Tank	A
26	Glycerin/EDTA/Wastewater Storage Tank	A
27	Glycerin/EDTA/Wastewater Transport Tank	A
28	Hexavalent Chromium Treatment Tank	A
29	Hexavalent Chromium Treatment Room Waste Accumulation Area	A
30	Metal Mask 90-Day Waste Storage Area	A
31	Clark Board 90-Day Waste Storage Area	A
32	Building 003 Still	RM
33	Plating Waste/Organic Rinse Water Tank	RM
34-35	Photographic Waste Tanks (2)	RM
36	Air Stripper Waste Tank	RM
37	Evaporator	RM
38	B003 Underdrain System	A
39-45	Carbon Vessels (7)	A
46	Condenser	A
47	Separator	A
48	Freon Waste Tank #23	A

A = active
RM = removed

I = inactive
RR = RCRA-regulated

Table IV-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 2 of 4)

SWMU No.	Unit Name	Status
49	Carbon Abatement Waste Storage Area	I
50-51	Waste Xylene Tanks #21 and #22	I,RR
52	Drum Fill Station	I
53	Waste Xylene Transport Tank	I
54	Pollution Abatement Transfer Tank #13A	A
55	Surge Tank	A
56	Water/IPA Tank #26	RM
57	Plating Waste/General Industrial Waste Tank	RM
58	Waste Ammonium Persulfate Tank	RM
59	Building 004 Still	RM
60	Building 004 Ion Exchange Units	RM
61	Core Area #1	A
62	Core Area #2	A
63	Core Area #2 Waste Storage Cabinet	A
64	Core Encapsulation Area	A
65	B004 Underdrain System	A
66	Former Pollution Abatement Transfer Tank #13A	RM
67-75	Tool Room Grinding Machine Tanks (9)	A
76-77	Steam Cleaning Area Waste Tanks (2)	RM
78	Steam Clean Waste and Waste Oil Tank #3	RM
79	Core Area A	A
80	Core Area A Waste Storage Cabinet	A
81	Core Area B	A
82	Core Area C	A
83	Core Area D	A
84	Core Area D Waste Storage Cabinet	A
85	Core Area E	A
86	B690 90-Day Waste Storage Area	A
87-88	B690 Stills (2)	RM
89	Former Waste Xylene Tank #18	RM,RR
90	Former Waste Xylene Tank #19	RM,RR
91	Waste Xylene/IPA/Water Tank #17	RM,RR
92	Carbon Abatement Waste Tank #13B	RM
93	BCSF Truck Loading Area	A

A = active
RM = removed

I = inactive
RR = RCRA-regulated

Table IV-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 3 of 4)

SWMU No.	Unit Name	Status
94	BCSF Waste IPA Tank	A,RR
95	BCSF Waste Xylene Tank	A,RR
96	BCSF Waste Glycerin/EDTA/Water Tank	A
97	BCSF Carbon Canister System	A
98	Truck Crib Sump	A
99	Waste Oil Accumulation Drum	A
100	Safety Kleen Tank	A
101	Oily Debris Container	A
102	General and Non-Regulated Waste Storage Room	A
103	Caustic Waste Storage Room	A,RR
104	Acid Waste Storage Room	A,RR
105	Oxidizer Waste Storage Room	A,RR
106	Flammable Waste Storage Room	A,RR
107	Solvent Dispense Room	A,RR
108-109	Flo-Back® Parts Washers (2)	A
110	Empty Drum and Miscellaneous Waste Storage Room	A
111	B028 Loading Dock	A
112	Former Steam Clean Room	I
113	Loading Dock Spill Containment Tank	A
114	Former Steam Clean Waste Tank	RM
115	Former Waste Disposal Site	RM
116	Former Burn Pit	RM
117	Salvage Yard T-58 Drum Storage Area	RM
118	Former Crusher	RM
119	T-58 Groundwater Recovery Tank	RM
120	Former Fire Training Area	I
121	Former B075 Septic Tank Area	I
122-124	Fuel Blending Boilers	I
125	B030 90-Day Waste Storage Area	A
126	Boiler Feed Chemical Delivery Containment Pad	A
127	Antenna Drum Storage Area	I
128	B077 Container Storage Area	I
129	Former Waste Oil Leach Field	I
130-132	IWTP Effluent Holding Tanks	A

A = active
RM = removed
I = inactive
RR = RCRA-regulated

Table IV-1
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
IBM CORPORATION, POUGHKEEPSIE, NEW YORK
(Page 4 of 4)

SWMU No.	Unit Name	Status
133	IWTP Effluent Spill Containment Tank	A
134	Former Effluent Stabilization Pond	RM,RR
135-176	Current Industrial Waste Treatment Plant	A
177-184	Former Industrial Waste Treatment Plant Units	I,RM
185	B450 Demolition Landfill	I
186	Building 025	RM
187-189	B052 Septic Systems	RM
190	Miscellaneous Waste Storage Area	A
191	Asbestos Waste Storage Area	A
192	Construction Debris Landfill	A
193	Current Industrial Wastewater Drainage System and Pump Stations	A
194	Former Industrial Wastewater Drainage System	I
195	Stormwater Sewer System	A
196	Sanitary Sewer System	A
197	South Site Demolition Landfill	I
AOC A	Site Gravel	A

A = active
RM = removed

I = inactive
RR = RCRA-regulated

A. UNITS ASSOCIATED WITH BUILDING 003

Building 003 is a manufacturing building located in the southwest area of the facility. There are 38 solid waste management units associated with, or located in the vicinity of, the building.

SWMU No.	Unit Name
1-3	Metal Mask Cleaning Waste Accumulation Drums (3)
4-6	Metal Mask Developer Waste Accumulation Drums (3)
7-8	Molybdenum Line Tanks (2)
9	Molybdenum Line Etch Room Accumulation Drum
10	Nickel Plating/Electroform Accumulation Drum
11	Electroform Cleaning Waste Accumulation Drum
12	Electroform Developer Waste Accumulation Drum
13	Former Building 003 Ion Exchange System
14-24	Ion Exchange System
25	Tin Immersion Area Spill Control Tank
26	Glycerin/EDTA/Wastewater Storage Tank
27	Glycerin/EDTA/Wastewater Transport Tank
28	Hexavalent Chromium Treatment Tank
29	Hexavalent Chromium Treatment Room Waste Accumulation Drum
30	Metal Mask 90-Day Waste Storage Area
31	Clark Board 90-Day Waste Storage Area
32	Building 003 Still
33	Plating Waste/Organic Rinse Water
34-35	Photographic Waste Tanks (2)
36	Air Stripper Waste Tank
37	Evaporator
38	Building 003 Industrial Waste Floor Trench Underdrain System

Unit Numbers: 1-3 (No IBM number) (Photograph #123)

Unit Name: Metal Mask Cleaning Waste Accumulation Drums

Location: The units are located on the second floor of Building 003, in the southwest corner of the facility.

Description: The units are three separate 55-gallon plastic drums used for the accumulation of waste cleaning solution from the three metal mask process lines. The drums are stored on wooden pallets over a concrete floor throughout the metal mask cleaning area. The metal mask cleaning solution is periodically drained from the tanks into these drums. When full, the drums are transferred to the Metal Mask 90-Day Waste Storage Area (SWMU 30).

Date of Start-Up: The metal mask process has been in operation since approximately 1964.

Date of Closure: The units are currently operating.

Wastes Managed: The units manage metal-containing acid-rinse wastes.

Release Controls: The units are closed-top drums located indoors on wooden pallets over a concrete floor with a chemical resistant coating.

History of Releases: There are no documented releases associated with the units. No evidence of release was observed during the VSI.

References: 158

Unit Numbers: 4-6 (No IBM number) (Photograph #123)

Unit Name: Metal Mask Developer Waste Accumulation Drums

Location: The units are located on the second floor of Building 003, in the southwest corner of the facility.

Description: The units are three plastic 55-gallon drums used for the accumulation of waste developer solution from the three metal mask lines in the metal mask process area. The developer solution is automatically pumped from the developer tank to the drums. The units are removed and replaced with empty drums, twice a week on average. The drums are transferred to the Metal Mask 90-Day Waste Storage Area (SWMU 30).

Date of Start-Up: The metal mask process has been in operation since approximately 1964.

Date of Closure: The units are currently operating.

Wastes Managed: The units manage AZ303, a material which contains sodium hydroxide, and metal-containing acid-rinse wastes.

Release Controls: The units are closed-topped drums located indoors on wooden pallets over a concrete floor with a chemical resistant coating.

History of Releases: There are no documented releases associated with the units. No evidence of release was observed during the VSI.

References: 158

Unit Numbers:	7-8 (No IBM number) (Photograph #127)
Unit Name:	Molybdenum Line Tanks (2)
Location:	The units are located on the second floor of Building 003, in the southwest corner of the facility.
Description:	The units are steel, rectangular 300-gallon above-ground tanks which manage etching solution from three robotic etchers in the molybdenum coil line etch room that is part of the metal mask process. The solution is regenerated and recycled until it is determined to be no longer usable. Once the solution is determined to be waste, it is manually removed, placed in 55-gallon drums, and taken to the B690 90-Day Waste Storage Area (SWMU 86). According to facility representatives, the solution in the tanks has been removed twice in the last year.
Date of Start-Up:	The process was started in approximately 1964.
Date of Closure:	The units are currently operating.
Wastes Managed:	The units manage potassium ferricyanide.
Release Controls:	The units are closed tanks located indoors on a concrete floor with a chemical resistant coating.
History of Releases:	There are no documented releases associated with the units. No evidence of release was observed during the VSI.
References:	158

Unit Number: 9 (No IBM number) (Photograph #128)

Unit Name: Molybdenum Line Etch Room Accumulation Drum

Location: The unit is located inside Building 003, in the southwest corner of the facility.

Description: The unit is a 55-gallon plastic accumulation drum for solid debris associated with the Molybdenum Line Tanks (SWMUs 7-8). The debris includes cyanide caustic contaminated filters, rags, gloves, and other waste. When full the drum is taken to the Metal Mask 90-Day Waste Storage Area (SWMU 30).

Date of Start-Up: The process has been in operation since approximately 1964.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages cyanide- and caustic-contaminated filters, rags, gloves, and other debris.

Release Controls: The unit is a closed-top drum located indoors on a concrete floor with a chemical resistant coating.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number:	10 (No IBM number) (No photograph)
Unit Name:	Nickel Plating/Electroform Accumulation Drum
Location:	The unit is located inside Building 003, in the southwest corner of the facility.
Description:	The unit is a 55-gallon plastic drum situated on a concrete floor that is used for the accumulation of nickel sulfamate-containing carbon filter from the nickel plating line portion of the electroform line. Plating solution is regenerated on the line by passing the solution through carbon filters. Once the filters are no longer usable, they are placed in the unit. Facility representatives indicated that one drum is generated approximately every 2 months. When full the drum is taken to the Metal Mask 90-Day Waste Storage Area (SWMU 30).
Date of Start-Up:	The process has been in operation since approximately 1964.
Date of Closure:	The unit is currently operating.
Wastes Managed:	The unit manages carbon filters containing nickel sulfamate.
Release Controls:	The unit is a closed-top plastic drum located indoors on a concrete floor with a chemical resistant coating.
History of Releases:	There are no documented releases associated with the unit. No evidence of release was observed during the VSI.
References:	158

Unit Number: 11 (No IBM number) (No photograph)

Unit Name: Electroform Cleaning Waste Accumulation Drum

Location: The unit is located inside Building 003, in the southwest corner of the facility.

Description: The unit is a plastic 55-gallon drum situated on a concrete floor which is used to accumulate waste cleaning solution from the process tanks of the copper electroform line. The process tanks are cleaned out approximately three times a week. The waste solution is placed in the accumulation drum, resulting in approximately 15.5 gallons of a sulfuric acid/sodium persulfate/water waste per week. When full, the drum is taken to the Metal Mask 90-Day Waste Storage Area (SWMU 30).

Date of Start-Up: The process has been in operation since approximately 1964.

Date of Closure: The unit is currently operating.

Wastes Managed: The unit manages mixtures of waste sulfuric acid, waste sodium persulfate and water.

Release Controls: The unit is a closed-top drum located indoors on a concrete floor with a chemical resistant coating.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 12 (No IBM number) (No photograph)

Unit Name: Electroform Developer Waste Accumulation Drum

Location: The unit is located inside Building 003, in the southwest corner of the facility.

Description: The unit is a plastic 55-gallon drum situated on a concrete floor which is used to accumulate developer waste solution from the process tanks of the copper electroform line. The process tanks discharge waste developer solution directly to the drum on a continuous basis. Approximately 20 gallons of methyl chloroform-containing waste are generated each week. When full, the drum is taken to the Metal Mask 90-Day Waste Storage Area (SWMU 30).

Date of Start-Up: The process has been in operation since approximately 1964.

Date of Closure: The unit is currently operating.

Wastes Managed: The unit manages solutions containing waste methyl chloroform.

Release Controls: The unit is a closed-top drum located indoors on a concrete floor with a chemical resistant coating.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 13 (IBM #42) (No photograph)

Unit Name: Former Building 003 Ion Exchange System

Location: The unit is located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The unit was an ion exchange system used to treat sodium ferrocyanide-metal etchant solution. Waste was generated during the regeneration of the ion exchange beds. The waste sodium ferrocyanide was taken to the RCRA Hazardous Waste Storage Building, Caustic Waste Storage Room (SWMU 103) from here. The frequency of transport of waste ferrocyanide could not be provided by IBM representatives. The unit included pre-treatment sand filters, ion exchange beds, and tanks for regeneration. This unit was replaced by the Ion Exchange System (SWMU 13).

Date of Start-Up: The unit began operation in the early 1970s.

Date of Closure: The unit ceased operation and was removed in 1985.

Waste Managed: The unit managed etchant solution containing waste potassium ferricyanide.

Release Controls: The unit was located indoors on a concrete floor in a bermed area.

History of Releases: There are no documented releases associated with this unit.

References: 130, 158

Unit Numbers: 14-24 (IBM #42) (Photographs #144-149)

Unit Name: Ion Exchange System

Location: The units are located inside Building 003, in the southwest corner of the facility.

Description: The unit is an ion exchange system associated with the manufacturing operations in Building 003. This unit replaced the Former Building 003 Ion Exchange System (SWMU 13). The unit serves to remove the complexed cyanides from rinse water generated by the Metal Mask etching operation. The treatment system consists of three primary anion exchange beds and a polishing bed. The ion exchange resin removes the ferricyanide from the waste by releasing chloride ions and attracting the negative ions to the positive resin sites. The three primary beds are cycled, with two beds operated in series in the adsorption cycle, while the third bed is regenerated and held on standby. When the beds are changed, the lead bed is taken off line for regeneration, the lag bed becomes the lead bed, and the fresh bed is used as the lag, or backup, absorber. This way the waste goes through the cleanest bed last. After treatment by the primary system, the waste passes through a polishing filter. This is another bed of the same anion resin as the primary absorbers. The primary beds are regenerated with a concentrated sodium chloride solution. Chloride displaces complexed cyanides from the resin, producing a ferricyanide/ferrocyanide waste. Regeneration of the ion exchange system takes place approximately two to three times per week, resulting in approximately 220 gallons of waste per regeneration. Elements of the ion exchange system are presented in Table IV-2. The treated water from the system drains to the Current Industrial Waste Drainage System (SWMU 193) and to the IWTP (SWMUs 135-176) and ultimately is discharged to the Hudson River under the facility's SPDES permit. Regeneration wastes are stored in the Ion Exchange 90-Day Waste Storage Area (SWMU 24). The entire area is surrounded by a concrete berm.

Date of Start-Up:	The units began operating in approximately 1985.
Date of Closure:	The units are currently operating.
Wastes Managed:	The units manage waste potassium ferrocyanide metal rinse water.
Release Controls:	The units are located indoors on a concrete floor and is surrounded by a berm.
History of Releases:	There are no documented releases associated with the units. No evidence of release was observed during the VSI.
References:	158

TABLE IV-2
Building 003 Ion Exchange System SWMUs

Unit	Description
14 Feed Tank	Polyethylene closed-top above-ground tank measuring approximately 5 feet high by 3 feet long by 3 feet wide. It receives potassium ferricyanide rinse water from manufacturing tools located within Building 003.
15-17 Ion Exchange Columns	Three metal above-ground tanks receiving potassium ferrocyanide rinse water from the feed tank. The tanks are approximately 7 feet tall by 2.5 feet in diameter.
18 Recycle Brine Tank	Fiberglass above-ground tank measuring approximately 5 feet high by 4 feet in diameter which receives waste brine from the ion exchange columns and recycles the brine.
19 Brine Makeup Tank	Fiberglass above-ground tank measuring approximately 6 feet high by 4 feet in diameter which provides brine makeup to the recycle brine tank.
20 Recycle Rinse Tank	Fiberglass above-ground tank measuring approximately 5 feet high by 4 feet in diameter which provides rinse water to the brine makeup tank.
21 Waste Brine Tank	Fiberglass above-ground tank measuring approximately 7 feet high by 4 feet in diameter.
22 Rinse Holding Tank	Fiberglass above-ground tank measuring approximately 5 feet high by 4 feet in diameter.
23 Polishing Filters	Steel above-ground tanks measuring approximately 7 feet high by 3 feet in diameter containing sand for final polishing prior to discharge to the IWTP.
24 B003 Ion Exchange 90-Day Waste Storage Area	Storage area for regeneration wastes (ferri/ferrocyanide wastes) from Ion Exchange Columns. Wastes are classified as F009.

Unit Number: 25 (IBM #89) (Photograph #155)

Unit Name: Tin Immersion Area Spill Control Tank

Location: The unit is located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The unit is a 525-gallon above-ground polyethylene spill control tank for the tin immersion process. The tank receives released materials from the floor drains in the process area on the second floor, immediately above the tank. Released material flows to the tank by gravity from the floor drains by way of closed tubing. According to site representatives, it is used solely for spill control and has been used infrequently. The unit is located in the same room as the Glycerin/EDTA/Wastewater Bulk Storage Tank (SWMU 26).

Date of Start-Up: The unit began operation in 1981.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages lead, tin, and corrosive wastes.

Release Controls: The unit is located indoors on a concrete floor.

History of Releases: There are no documented releases associated with the unit. Evidence of staining was on the floor.

References: 130, 158

Unit Number: 26 (No IBM number) (Photograph #155)

Unit Name: Glycerin/EDTA/Wastewater Storage Tank

Location: The unit is located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The unit is a 525-gallon polyethylene above-ground tank used to store waste rinse water from the wave solder area of Building 003. When the tank is full the rinse water is pumped into the Glycerin/EDTA/Wastewater Transport Tank (SWMU 27) and transferred to the Building 034 Tank Farm and discharged via piping into the BCSF Glycerin/EDTA/Water Storage Tank (SWMU 96).

Date of Start-Up: The unit began operation in late 1980 or early 1981.

Date of Closure: The unit is currently operating.

Wastes Managed: The unit manages mixtures containing waste glycerin, waste EDTA and wastewaters.

Release Controls: The unit is located indoors on a concrete floor.

History of Releases: There are no documented releases associated with the unit. Evidence of staining was on the floor.

References: 158

Unit Number: 27 (No IBM number) (Photograph #155)

Unit Name: Glycerin/EDTA/Wastewater Transport Tank

Location: The unit is located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The unit is a 100-gallon portable stainless steel transport tank for temporary storage during transport of waste rinse water from the Glycerin/EDTA/Wastewater Storage Tank (SWMU 26) generated in the wave solder area of Building 003. After the waste mixture is pumped into the unit, the unit is immediately transferred via forklift to the Building 034 Tank Farm and the waste is discharged via piping into the BCSF Glycerin/EDTA/Water Storage Tank (SWMU 96). This unit has been designated as a SWMU because it remains stationary in the same location most of the time.

Date of Start-Up: The unit began operation in late 1980 or early 1981.

Date of Closure: The unit is currently operating.

Wastes Managed: The unit manages mixtures of waste glycerin, waste EDTA and wastewaters.

Release Controls: The unit is a steel, closed-top, transportable tank with no secondary containment.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 28 (IBM #91) (Photograph #154)

Unit Name: Hexavalent Chromium Treatment Tank

Location: The unit is located inside Building 003, in the southwest corner of the facility.

Description: The unit is a 20-gallon, rectangular, polyethylene treatment tank used for batch treatment of wastewater containing hexavalent chromium. It receives the treatment chemicals from a 250-gallon chemical supply tank. The unit treats photorinse waste from the metal mask process by adding HCl and sodium bisulfite which reduces the hexavalent chromium to trivalent chromium. The unit is located within a concrete sump on the first floor of Building 003. The treated wastewater is routed to the Industrial Waste Treatment Plant (SWMUs 135-176).

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages photorinse wastewater containing hexavalent chromium.

Release Controls: The unit is a closed-top tank located within an indoor concrete sump.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 29 (No IBM number) (Photograph #153)

Unit Name: Hexavalent Chromium Treatment Room Waste Accumulation Area

Location: The unit is located inside Building 003, in the southwest corner of the facility.

Description: The unit consists of a steel 55-gallon waste accumulation drum situated on a concrete floor which is used to store waste freon which is generated as part of the metal mask process. It is located in the same room as the supply tanks for the hexavalent chromium treatment system. At the time of the VSI the drum was located on a wooden pallet and had began accumulation on March 3, 1991. When full, the drum is taken to the Metal Mask 90-Day Waste Storage Area (SWMU 30).

Date of Start-Up: Facility representatives were unable to furnish the start-up date of this unit.

Date of Closure: The unit is currently operating.

Wastes Managed: The unit manages waste freon.

Release Controls: The unit is located indoors on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 30 (IBM #87) (Photographs #124-126)

Unit Name: Metal Mask 90-Day Waste Storage Area

Location: The unit is located inside the southwest portion of Building 003, in the southwest corner of the facility.

Description: The unit is an indoor, temporary waste storage area for various wastes generated by the metal mask process. The area is approximately 20- by 50-feet with a sealed concrete floor and a concrete berm at the doorway. The unit consists of separate areas for the dispensing, mixing and storing of raw materials and waste, including three fume hoods above sinks. The sinks drain to Current Industrial Wastewater Drainage System and Pump Stations (SWMU 193) which leads to the Industrial Waste Treatment Plant (SWMUs 135-176). Acids, caustics, and flammable solvents and oils are segregated within the room. No mixing of flammable solvents takes place.

Drums of waste generated in the area are usually stored here on a concrete floor for less than one day, but never more than 90 days, before transfer to the B690 90-Day Waste Storage Area (SWMU 86) where the drums are stored for less than 90 days. The waste is eventually moved to the RCRA-regulated Hazardous Waste Storage Building (SWMUs 102-111). Specific wastes present at the time of the VSI included: waste sodium persulfate, sulfuric acid, nickel sulfamate, acid filters and rags, freon, methyl chloroform, and various other chemicals identified by trade name.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages waste oils and solvents, oxidizers, acids, and bases. RCRA wastes include corrosive wastes, spent halogenated solvents, and non-halogenated solvents.

Release Controls: The area is surrounded by a berm, has a concrete floor, and is located indoors.

History of Releases: There are no documented releases associated with this unit. No evidence of release was observed during the VSI.

References: 130, 137, 158

Unit Number: 31 (IBM #88) (Photograph #156)

Unit Name: Clark Board 90-Day Waste Storage Area

Location: The unit is located inside Building 003, in the southwest corner of the facility.

Description: The unit is an indoor, temporary waste storage area for various wastes (generally fixers and developers) generated at the Clark Board process. The area is approximately 30- by 20-feet with a sealed concrete floor and a concrete berm at the doorway. The unit consists of separate areas for the dispensing, mixing and storing of waste, including one sink and two fume hoods. The area is also used for the storage of empty drums. According to IBM personnel, the unit is used only on a limited basis, handling approximately 10-12 drums of waste per month. No mixing of flammable solvents takes place.

Drums of waste generated in the area are usually stored here for less than one day before transfer to the B690 90-Day Waste Storage Area (SWMU No. 86) where the drums are stored for less than 90 days. The waste is eventually moved to the RCRA-regulated Hazardous Waste Storage Building (SWMUs 102-111). Specific wastes present at the time of the VSI included: waste Shipley tinposit LT-26 with hydrochloric acid and sodium hydroxide.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages waste oils, solvents, acids, and bases. RCRA wastes include corrosive wastes, chromium, lead, and halogenated solvents.

Release Controls: The area is surrounded by a berm, has a sealed concrete floor, and is located indoors.

History of Releases: There are no documented releases associated with this unit. No evidence of release was observed during the VSI.

References: 130, 137, 158

RFI

Unit Number: 32 (IBM #23) (No photograph)

Unit Name: Building 003 Still

Location: This unit was located inside Building 003, in the southwest corner of the facility.

Description: The unit was a 400-gallon still used in waste recycling operations. The specific location is unknown. The unit consisted of a gravity separator in which the influent TCE/water mixture separated into a lower TCE layer and floating water layer in which small amounts of TCE were dissolved. TCE was drawn off the bottom for reuse, and the water was presumably discharged to the Former Industrial Waste Drainage System (SWMU 194). The unit was moved to Building 004 in the 1970s where it was reportedly used for parts cleaning. Further information on the unit was not available.

Date of Start-Up: Facility representatives were unable to furnish the start-up date for this unit.

Date of Closure: The unit was moved to Building 004 in the 1970s where it was dismantled after an unspecified period of time.

Waste Managed: The unit managed TCE and possibly other unknown solvents.

Release Controls: The unit was located inside an enclosed building.

History of Releases: Borings installed in the Building 003 area in 1978 and 1979 indicated concentrations of several hundred parts per billion (ppb) of trichloroethylene and low concentrations of 1,1,1-trichloroethane. Groundwater results from a second investigation yielded TCE concentrations of 360 ppb in MW-18, 80 ppb in MW-20, and 525 ppb in T-33S. This has been ascribed by IBM to the B003 Underdrain System (SWMU 38).

References: 130, 136, 158

Unit Number: 33 (IBM #12) (No photograph)

Unit Name: Plating Waste/Organic Rinse Water Tank

Location: The unit was located outdoors, near the west side of Building 003-S, in the southwest corner of the facility.

Description: The unit was a 4,000-gallon underground waste acid regenerate tank. This tank was also known as tank #24, the MLC rinse water tank. During its use tank contents were discharged into tank trucks for off site disposal. A letter dated July 3, 1984 (included in Ref 130) stated that the unit had a "confirmed leak history. However, a subsequent report indicated that no spills or leaks had occurred and organic vapor analysis at the time of the removal of the tank did not detect the presence of any contamination. As a precaution, two feet of soil surrounding the tank was also removed when the tank was removed in 1985.

Date of Start-Up: The unit began operation in approximately 1970.

Date of Closure: The unit and contaminated soil were removed and the unit certified closed by the excavation contractor in 1985.

Waste Managed: The unit managed plating wastes, organic rinse water, waste acid regenerate and MLC rinse water.

Release Controls: There were no known release controls associated with the unit.

History of Releases: There are no documented releases associated with the unit.

References: 130, 158

Unit Numbers: 34-35 (IBM #27) (No photograph)

Unit Name: Photographic Waste Tanks (2)

Location: The unit was located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The units were 275-gallon above-ground photographic rinse waste tanks. They were located near the Hexavalent Chromium Treatment Tank (SWMU 28). They were used to contain waste photographic chemicals. Further information on the tanks, including purpose, was not known by IBM personnel.

Date of Start-Up: The units began operation in 1984.

Date of Closure: Closure took place in 1986 and was approved by NYSDEC in 1987.

Waste Managed: The units managed photographic rinse wastes containing chromium.

Release Controls: The units were located inside an enclosed building on a ceramic floor on top of concrete.

History of Releases: There are no documented releases associated with these units.

References: 102, 130, 158

Unit Number: 36 (IBM #65) (Photograph #150)

Unit Name: Air Stripper and Waste Tank

Location: The unit was located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The unit was an air stripper system consisting of an above-ground 5,000-gallon stainless steel tank and a counter flow air stripper. The unit was used for pretreatment of organic wastes via air stripping prior to discharge to the IWTP. At the time of the VSI, the unit had been removed and was undergoing closure activities.

Date of Start-Up: The unit began operation in 1984.

Date of Closure: The unit ceased operations in 1986. The unit is currently undergoing closure.

Waste Managed: The unit managed solvent contaminated rinse water.

Release Controls: The unit was located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158

Unit Number: 37 (IBM #66) (No photograph)

Unit Name: Evaporator

Location: The unit is located inside on the first floor of Building 003, in the southwest corner of the facility.

Description: The unit was used to concentrate ion exchange wastes from the Former Building 003 Ion Exchange System (SWMU 13) prior to disposal. Further details on the unit, including construction information and specific location were not known by IBM personnel.

Date of Start-Up: The unit began operating in the early 1970s.

Date of Closure: The unit ceased operating in 1978.

Waste Managed: The unit managed ion exchange wastes, including cyanide.

Release Controls: The unit was located inside an enclosed building on a concrete slab.

History of Releases: There are no documented releases associated with the unit. Venting to the atomosphere may have occurred.

References: 130, 158

RFI

Unit Number: 38 (IBM #48) (No photograph)

Unit Name: Building 003 Underdrain System

Location: The unit is located under the concrete floor of Building 003, in the southwest corner of the facility.

Description: The entire floor slab of Building 003 has an underdrain system. Apparently, because of a high water table in the vicinity of Building 003, an underdrain system was constructed to channel groundwater away from the building so that it would not damage the building's foundation. However, because the groundwater under the building is contaminated, the unit has been determined to have received chemicals from the soils and groundwater below Building 003. The underdrain system discharges to the Storm Sewer System (SWMU 195) which in turn discharges to Spring Brook at SPDES Discharge Point 009. No treatment occurs prior to discharge. Construction details of the unit were not known by IBM personnel.

Date of Start-Up: IBM personnel were unable to furnish information on the start-up date.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages contaminated groundwater.

Release Controls: The unit is a system of below grade drainage pipes which release to the environment by design.

History of Releases: Elevated concentrations of VOCs, particularly trichloroethylene, methylene chloride, and trans-1,2-dichloroethylene were found to be entering the storm drain from under Building 003 in 1981. Subsequent sampling found a variety of organic constituents in accessible manholes.

References: 136, 158

B. UNITS ASSOCIATED WITH BUILDING 004

Building 004 is a manufacturing facility located in the central area of the facility. There are 28 SWMUs associated with, or located in the vicinity of, the building.

SWMU No.	**Unit Name**
39-45	Carbon Vessels
46	Condenser
47	Separator
48	Freon Waste Tank #23
49	Carbon Abatement Waste Storage Area
50-51	Waste Xylene Tanks #21 and #22
52	Drum Fill Station
53	Waste Xylene Transfer Tank
54	Pollution Abatement Transfer Tank #13A
55	Surge Tank
56	Water/IPA Tank #26
57	Plating Waste/General Industrial Waste Tank
58	Waste Ammonium Persulfate Tank
59	Building 004 Still
60	Building 004 Ion Exchange Units
61	Core Area #1
62	Core Area #2
63	Core Area #2 Waste Storage Cabinet
64	Core Encapsulation Area
65	Building 004 Industrial Waste Floor Trench Underdrain System
66	Former Pollution Abatement Transfer Tank #13A

Unit Numbers: 39-45 (IBM #26 and 85) (Photograph #130)

Unit Name: Carbon Vessels (7)

Location: The units are located inside on the third floor of Building 004, in the central area of the facility.

Description: These units consist of seven cylindrical steel tanks, measuring approximately 5-feet high by 5-feet in diameter. The tanks contain beds of activated carbon in a granular form. Air containing solvent vapors, primarily xylene and isopropyl alcohol, from the BAT TCM line is passed through the activated carbon on a batch basis where the solvent is adsorbed onto the carbon. The air is discharged under a state permit. The remaining liquids pass to the Condenser (SWMU 46) by way of closed piping. Once the carbon has become saturated, the vessels undergo regeneration which consists of low pressure steam passed through each vessel and discharged to the Condenser (SWMU 46).

Date of Start-Up: The units began operation in 1980.

Date of Closure: The units were deactivated in April 1992.

Waste Managed: The units manage waste xylene and isopropyl alcohol.

Release Controls: The units are located inside an enclosed building and underlain by a steel pan with 4-inch high walls.

History of Releases: The units are designed to release to the air under permit.

References: 130, 158, 159

Unit Number: 46 (IBM #85) (Photograph #131)

Unit Name: Condenser

Location: The unit is located inside on the third floor of Building 004, in the central area of the facility.

Description: The unit, a steel tank measuring approximately 4-feet high by 1.5-feet in diameter, is part of the carbon abatement system, located on the third floor of Building 004. The unit receives liquid and steam containing solvent mist from the Carbon Vessels (SWMUs 39-45) and condenses it into liquid form. The liquid is then discharged from this unit to the Separator (SWMU 47).

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit was deactivated in April 1992.

Waste Managed: The unit manages waste xylene and waste isopropyl alcohol.

Release Controls: The unit is located inside an enclosed building and underlain by a steel pan with 4 inch high walls.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158, 159

Unit Number: 47 (IBM #85) (Photograph #131)

Unit Name: Separator

Location: The unit is located inside on the third floor of Building 004, in the central area of the facility.

Description: The unit, a steel tank measuring approximately 3-feet high by 1.5-feet square, is part of the carbon abatement system, located on the third floor of Building 004. The unit receives the liquid xylene/isopropyl alcohol/water mixture from the Condenser (SWMU 46) and separates the liquids into two waste streams according to density. The two resulting solutions are waste xylene and a waste isopropyl alcohol/water mixture. The xylene is discharged to the Waste Xylene Tanks #21 and #22 (SWMUs 50-51). The isopropyl alcohol/water mixture is discharged to the Pollution Abatement Transfer Tank #13A (SWMU 54). Small amounts of freon which were entrained in the xylene/alcohol/water mixture also settle from the solution within this unit and are discharged to the Freon Waste Tank #23 (SWMU 48).

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit was deactivated in April 1992.

Waste Managed: The unit manages unknown volumes of waste xylene, isopropyl alcohol, and freon.

Release Controls: The unit is located inside an enclosed building and is underlain by a steel pan with 4 inch high walls.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158, 159

Unit Number: 48 (IBM #5) (Photograph #132)

Unit Name: Freon Waste Tank #23

Location: The unit is located inside on the third floor of Building 004, in the central area of the facility.

Description: This unit is an indoor 37-gallon steel aboveground storage tank which receives waste freon from the Separator (SWMU 47). The unit is periodically pumped out to a 55-gallon drum which is transferred to the Carbon Abatement Waste Storage Area (SWMU 49).

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit was deactivated in April 1992.

Waste Managed: The unit manages waste freon.

Release Controls: The unit is located indoors and underlain by a steel pan with 4 inch high walls.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158, 159

Unit Number: 49 (No IBM number) (Photograph #133)

Unit Name: Carbon Abatement Waste Storage Area

Location: The unit is located inside on the third floor of Building 004, in the central area of the facility.

Description: This unit is a waste storage area for spent carbon and other wastes generated in the Carbon Abatement Waste System. At the time of the VSI, a 55-gallon steel drum used to accumulate freon wastes from the Freon Waste Tank #23 (SWMU 48) was present. The drum had been there since April 30, 1991. When full, drums are taken to the B690 90-Day Waste Storage Area (SWMU 86).

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit was deactivated in April 1992.

Waste Managed: The unit manages carbon abatement waste, spent carbon and waste freon.

Release Controls: The unit is located inside an enclosed building.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Numbers: 50-51 (IBM #85) (No photograph)

Unit Name: Waste Xylene Tanks #21 and #22

Location: The units are part of the Carbon Abatement System inside Building 004, in the central area of the facility.

Description: These units are RCRA-regulated above-ground hazardous waste tanks. Each stainless steel unit stores 100 gallons of waste xylene from the Separator (SWMU 47) as part of the carbon adsorption pollution abatement system . From 1980 until 1988, Tank 21 was the main waste accumulation tank, with Tank 22 used as a spare. In 1988, the units were piped together. They have a steel containment pan around them. When the tanks are full, the waste xylene is pumped to the adjacent Drum Fill Station (SWMU 52).

Date of Start-Up: The units began operating in 1980.

Date of Closure: The units were deactivated in April 1992.

Waste Managed: These units store waste xylene. Approximately 40 to 60 gallons per day are generated.

Release Controls: These units are on a metal spill containment pan. The pan has a capacity of approximately 560 gallons which is 110 percent of the combined tank volume. Piping from the pan automatically transfers any spills to the spill containment area for the Pollution Abatement Transfer Tank #13A (SWMU 54).

History of Releases: There are no documented releases associated with these units. No evidence of release was observed during the VSI.

References: 118, 130, 158, 159

Unit Number: 52 (IBM #85) (Photograph #133)

Unit Name: Drum Fill Station

Location: The unit is located inside on the third floor of Building 004, in the central area of the facility.

Description: The unit, part of the carbon abatement system, consists of a vacuum pump and associated piping. Waste xylene from the Waste Xylene Tanks #21 and #22 (SWMUs 50-51) is pumped to the Waste Xylene Transport Tank (SWMU No. 53) by way of the unit. When full, the mobile tanks are removed from the unit and manually transferred via forklift to the BCSF Waste Xylene Tank (SWMU 95).

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit was deactivated in April 1992.

Waste Managed: The unit manages waste xylene.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 53 (No IBM number) (No photograph)

Unit Name: Waste Xylene Transport Tank

Location: The unit is located inside on the third floor of Building 004, in the central area of the facility.

Description: The unit is a 250-gallon portable stainless steel tank used to transport waste xylene from the Drum Fill Station (SWMU 52) to the BCSF Waste Xylene Tank (SWMU 95). The tank is manually transferred via forklift immediately upon filling. This unit has been designated as a SWMU because it is located in the same place most of the time.

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit was deactivated in April 1992.

Waste Managed: The unit manages waste xylene.

Release Controls: The unit is a transfer tank with no release controls or secondary containment.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number:	54 (IBM #17) (Photographs #118 and #135-138)
Unit Name:	Pollution Abatement Transfer Tank #13A
Location:	The unit is located outdoors along the west wall of Building 004, in the central area of the facility.
Description:	The unit is a 4,000-gallon fiberglass above ground tank used to hold waste IPA/water mixture discharged from the Separator (SWMU 47) located on the third floor of Building 004. Wastes are routed to the tank through an approximately 30 feet long overhead pipe rack. When the tank volume reaches 1,200 gallons of IPA/water, 500 gallons are pumped to the Surge Tank (SWMU 55). The tank replaced the Former Pollution Abatement Transfer Tank #13A (SWMU 66).
Date of Start-Up:	The tank was installed in 1987.
Date of Closure:	This unit is currently active.
Waste Managed:	The unit manages waste IPA/water mixtures.
Release Controls:	The unit has a concrete containment berm with approximately 5-foot high walls. The containment area for the tank also acted as spill containment for the carbon abatement system on the third floor of Building 004.
History of Releases:	There are no documented releases associated with the unit. No evidence of release was observed during the VSI.
References:	130, 158

Unit Number: 55 (No IBM number) (Photograph #134)

Unit Name: Surge Tank

Location: The unit is located inside on the first floor of Building 004, in the central area of the facility.

Description: The unit, part of the carbon abatement system, is an indoor 700-gallon fiberglass tank. It receives waste IPA/water mixture from the Pollution Abatement Transfer Tank #13A (SWMU 54). The unit continuously discharges approximately 0.7 gallons per minute of IPA/water to the Sanitary Sewer System (SWMU 196) under agreement and permit with the City of Poughkeepsie.

Date of Start-Up: The start-up date could not be provided by IBM representatives.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste IPA/water mixtures.

Release Controls: The unit has a 3-foot high metal containment wall around it. It is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 56 (IBM #6) (No photograph)

Unit Name: Water/IPA Tank #26

Location: The unit was located inside on the third floor of Building 004, in the central area of the facility.

Description: The unit consisted of a 235-gallon above ground storage tank of unknown construction. The tank was removed in 1988. IBM representatives believed that the unit was possibly a day tank for the BAT waste storage system. No other information is known about the unit.

Date of Start-Up: The unit began operation in 1984.

Date of Closure: The unit was removed in 1988.

Waste Managed: The unit managed water and isopropyl alcohol.

Release Controls: The unit was located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158

Unit Number: 57 (IBM #13) (No photograph)

Unit Name: Plating Waste/General Industrial Waste Tank

Location: The unit was located inside Building 004, in the central area of the facility.

Description: This unit was a 10-feet by 50-feet by 4-feet high concrete tank which managed waste ammonium persulfate used in etching copper. It provided temporary storage of the waste before discharging it to the Waste Ammonium Persulfate Tank (SWMU 58). The unit was removed in 1980. IBM representatives could provide no further information on the unit.

Date of Start-Up: The unit began operation in 1966.

Date of Closure: The tank was removed in 1980.

Waste Managed: The unit managed waste ammonium persulfate.

Release Controls: The unit was located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 130, 158

RFI

Unit Number: 58 (IBM #14) (Photograph #139)

Unit Name: Waste Ammonium Persulfate Tank

Location: The unit is located outdoors, at the northwest corner of Building 004, in the central area of the facility.

Description: The unit was an 11,900-gallon above ground fiberglass tank that received waste ammonium persulfate from the Plating Waste/General Industrial Waste Tank (SWMU 57). A 1,400 gallon spill to the soil surrounding the unit occurred on January 4, 1979. After this event the tank was no longer used. IBM representatives could provide no further information on the unit.

Date of Start-Up: The unit began operation in 1965 or 1966.

Date of Closure: The tank was no longer used in 1979. The tank was removed and certified closed by a local engineering firm in 1985.

Waste Managed: The unit managed waste ammonium persulfate, copper, ethylbenzene, toluene, and sulfuric acid.

Release Controls: The tank was enclosed in a concrete berm.

History of Releases: In January 1979, the pipe leading into the tank ruptured and spilled approximately 1,400 gallons of waste ammonium persulfate to the ground. This reached the ground because the drain valve in the concrete containment berm had inadvertently been left open. The spilled material entered a depression (approximately 8 feet by 70 feet in size) to the northwest of the tank which was bisected by rails. A small amount of the waste material entered the groundwater which, according to IBM, migrated to the storm drain. The contaminated soil was removed (109,860 pounds) to an average depth of three feet in the area.

References: 4, 130, 136, 158

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Unit Number:	59 (IBM #24)	(No photograph)
Unit Name:	Building 004 Still	
Location:	This unit was located on the first floor of Building 004, in the central area of the facility.	
Description:	This unit was a 400-gallon waste recycling still and associated piping used to recover trichloroethylene. It consisted of a gravity separator in which the influent TCE/water mixture separated into a lower TCE layer and floating water layer in which small amounts of TCE were dissolved. TCE was drawn off the bottom for reuse, and the water was discharged to the Former Industrial Waste Drainage System (SWMU 194) via a PVC pipe beneath the Building 004 floor slab. The exact location of the pipe routing under the floor slab is unknown. The unit was moved from Building 003 in 1970 and is the same still as SWMU 32.	
Date of Start-Up:	The unit began operating in 1970.	
Date of Closure:	The unit was taken out of service and removed in 1977.	
Waste Managed:	The unit managed waste trichloroethylene.	
Release Controls:	The unit was located indoors on a concrete floor.	
History of Releases:	IBM has confirmed that the pipe beneath the Building 004 Still leaked on more than one occasion, and has concluded that these leaks are the source of the TCE plume in the site gravel. Because of upsets that occasionally occurred in the TCE recovery operation, pure product TCE could have been discharged to the pipe, which could have produced holes or deteriorated portions of the pipe. Therefore, pure product TCE and/or water containing as much as 1,000 ppm of TCE could have been discharged to the soil under Building 004 and possibly to the Building 004 Underdrain System (SWMU 65). IBM suggests that thousands or even tens of thousands of pounds of TCE may have been released. IBM also believes that other undocumented spills within the area of TCE recovery may have contributed to the subsurface contamination.	
Conclusions:	69, 130, 136, 158	

Unit Number: 60 (IBM #43) (No photograph)

Unit Name: Building 004 Ion Exchange System

Location: The unit was located inside on the first floor of Building 004, in the central area of the facility.

Description: The unit was an ion exchange system which treated ammonium persulfate in metal etchant rinse water prior to discharge to the IWTP. The unit has been removed with no evidence remaining of its presence. Further information on the unit could not be provided by IBM.

Date of Start-Up: The unit began operation in the mid 1970s.

Date of Closure: Information on the date of closure could not be provided by IBM.

Waste Managed: The unit managed waste metal etchant, rinse water and ammonium persulfate.

Release Controls: The unit was located indoors on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 130, 158

Unit Number: 61 (No IBM number) (No photograph)

Unit Name: Core Area #1

Location: The unit is located inside on the first floor of Building 004, in the central area of the facility.

Description: The unit, a pump with a spill containment pan and associated piping is enclosed in its own room. It receives waste isopropyl alcohol/water mixture from the BAT Line cleaning operations. The waste IPA/water is sent from this unit to the BCSF Waste IPA Tank (SWMU 94) via above ground piping. The piping is constructed of double-walled stainless steel. Further information was not available from IBM representatives.

Date of Start-Up:*p771XThenit has been operation since 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste isopropyl alcohol/water mixtures.

Release Controls: The unit is situated on a steel spill containment pan and located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 62 (No IBM number) (No photograph)

Unit Name: Core Area #2

Location: The unit is located inside on the first floor of Building 004, in the central area of the facility.

Description: The unit consists of an IPA pump and a xylene pump, each with a spill containment pan, and associated piping. It is enclosed in a separate room. The unit receives waste isopropyl alcohol/water mixture and waste xylene from BAT Line cleaning operations. It routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) and the waste xylene to the BCSF Waste Xylene Tank (SWMU 95) via above ground piping. The piping is constructed of double-walled stainless steel. Further information was not available from IBM representatives.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste IPA/water mixtures and waste xylene.

Release Controls: Each pump has a steel spill containment pan. The unit is located indoors on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 63 (No IBM number) (No photograph)

Unit Name: Core Area #2 Waste Storage Cabinet

Location: The unit is located inside on the first floor of Building 004, in the central area of the facility.

Description: The unit is a steel storage cabinet for small amounts of waste xylene, located in the same room as Core Area #2 (SWMU 62). At the time of the VSI, the unit contained five 5-gallon stainless steel containers of waste xylene used in the cleaning of manufacturing tools on the BAT line. The waste xylene containers are removed daily and the contents are transferred to the BCSF Waste Xylene Tank (SWMU 95). IBM representatives could not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste xylene.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 64 (No IBM number) (No photograph)

Unit Name: Core Encapsulation Area

Location: The unit is located inside on the second floor of Building 004, in the central area of the facility.

Description: The unit, a pump with a spill containment pan and associated piping, is housed in a separate room. It receives waste isopropyl alcohol/water mixture from BAT Line cleaning operations. The unit routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) via above ground piping. The piping is constructed of double-walled stainless steel. IBM representatives did not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste IPA.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

RFI

Unit Number: 65 (IBM #48) (No photograph)

Unit Name: Building 004 Underdrain System

Location: The unit is located beneath the floor of Building 004, in the central area of the facility.

Description: The entire floor slab of Building 004 has an underdrain system. Apparently, because of a high water table in the vicinity of Building 004, an underdrain system was constructed to channel groundwater away from the building so that it would not damage the building's foundation. However, because the groundwater under the building is contaminated, the unit has been determined to have received water containiing hazardous constituents from the soils and groundwater below Building 004. The underdrain system discharges to the Storm Sewer System (SWMU 195) which in turn discharges to Spring Brook at SPDES Discharge Point 013. No treatment occurs prior to discharge. Construction details of this system were not known by IBM personnel.

Date of Start-Up: The start-up date could not be provided by IBM representatives.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages contaminated groundwater.

Release Controls: The unit is designed to discharge to Spring Brook via the Storm Sewer System (SWMU 195).

History of Releases: Sampling of the SPDES Discharge Point 013 in 1981 indicated the presence of metals (primarily copper) and VOCs (including TCE, 1,1-dichloroethane, 1,2-dichloropropane, methylene chloride, and 1,1,1-trichloroethane). The unit was determined to be the source of the VOCs in groundwater under the southwest portion of Building 004.

References: 136, 158

Unit Number:	66 (IBM #17)	(No photograph)
Unit Name:	Former Pollution Abatement Transfer Tank #13A	
Location:	The unit was located outdoors along the west wall of Building 004, in the central portion of the facility.	
Description:	This former 6,000-gallon carbon steel above-ground tank contained the waste IPA/water mixture discharged from the Separator (SWMU 47), part of the carbon abatement system, located on the third floor of Building 004. When full, the unit discharged to the Pollution Abatement Waste Tank #13B (SWMU 92) until 1986 and the Surge Tank (SWMU 55) until 1987, when the tank was removed. It was replaced in the same location by the Pollution Abatement Transfer Tank #13A (SWMU 54) in 1987.	
Date of Start-Up:	The tank was installed in 1981.	
Date of Closure:	The unit was removed in 1987.	
Waste Managed:	The unit managed waste IPA/water mixtures, toluene, xylene, and ethylbenzene.	
Release Controls:	The unit had a concrete containment berm with approximately 5-foot high walls. The containment area for the tank also acted as spill containment for the carbon abatement system on the third floor of Building 004.	
History of Releases:	There are no documented releases associated with the unit.	
References:	130, 158	

C. UNITS ASSOCIATED WITH BUILDING 001

Building 001 is a maintenance facility located in the south-central area of the facility. Initially the building was used for munitions manufacturing. There are 12 SWMUs associated with, or located in the vicinity of, the building.

SWMU No.	Unit Name
67-75	Tool Room Grinding Machine Tanks (9)
76-77	Steam Cleaning Area Waste Tanks (2)
78	Steam Clean Waste and Waste Oil Tank #3

Unit Numbers: 67-75 (No IBM numbers) (Photograph #157)

Unit Name: Tool Room Grinding Machine Tanks (9)

Location: The units are located indoors throughout the first floor of Building 001, in the south-central area of the facility.

Description: The units are small (approximately 20-25 gallons) above ground, open-topped, metal containment tanks for metal grinding machines in the Building 001 Tool Shop. The tanks contain waste coolant from the machines as well as aluminum, steel, plastic and brass shavings. The waste coolant and metals are emptied into 55-gallon drums and transferred to the B690 Short Term Waste Storage Area (SWMU 86) and then to the RCRA-regulated Hazardous Waste Storage Building, General Waste and Non-Regulated Waste Storage Room (SWMU 102).

Date of Start-Up: The start-up date could not be provided by IBM representatives.

Date of Closure: The units are currently active.

Waste Managed: The units manage waste coolant with aluminum, steel, plastic, and/or brass metal fines.

Release Controls: The units are located inside an enclosed building on a wood floor.

History of Releases: There are no documented releases associated with the units. No evidence of release was observed during the VSI.

References: 158

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Unit Numbers: 76-77 (IBM #7) (No photograph)

Unit Name: Former Steam Cleaning Area Waste Tanks (2)

Location: The units were located outdoors, near Building 001 in the south-central area of the facility.

Description: The units were 1,500-gallon underground storage tanks. Further information on the units was not known or provided by IBM personnel.

Date of Start-Up: The units began operation in 1977.

Date of Closure: Operations ceased in 1980 and the units were removed in 1985.

Waste Managed: The units managed steam clean wastes.

Release Controls: There were no apparent release controls associated with the units.

History of Releases: There are no documented releases associated with the units.

References: 130, 158

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Unit Number: 78 (IBM #15) (Photograph #159)

Unit Name: Former Steam Clean Waste and Waste Oil Tank #3

Location: The unit was located inside in the Building 001 alcove, in the south-central area of the facility.

Description: The tank was a 3,500-gallon underground tank used for steam clean waste and waste oil storage. It was also known as Tank #16. According to IBM personnel, it was used for containment of steam cleaning wastes from 1975 until 1979 and for waste oil during other years of operation. Further information on the unit was not known or provided by IBM personnel.

Date of Start-Up: The tank began operation in 1965.

Date of Closure: The tank was removed in 1985.

Waste Managed: The unit managed steam clean waste and waste oil potentially containing PCBs.

Release Controls: There were no apparent release controls associated with the unit.

History of Releases: There are no documented releases associated with the unit.

References: 130, 158

D. UNITS ASSOCIATED WITH BUILDING 012

Building 012 is a manufacturing facility located in the south-central area of the facility. There are 7 SWMUs associated with the building

SWMU No.	**Unit Name**
79	Core Area A
80	Core Area A Waste Storage Cabinet
81	Core Area B
82	Core Area C
83	Core Area D
84	Core Area D Waste Storage Cabinet
85	Core Area E

Unit Number: 79 (No IBM number) (No photograph)

Unit Name: Core Area A

Location: The unit is located inside on the second floor of Building 012, in the south central area of the facility.

Description: The unit, which consists of an IPA pump and a xylene pump each with a spill containment pan, as well as associated piping, receives waste isopropyl alcohol/water mixture and waste xylene from BAT Line cleaning operations. The unit, enclosed in a separate room, routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) and the waste xylene to the BCSF Waste Xylene Tank (SWMU 95) via above ground piping. The piping is constructed of double-walled stainless steel. IBM representatives could not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste IPA and waste xylene.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 80 (No IBM number) (No photograph)

Unit Name: Core Area A Waste Storage Cabinet

Location: The unit is located inside on the second floor of Building 012, in the south-central area of the facility.

Description: The unit, located in the same room as Core Area A (SWMU 79), is a steel storage cabinet for small amounts of waste xylene. The xylene is used in the cleaning of manufacturing tools on the BAT line. The waste xylene containers are removed daily. IBM representatives could not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste xylene.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 81 (No IBM number) (No photograph)

Unit Name: Core Area B

Location: The unit is located inside on the second floor of Building 012, in the south-central area of the facility.

Description: The unit, which consists of a pump with a spill containment pan and associated piping, receives waste isopropyl alcohol/water mixture from BAT Line cleaning operations. The unit, enclosed in a separate room, routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) via above ground piping. The piping is constructed of double-walled stainless steel. IBM representatives did not provide any additional information concerning this unit.

Date of Start-Up: The unit has been operation since 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste isopropyl alcohol/water mixtures.

Release Controls: The unit is situated on a steel spill containment pan and is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 82 (No IBM number) (No photograph)

Unit Name: Core Area C

Location: The unit is located inside on the first floor of Building 012, in the south-central area of the facility.

Description: The unit, which consists of a pump with a spill containment pan and associated piping, receives waste isopropyl alcohol/water mixture from BAT Line cleaning operations. The unit, enclosed in a separate room, routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) via above ground piping. The piping is constructed of double-walled stainless steel. IBM representatives did not provide any additional information concerning this unit.

Date of Start-Up: The unit has been operation since 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste isopropyl alcohol/water mixtures.

Release Controls: The unit is situated on a steel spill containment pan and is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 83 (No IBM number) (No photograph)

Unit Name: Core Area D

Location: The unit is located inside on the first floor of Building 012, in the south-central area of the facility.

Description: The unit, an IPA pump and a xylene pump each with a spill containment pan as well as associated piping, receives waste isopropyl alcohol/water mixture and waste xylene from BAT Line cleaning operations. The unit, enclosed in a separate room, routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) and the waste xylene to the BCSF Waste Xylene Tank (SWMU 95) via above ground piping. The piping is constructed of double-walled stainless steel. IBM representatives could not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste IPA and waste xylene.

Release Controls: There is a steel spill containment pan under the unit, which is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 84 (No IBM number) (No photograph)

Unit Name: Core Area D Waste Storage Cabinet

Location: The unit is located inside on the second floor of Building 012, in the south-central portion of the facility.

Description: The unit, located in the same room as Core Area D (SWMU 83) is a steel storage cabinet for small amounts of waste xylene. The xylene is used in the cleaning of manufacturing tools on the BAT line. The waste xylene containers are removed daily. IBM representatives could not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste xylene.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

Unit Number: 85 (No IBM number) (No photograph)

Unit Name: Core Area E

Location: The unit is located inside on the first floor of Building 012, in the south-central area of the facility.

Description: The unit, an IPA pump and a xylene pump each with a spill containment pan as well as associated piping, receives waste isopropyl alcohol/water mixture and waste xylene from BAT Line cleaning operations. The unit, enclosed in a separate room, routes the waste IPA/water to the BCSF Waste IPA Tank (SWMU 94) and the waste xylene to the BCSF Waste Xylene Tank (SWMU 95) via above ground piping. The piping is constructed of double-walled stainless steel. IBM representatives could not provide further information on the unit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste IPA and waste xylene.

Release Controls: There is a steel spill containment pan under the unit, which is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 158

E. UNITS ASSOCIATED WITH BUILDING 690

Building 690 is a storage and transfer facility forming an annex of Building 001 in the south-central area of the facility. There are three SWMUs associated with, or in the vicinity of, the building.

SWMU No.	**Unit Name**
86	Building 690 90-Day Waste Storage Area
87-88	Building 690 Stills (2)

Unit Number: 86 (No IBM number) (Photographs #140-143)

Unit Name: Building 690 90-Day Waste Storage Area

Location: The unit is located inside Building 690, in the south-central area of the facility.

Description: The unit, measuring approximately 60-feet by 40-feet, is an indoor waste accumulation area for wastes from the main manufacturing area, including Buildings 003 and 004.

The unit consists of two contiguous areas separated by a wall where virgin chemicals and waste chemicals are temporarily accumulated. One is inside the loading dock area on the north side where various virgin chemicals and gas cylinders are brought in for temporary storage prior to site distribution and where waste chemicals are stored temporarily prior to shipment to the RCRA-regulated Hazardous Waste Storage Building (SWMUs 102-111). The second area is just inside the building from the loading dock and includes virgin chemical storage and a chemical waste storage area. This area is used for accumulation and temporary storage, while the loading dock area functions more as a staging area.

At the time of the VSI, the room contained drums and containers of various sizes containing waste xylene; oil contaminated equipment; sodium persulfate; sulfuric acid; potassium ferricyanide and sodium hydroxide waste; acid filters and rags; cyanide caustic contaminated filters, rags, and debris; methyl chloroform; isopropyl alcohol; freon; used grinding machine coolant; and miscellaneous solvents and oils.

Date of Start-Up: The date of start-up could not be provided by IBM representatives.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages waste oils, solvents, acids, and bases. RCRA wastes include corrosive wastes, chromium, lead, and halogenated solvents.

Release Controls: The area is surrounded by a berm. The unit formerly had a spill containment tank until the unit was removed in 1987. The tank was located immediately outside the loading dock. The spill containment tank was reportedly never used. The drains are sealed.

History

of Releases:	There are no documented releases associated with this unit. No evidence of release was observed during the VSI.
References:	130, 158

Unit Numbers: 87-88 (IBM #51) (No photograph)

Unit Name: Building 690 Stills (2)

Location: The units were located inside Building 690, in the south-central area of the facility.

Description: The units were 55-gallon recycling units for waste solvents in Building 690. The section of Building 690 that contained the units was demolished. It was located west of the remaining portion of Building 690 and is now a parking lot. Further information about the units was not known or provided by IBM personnel.

Date of Start-Up: The units began operation in 1984.

Date of Closure: The units ceased operations in 1985.

Waste Managed: The units managed waste freon and methyl chloroform.

Release Controls: The units were located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with this unit. The stills may have vented to the atomosphere.

References: 130, 158

F. UNITS ASSOCIATED WITH THE BAT TANK FARM

The BAT Tank Farm was formerly located West of Building 004 in the central part of the facility. There are four SWMUs associated with the Tank Farm.

SWMU No.	Unit Name
89	Former Waste Xylene Tank #18
90	Former Waste Xylene Tank #19
91	Waste Xylene/IPA/Water Tank #17
92	Carbon Abatement Waste Tank #13B

Unit Number: 89 (IBM #69) (Photograph #117)

Unit Name: Former Waste Xylene Tank #18

Location: The unit was located at the Former BAT Tank Farm Facility located west of Building 004, in the central area of the facility.

Description: This RCRA-regulated unit was a carbon steel, 3,000-gallon underground tank that received waste xylene and xylene/water mixture. The tank received waste xylene from the BAT line process in Building 004, where xylene is used for cleaning. When the tank was full, the waste was manually removed by tank truck and hauled off-site. During removal at closure, the tank was found to be intact, with no evidence of loss of integrity and was reportedly free of any localized surface corrosion. The unit's function was replaced by the BCSF Waste Xylene Tank (SWMU 95).

Date of Start-Up: The unit began operating in 1977.

Date of Closure: The unit was certified as closed in 1988. NYSDEC has not issued final approval of closure.

Waste Managed: The unit managed waste xylene and xylene/water mixtures.

Release Controls: The tank was underlain by a below-ground concrete pad and surrounded by a berm. This enclosed area was designed to drain to an underground spill containment tank.

History of Releases: In early 1982 the BAT Tank Farm Facility was the site of leakage of solvents reportedly through defective flanges. Nine borings were installed in 1982 to investigate the loss. Elevated groundwater levels of ammonia and TOC were found in the majority of the borings. T-107S, the boring in the middle of the tank farm, revealed significant priority organics, 15 million ppb of IPA, and 150,000 ppb of acetone. A second phase of borings concentrating in the tank farm area revealed high groundwater levels of aromatics including high levels of ethylbenzene, toluene, m-xylene, and o,p-xylene. Free product of xylene was found in one well. Remediation included removal of free product (29 gallons) and removal of soil (459 tons) and water (8622 gallons) containing xylene.

References: 130, 136, 158

Unit Number: 90 (IBM #70) (Photograph #117)

Unit Name: Former Waste Xylene Tank #19

Location: The unit was located in the Former BAT Tank Farm Facility located west of Building 004, in the central area of the facility.

Description: This RCRA-regulated unit was a carbon steel, 3,000-gallon underground tank which received waste xylene and xylene/water mixture. The unit received waste xylene from the BAT line process in Building 004, where xylene is used for cleaning. When the tank was full, the waste was manually removed by tank truck and hauled off-site. During removal at closure, the tank was found to be intact, with no evidence of loss of integrity and were free of any localized surface corrosion. The unit's function was replaced by the BCSF Waste Xylene Tank (SWMU 95).

Date of Start-Up: The unit began operating in 1977.

Date of Closure: The unit was certified as closed in 1988. NYSDEC has not issued final approval of closure.

Waste Managed: The unit managed waste xylene and xylene/water mixtures.

Release Controls: The tank was underlain by a below-ground concrete pad and surrounded by a berm. This enclosed area was designed to drain to an underground spill containment tank.

History of Releases: In early 1982 the BAT Tank Farm Facility was the site of leakage of solvents reportedly through defective flanges. Nine borings were installed in 1982 to investigate the loss. Elevated groundwater levels of ammonia and TOC were found in the majority of the borings. T-107S, the boring in the middle of the tank farm, revealed significant priority organics, 15 million ppb of IPA, and 150,000 ppb of acetone. A second phase of borings concentrating in the tank farm area revealed high groundwater levels of aromatics including high levels of ethylbenzene, toluene, m-xylene, and o,p-xylene. Free product of xylene was found in one well. Remediation included removal of free product (29 gallons) and removal of soil (459 tons) and water (8622 gallons) containing xylene.

References: 130, 136, 158

Unit Number: 91 (IBM #71) (Photograph #117)

Unit Name: Waste Xylene/IPA/Water Tank #17

Location: The unit was located in the Former BAT Tank Farm Facility located west of Building 004, in the central area of the facility.

Description: This RCRA-regulated unit was a carbon steel, 3,000-gallon underground tank which received waste xylene, isopropyl alcohol (IPA), and xylene/water mixture. The tank received the wastes from the BAT line process in Building 004, where it is used for cleaning. During removal at closure in 1987, the tank was found to be intact, with no evidence of loss of integrity and were free of any localized surface corrosion. The tank's function was replaced by the BCSF Waste IPA Tank (SWMU 94).

Date of Start-Up: The unit began operating in 1977.

Date of Closure: The unit was certified as closed in 1988. NYSDEC has not issued final approval of closure.

Waste Managed: The unit managed waste xylene, isopropyl alcohol, and xylene/water mixtures.

Release Controls: The tank was underlain by a below-ground concrete pad and surrounded by a berm. This enclosed area was designed to drain to an underground spill containment tank.

History of Releases: In early 1982 the BAT Tank Farm Facility was the site of leakage of solvents reportedly through defective flanges. Nine borings were installed in 1982 to investigate the loss. Elevated groundwater levels of ammonia and TOC were found in the majority of the borings. T-107S, the boring in the middle of the tank farm, revealed significant priority organics, 15 million ppb of IPA, and 150,000 ppb of acetone. A second phase of borings concentrating in the tank farm area revealed high groundwater levels of aromatics including high levels of ethylbenzene, toluene, m-xylene, and o,p-xylene. Free product of xylene was found in one well. Remediation included removal of free product (29 gallons) and removal of soil (459 tons) and water (8622 gallons) containing xylene.

References: 130, 136, 158

Unit Number: 92 (IBM #25) (Photograph #117)

Unit Name: Carbon Abatement Waste Tank #13B

Location: The unit was located in the Former BAT Tank Farm Facility located west of Building 004, in the central area of the facility.

Description: This RCRA-regulated unit was a 3,000-gallon carbon steel underground waste tank used in the carbon pollution abatement system. The tank received waste water containing primarily IPA from the Former Pollution Abatement Transfer Tank #13A (SWMU 66). The unit was removed as part of closure activities for the BAT Tank Farm in 1987. It was replaced by the Surge Tank (SWMU 55) as the receptor for these wastes.

Date of Start-Up: The unit began operation in 1980.

Date of Closure: The unit ceased operations in 1986, was removed in 1987 and certified closed in 1988.

Waste Managed: The unit managed waste water, IPA, ethylbenzene, toluene, xylene, 1,1,1-trichloroethane, trichloroethylene, and chlorobenzene.

Release Controls: The tank was underlain by a below-ground concrete pad and surrounded by a berm. This enclosed area was designed to drain to an underground spill containment tank.

History of Releases: In early 1982 the BAT Tank Farm Facility was the site of leakage of solvents reportedly through defective flanges. Nine borings were installed in 1982 to investigate the loss. Elevated groundwater levels of ammonia and TOC were found in the majority of the borings. T-107S, the boring in the middle of the tank farm, revealed significant priority organics, 15 million ppb of IPA, and 150,000 ppb of acetone. A second phase of borings concentrating in the tank farm area revealed high groundwater levels of aromatics including high levels of ethylbenzene, toluene, m-xylene, and o,p-xylene. Free product of xylene was found in one well. Remediation included removal of free product (29 gallons) and removal of soil (459 tons) and water (8622 gallons) containing xylene.

A spill occurred on August 6, 1984 during the transfer of steam condensate (97% water, IPA, toluene, xylene, and ethylbenzene) from the Former Pollution Abatement Transfer Tank #13A (SWMU 66) to the unit. Approximately 800-900 gallons of liquid was discharged to the ground. Approximately 100,000 gallons of groundwater in the vicinity of the spill was removed and treated.

References: 130, 136, 158

G. UNITS ASSOCIATED WITH BUILDING 034

Building 034 is the Bulk Chemical Storage Facility (BCSF) located in the west-central area of the facility. There are five SWMUs associated with, or located in the vicinity of, the building. In addition, there is a stainless steel containment pan and three open-top concrete vaults designed to control releases. They have not been used to date.

SWMU No.	Unit Name
93	BCSF Truck Loading Area
94	BCSF Waste IPA Tank
95	BCSF Waste Xylene Tank
96	BCSF Waste Glycerin/EDTA/Water Tank
97	BCSF Carbon Canister System

Unit Number:	93 (IBM #90)	(No photograph)
Unit Name:	BCSF Truck Loading Area	
Location:	This unit is located in Building 034 as part of the Bulk Chemical Storage Facility (BCSF), in the west-central area of the facility.	
Description:	The unit is the truck dock for the Bulk Chemical Storage Facility, a RCRA-permitted storage facility. The indoor unit, measuring 60-feet long by 18-feet wide, has a steel grating floor underlain by a spill containment pan which is designed to route all spillage to the BCSF Spill Containment Tank. All waste tanks within the BCSF facility are off-loaded at this point via piping which ends within this area. Wastes are transferred to offsite TSD facilities, such as the Chemical Waste Management facility in Model City, New York.	
Date of Start-Up:	The unit has been in operation since 1986.	
Date of Closure:	The unit is currently active.	
Waste Managed:	The unit manages waste xylene and waste isopropyl alcohol.	
Release Controls:	Spills within the unit are collected in a stainless steel containment pan. However, this pan has reportedly never been used.	
History of Releases:	There are no documented releases from with the unit. No evidence of release was observed during the VSI.	
References:	130, 158	

Unit Number:	94 (IBM #90)	(No photograph)
Unit Name:	BCSF Waste IPA Tank	
Location:	This unit is located inside Building 034 as part of the Bulk Chemical Storage Facility (BCSF), in the west-central area of the facility.	
Description:	This unit is a RCRA-regulated stainless steel 8,000-gallon above ground waste solvent tank located in the Bulk Chemical Storage Facility. The tank stores waste isopropyl alcohol (IPA). The tank is constructed of double-walled stainless steel and is located in a concrete vault. Waste IPA is pumped from various core areas in Buildings 004 and 012 (SWMUs 61, 62, 64, 79, 81, 82, 83, and 85) to the unit. The tank has a nitrogen blanket. The tank is located inside the contained, monitored, and alarmed Bulk Chemical Storage Facility. When full, the contents of the tank are pumped via piping to the BCSF Truck Loading Area (SWMU 93).	
Date of Start-Up:	The tank has been in operation since 1986.	
Date of Closure:	The unit is currently active.	
Waste Managed:	The unit manages waste isopropyl alcohol.	
Release Controls:	The tank has a berm capable of containing approximately 9,700 gallons.	
History of Releases:	There are no documented releases from the unit. No evidence of release was observed during the VSI.	
References:	130, 158	

Unit Number: 95 (IBM #90) (No photograph)

Unit Name: BCSF Waste Xylene Tank

Location: This unit is located inside Building 034 as part of the Bulk Chemical Storage Facility (BCSF), in the west-central area of the facility.

Description: This unit is a RCRA-regulated stainless steel 8,000-gallon above ground waste solvent tank located in the Bulk Chemical Storage Facility. The tank stores waste xylene. The tank is constructed of double-walled stainless steel located in a concrete vault. Waste xylene is pumped from various core areas in Buildings 004 and 012 (SWMUs 62, 79, 83, and 85) to the unit. In addition, waste xylene from the carbon abatement system in Building 004 is transported to the unit via the Waste Xylene Transport Tank (SWMU 53). The unit has a nitrogen blanket. The tank is located inside the contained, monitored, and alarmed Bulk Chemical Storage Facility. When full, the contents of the tank are pumped via piping to the BCSF Truck Loading Area (SWMU 93).

Date of Start-Up: The tank has been in operation since 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste xylene.

Release Controls: The tank has a berm capable of containing approximately 9,700 gallons.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158

Unit Number: 96 (IBM #90) (No photograph)

Unit Name: BCSF Waste Glycerin/EDTA/Water Tank

Location: This unit is located inside Building 034 as part of the Bulk Chemical Storage Facility (BCSF), in the west-central area of the facility.

Description: This unit is a stainless steel 8,000-gallon above ground waste solvent tank located in the Bulk Chemical Storage Facility. The tank stores waste glycerin, EDTA, and water. The tank is constructed of double-walled stainless steel located in a concrete vault. The unit receives wastes from the Waste Glycerin/EDTA/Wastewater Tank (SWMU 26) located in Building 003 via the Glycerin/EDTA/Wastewater Transport Tank (SWMU 27). The tank has a nitrogen blanket. The tank is located inside the contained, monitored, and alarmed BCSF. When full, the contents of the tank are pumped via piping to the BCSF Truck Loading Area (SWMU 93).

Date of Start-Up: The tank has been in operation since January 1987.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste glycerin, EDTA, and water.

Release Controls: The tank has a berm capable of containing approximately 9,700 gallons.

History of Releases: There are no documented releases from the unit. No evidence of release was observed during the VSI.

References: 130, 158

Unit Number: 97 (No IBM number) (No photograph)

Unit Name: BCSF Carbon Canister System

Location: The unit is located outdoors, near Building 034, in the west-central area of the facility.

Description: The unit consists of a series of five 55-gallon steel canisters which contain carbon filters. The nitrogen constantly bled from the storage tanks within the BCSF passes through the series of canisters. Any organic residues contained in the nitrogen are absorbed onto the carbon filters. The 'clean' nitrogen is then released to the air.

The unit is maintained by Calgon Corporation. The canisters are weighed every three months to determine the amount of organics absorbed on the filters. Once the filters are determined to be saturated, they are removed and replaced by Calgon personnel.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages trace amounts of xylene, isopropyl alcohol, glycerin, and EDTA.

Release Controls: The unit consists of closed steel canisters located on a concrete pad.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

H. UNITS ASSOCIATED WITH BUILDING 006

Building 006 is a located in the central area of the facility. There are four SWMUs associated with vehicle maintenance activities conducted in the building.

SWMU NO.	**Unit Name**
98	Truck Crib Sump
99	Waste Oil Accumulation Drum
100	Safety Kleen Tank
101	Oily Debris Container

Unit Number: 98 (No IBM number) (Photographs #160-161)

Unit Name: Truck Crib Sump

Location: The unit is located inside Building 006, in the central area of the facility.

Description: The unit is a concrete, in-ground sump located inside Building 006 in the truck maintenance area. The sump is approximately 10-feet wide by 15-feet long by 6-feet deep and is covered by a steel grate. Trucks are washed when parked on the grate. The rinse water goes from the sump to the Current Industrial Waste Piping System (SWMU 193) and then to the Industrial Waste Treatment Plant (SWMUs 135-176). The sludge that remains in the sump is cleaned out annually, drummed, and taken to the Hazardous Waste Storage Building (SWMUs 102-111).

Date of Start-Up: The date of start-up could not be provided by IBM representatives.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages truck wash rinse waters and sludges, oils, and detergents.

Release Controls: The unit is constructed of concrete, located inside an enclosed building and designed to release to the IWTP.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 99 (No IBM number) (No photograph)

Unit Name: Waste Oil Accumulation Drum

Location: The unit is located inside Building 006, in the central area of the facility.

Description: The unit is a 55-gallon drum used for the accumulation of waste oils generated in the truck maintenance area of Building 006. When full, the drum is transferred to the Hazardous Waste Storage Building, Flammable Waste Storage Room (SWMU 106).

Date of Start-Up: The date of start-up could not be provided by IBM representatives.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste oil.

Release Controls: The unit is a closed container, located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 100 (No IBM number) (Photograph #162)

Unit Name: Safety Kleen Tank

Location: The unit is located inside Building 006, in the central area of the facility.

Description: The unit is a painted metal 30- to 40-gallon wash tank with a cover used for the washing of parts in the truck maintenance area. The unit is regularly serviced by Safety Kleen.

Date of Start-Up: The date of start-up could not be provided by IBM representatives.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages waste degreasing solvents.

Release Controls: The unit is located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number:	101 (No IBM number)	(Photograph #163)
Unit Name:	Oily Debris Container	
Location:	The unit is located inside Building 006, in the central area of the facility.	
Description:	The unit is a 5-gallon covered bucket used to store oil-contaminated debris, primarily rags, generated in the truck maintenance area of Building 006. When full, the bucket is taken to the Hazardous Waste Storage Building, Flammable Waste Storage Room (SWMU 106).	
Date of Start-Up:	The date of start-up could not be provided by IBM representatives.	
Date of Closure:	The unit is currently active.	
Waste Managed:	The unit manages oil-contaminated debris.	
Release Controls:	The unit is a covered bucket located inside an enclosed building on a concrete floor.	
History of Releases:	There are no documented releases associated with the unit. No evidence of release was observed during the VSI.	
References:	158	

I. UNITS ASSOCIATED WITH BUILDING 028

Building 028 is the RCRA-regulated Hazardous Waste Storage facility located in the south-central area of the facility. There are 14 SWMUs associated with, or located in the vicinity of, the building.

SWMU NO.	Unit Name
102	General and Non-Regulated Waste Storage Room
103	Caustic Waste Storage Room
104	Acid Waste Storage Room
105	Oxidizer Waste Storage Room
106	Flammable Waste Storage Room
107	Solvent Dispense Room
108-109	Flo-Back® Parts Washers (2)
110	Empty Drum and Miscellaneous Waste Storage Room
111	Building 028 Loading Dock
112	Former Steam Clean Room
113	Loading Dock Spill Containment Tank
114	Former Steam Clean Waste Tank
115	Former Waste Disposal Site

Unit Number: 102 (IBM #84) (Photographs #41 and #42)

Unit Name: General and Non-Regulated Waste Storage Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The unit is a concrete-floored and bermed storage room inside the RCRA-regulated Hazardous Waste Storage Building used for storing miscellaneous non-regulated wastes originating from throughout this and other IBM facilities. The unit, known as Room 125, has a capacity of up to 800 containers. The containers are stored in drums on pallets on four levels on shelves. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: Wastes present at the time of the VSI included: soils generated from soil borings and monitor well installation, nickel solutions, lab pack pallets, waste glycerin/EDTA in 175- and 260-gallon bulk containers, uncured epoxy waste (primarily rags), oil coolants from the machine shop, empty drums, methyl chloroform, freon, ethylene glycol solution, and cyanide caustic contaminated filters, rags and debris in cardboard storage boxes.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 5,325 gallons.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 124, 130, 158

Unit Number:	103 (IBM #84)	(Photographs #43 and #44)
Unit Name:	Caustic Waste Storage Room	
Location:	The unit is located inside Building 028, in the south-central area of the facility.	
Description:	The unit is a concrete floored and bermed storage room inside the RCRA-regulated Hazardous Waste Storage Building used for storing caustic wastes originating from throughout this and other IBM facilities. The unit, known as Room 126, has a 240-container capacity. The containers are stored on pallets on four levels on shelves. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.	
Date of Start-Up:	The unit began operation in 1978.	
Date of Closure:	The unit is currently active.	
Waste Managed:	Wastes present at the time of the VSI included: sodium ferrocyanide in plastic containers, lab wastes in 1 cubic yard packs, Shipley neutra-etch, reproduction waste, alkaline-contaminated piping, and an accumulation drum with hood for lab wastes.	
Release Controls:	The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 1,376 gallons.	
History of Releases:	There are no documented releases associated with the unit. No evidence of release was observed during the VSI.	
References:	124, 130, 158	

Unit Number: 104 (IBM #84) (Photograph #45)

Unit Name: Acid Waste Storage Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The unit is a concrete floored and bermed storage room inside the RCRA-regulated Hazardous Waste Storage Building used for storing acid wastes originating from throughout this and other IBM facilities. The unit, known as Room 123, has a 200-container capacity. Drums are stored on pallets on four levels on shelves. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: Wastes present at the time of the VSI included: hydrochloric acid, sulfuric acid, waste Shipley LT 26, batteries, lab packs with acetic acid, and starter drums with hoods for liquid and solid wastes.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 1,325 gallons. Prior to 1983, drainage from this room was designed to go to a spill containment tank, which was reportedly never used. Upon removal of the tank, the drains were sealed.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 124, 130, 158

Unit Number: 105 (IBM #84) (Photograph #46)

Unit Name: Oxidizer Waste Storage Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The unit is a concrete floored and bermed storage room inside the RCRA-regulated Hazardous Waste Storage Building used for storing waste oxidizers originating from throughout this and other IBM facilities. The unit, known as Room 121, has a 120-container capacity. Containers are stored on pallets on four levels on shelves. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: Wastes present at the time of the VSI included: sodium persulfate and sulfuric acid solution, batteries, and empty drums.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 1,250 gallons.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 124, 130, 158

Unit Number: 106 (IBM #84) (Photograph #47)

Unit Name: Flammable Waste Storage Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The unit is a concrete floored and bermed storage room inside the RCRA-regulated Hazardous Waste Storage Building used for storing flammable wastes originating from throughout this and other IBM facilities. The unit, known as Room 120, has a 280-container capacity. Containers are stored on pallets on four levels on shelves. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: Wastes present at the time of the VSI included: waste oils, flammable aerosol cans, lab packs, and other mixed flammables.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 2,050 gallons. The drains in the room drain to a cathodically protected spill containment tank, which has reportedly never been used.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 124, 130, 158

Unit Number: 107 (IBM #84) (No photograph)

Unit Name: Solvent Dispense Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The unit is a concrete floored and bermed storage room, known as Room 119, inside the RCRA-regulated Hazardous Waste Storage Building. The unit is used for the storage of waste solvents originating from throughout this and other IBM facilities, as well as for dispensing raw solvents. The unit has a 20-drum capacity. The room also contains two Flo-Back® parts washers (SWMUs 108-109). All dispense drums and accumulation drums within the room are vented to the roof. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: Wastes present at the time of the VSI included: mixed freons, ethylene glycol solution, methyl chloroform, nonhazardous waste liquids, and flammable solvent wastes.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 2,050 gallons. The drains in the room lead to a spill containment tank, which has reportedly never been used.

History of Releases: Releases are vented to the air under a NYSDEC permit. No other evidence of release was observed during the VSI.

References: 124, 130, 158

Unit Numbers: 108-109 (No IBM number) (No photograph)

Unit Name: Flo-Back® Parts Washers (2)

Location: The unit is located inside Building 028, in Room 119, in the south-central area of the facility.

Description: The units are two approximately 50-gallon parts washers/degreasers for cleaning various parts in the RCRA-regulated Hazardous Waste Storage Building. One washer contains xylene and the other contains methyl ethyl ketone. The units are vented to the roof. The units are maintained by IBM. The solutions are drummed for offsite disposal when determined to be no longer useful.

Date of Start-Up: The start-up date for the units is unknown.

Date of Closure: The units are currently active.

Waste Managed: The units manage waste methyl ethyl ketone, xylene, and miscellaneous oils.

Release Controls: The units are located inside an enclosed building on a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 2,050 gallons. The drains in the room drain to a spill containment tank, which has reportedly never been used.

History of Releases: Releases are vented to the air under a NYSDEC permit. No other evidence of release was observed during the VSI.

References: 158

Unit Number: 110 (IBM #84) (Photograph #49)

Unit Name: Empty Drum and Miscellaneous Waste Storage Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The unit is a concrete floored and bermed storage room inside the RCRA-regulated Hazardous Waste Storage Building used for storing empty drums and miscellaneous wastes originating from throughout this and other IBM facilities. The unit, known as Room 118, has a 200-container capacity. Wastes are periodically transferred from this unit to the Building 028 Loading Dock (SWMU 111) for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: Wastes present at the time of the VSI included: nickel/cadmium batteries, lead-contaminated debris, alkaline batteries, mercury waste, CeCo Paks, used anodes, crushed CRTs, lead-contaminated filters, and empty drums.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area is bermed and has a containment capacity of 4,100 gallons.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 124, 130, 158

Unit Number: 111 (IBM #84) (Photographs #50-52)

Unit Name: Building 028 Loading Dock

Location: The unit is located at Building 028, in the south-central area of the facility.

Description: The unit is the central shipping and receiving dock for the RCRA-regulated Hazardous Waste Storage Building. The unit consists of a sloped concrete truck parking area with a storm grate at the top to prevent run on. The loading area is constructed of concrete with two at-grade drains which lead to the Loading Dock Spill Containment Tank (SWMU 113). Wastes from throughout the IBM facility as well as other IBM facilities throughout the Poughkeepsie area are brought to this unit for placement in one of the storage areas at Building 028. This unit is also used for transferring drummed storage wastes from one of the Building 028 storage areas to trucks for offsite disposal.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit is currently active.

Waste Managed: All wastes managed by SWMUs 102 - 110 are also managed by this unit.

Release Controls: There is a storm grate to prevent run on and two drains in the unloading area which lead to the Loading Dock Spill Containment Tank (SWMU 113).

History of Releases: There are no documented releases associated with the unit. Some staining was evident on the concrete during the VSI.

References: 130, 158

Unit Number: 112 (IBM #84) (Photograph #53)

Unit Name: Former Steam Clean Room

Location: The unit is located inside Building 028, in the south-central area of the facility.

Description: The Former Steam Clean Room was used from 1978 until 1983 for the steam cleaning of various business machines. IBM representatives did not indicate that any solvents were used in the steam cleaning process. The room had a hood which vented steam clean mist to the roof. Currently the room is used for equipment storage.

Date of Start-Up: The unit began operation in 1978.

Date of Closure: The unit ceased operations as a SWMU in 1983.

Waste Managed: The unit managed steam cleaning rinse water containing oils, typewriter ribbon inks, and reportedly PCBs.

Release Controls: The unit is located inside an enclosed building with a concrete floor with no observed cracks. The area drained to the Former Steam Clean Waste Tank (SWMU 114) from 1978 to 1983. In 1983 a new steam clean waste tank was installed but was reportedly never used.

History of Releases: There are no documented releases associated with the unit. Staining was evident on the walls and floor of the room.

References: 130, 158

Unit Number: 113 (IBM #1) (Photograph #54)

Unit Name: Loading Dock Spill Containment Tank

Location: The unit is located outside Building 028, in the south-central area of the facility.

Description: The unit is an 8,000-gallon underground double-walled stainless steel tank installed in 1983 for the containment of spillage from the Building 028 Loading Dock (SWMU 111). According to facility representatives, the unit has never been used for spill containment. However, it has been used for containment of rainwater from the loading dock. Prior to discharge of the rainwater, it is tested for presence of wastes. If wastes are detected, they are drummed and stored in the appropriate storage room in Building 028.

Date of Start-Up: The unit was installed in 1983.

Date of Closure: The unit is currently in place.

Waste Managed: The unit is designed to contain loading dock spills but has never been need for that purpose. It is used to contain potentially contaminated rainwater.

Release Controls: The unit is double-walled and located in a concrete vault.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158

Unit Number: 114 (IBM #16) (Photograph #54)

Unit Name: Former Steam Clean Waste Tank

Location: The unit is located outside Building 028, in the south-central area of the facility.

Description: The unit was a 3,500-gallon steel underground containment tank for steam clean wastes from the Former Steam Clean Room (SWMU 112). Wastes received included rinse water from steam cleaning of office equipment.

Date of Start-Up: The unit began operation in 1981.

Date of Closure: The unit was removed in 1982.

Waste Managed: The unit managed rinse water and residues including inks, oils (potentially contaminated with PCBs), and miscellaneous debris from the steam cleaning of various office equipment.

Release Controls: There is no documentation of any release controls.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI or at the time of tank removal.

References: 130, 158

Unit Number: 115 (IBM #19) (Photographs #57-60)

Unit Name: Former Waste Disposal Site

Location: The unit is located outdoors, west of Building 028, 600 feet from the Hudson River, along the west side of the facility.

Description: The unit, located on a wooded bluff overlooking the Hudson River, is an area of soil that is approximately 30,000 square feet in size and 90-feet deep. It was used for the disposal of sludge from sanitary and industrial treatment plants, incinerator ash, construction debris and soils, drums (full and empty), heavy metal salts with chromium, copper, nickel, iron, and possibly cadmium from plating baths, cyanide briquets and possibly other chemicals. Much of the hazardous waste resulted from IBM's ammunition manufacturing operations for the U.S. Government from 1942 to 1951. Facilities representatives estimated that the unit contained 26,000 cubic yards of material. During the 1950's and 1960's construction debris was also disposed at the site. The unit was covered with soil and seeded in 1962. In 1980, a total of 35,000 cubic yards of wastes and contaminated soil were removed and disposed in a secure landfill. No information was available regarding confirmatory sampling associated with the excavation.

Date of Start-Up: The unit began operation in 1942.

Date of Closure: The unit ceased receiving hazardous materials in the mid 1950s. It continued to receive construction debris until 1961. It was covered and seeded in 1962. Wastes were removed in 1980.

Waste Managed: The unit managed sludge from sanitary and industrial treatment plants, incinerator ash, construction debris and soils, drums (full and empty), and heavy metal salts with chromium, copper, nickel, iron, and possibly cadmium from plating baths, cyanide and possibly other chemicals.

Release Controls: The unit is an unlined landfill partially situated on shale bedrock.

History of Releases: Down gradient monitoring wells (T-203R and T-204R), installed after remediation of the unit, have indicated the presence of volatile organics and cyanide, attributable directly to the unit. According to facility representatives, a chemical flux from a small amount of residual chemicals could not be removed from the bedrock and is the source of the contamination. Maximum levels of contaminents encountered are as follows:

Chlorobenzene	9 mg/l
Chloroform	10 mg/l
1,1-dichloroethane	4 mg/l
1,2-dichloroethane	27 mg/l
Trans-1,2-dichloroethylene	139 mg/l
1,2-dichloropropane	36 mg/l
Methylene chloride	18 mg/l
1,1,1-trichloroethane	3 mg/l
Trichloroethylene	200 mg/l
Vinyl chloride	14 mg/l
Total Cyanide	2940 mg/l

References: 2, 16, 130, 136, 158,

J. UNITS ASSOCIATED WITH BUILDING 075

Building 075 is a storage facility located in the south-west central area of the facility. There are six SWMUs associated with, or located in the vicinity of, the building.

SWMU	**Unit Name**
116	Former Burn Pit
117	Salvage Yard T-58 Drum Storage Area
118	Former Crusher
119	T-58 Groundwater Recovery Tank
120	Former Fire Training Area
121	Former Building 075 Septic Tank Area

Unit Number: 116 (IBM #19B) (Photograph #64)

Unit Name: Former Burn Pit

Location: The unit is located outdoors, between Building 075 and Building 028 in the west-central area of the facility.

Description: The unit, an unlined open pit, was apparently used to burn off waste oils, which may have been mixed with other chemicals such as PCBs and/or solvents. an unspecified quantity of soil at the unit was excavated in 1980. At the time of the VSI, the unit was overgrown with vegetation with no evidence of the unit present. Further documentation on the unit is not available from facility representatives.

Date of Start-Up: Facility personnel indicated that the pit began operation in the late 1940s.

Date of Closure: Facility personnel indicated that the pit ceased operation in the mid-1960s.

Waste Managed: The unit managed waste oils, possibly containing PCBs and/or waste solvents.

Release Controls: The unit was an unlined area of ground on which potentially hazardous material was routinely burned.

History of Releases: Approximately 1,000 gallons of free product oil was reportedly estimated to be in the bedrock in the area of the unit in November 1981. Subsequent investigations concluded that an area of approximately 2,000 square feet had floating free product, including oil, chlorobenzene, and trichloroethylene (also trans-1,2-dichloroethylene and vinyl chloride associated with TCE), existed at the unit. An oil/water separation system was set up around well T-58 to remove the free product. From 1982 until 1986, approximately 550 gallons of product and 138,500 gallons of water were removed. No documented soil remediation occurred.

References: 130, 136, 158

Unit Number: 117 (IBM #74) (Photograph #63)

Unit Name: Salvage Yard T-58 Drum Storage Area

Location: The unit was located indoors, near well T-58, between Buildings 028 and 075 in the west-central area of the facility.

Description: The unit was a building used for drum storage associated with remedial activities at the Former Burn Pit (SWMU 116). Groundwater and oil floating on top of the groundwater was pumped from well T-58 and separated using an oil/water separator. The separated oil was contained in drums in this building prior to shipment off-site to ENSCO in Arkansas. The building was also used to house the above ground portion of the well, an automatic bailer and oil skimmer, and various electric components. The entire building and all contents were removed at closure.

Date of Start-Up: The unit began operation in 1983.

Date of Closure: The site was closed under NYSDEC approval in 1986-1987.

Waste Managed: The unit managed approximately 550 gallons of waste oil during its history. The oil was handled as a PCB-contaminated waste due to PCB concentrations in excess of 50 ppm.

Release Controls: The unit was an enclosed building with a concrete floor.

History of Releases: There are no documented releases associated with the unit.

References: 130, 136, 158

Unit Number: 118 (IBM #18) (No photograph)

Unit Name: Former Crusher

Location: The unit was located in the southwest corner of Building 075, in the west-central area of the facility.

Description: The unit was a salvage crusher used to crush scrap metal and plastic prior to off-site salvage. The unit was removed in 1984 and no evidence of the unit was apparent during the VSI. The area is currently used for storage. Further information or documentation on the unit is unavailable.

Date of Start-Up: The start-up date for the unit is unknown.

Date of Closure: The unit was removed in 1984.

Waste Managed: The unit managed waste metal, silicon wafers, off-spec devices, equipment.

Release Controls: The unit was located inside an enclosed building on a concrete floor.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 158

Unit Number: 119 (IBM #75) (Photograph #74)

Unit Name: T-58 Groundwater Recovery Tank

Location: The unit is located outdoors, in the Fuel Oil Storage Area near Building 075, in the west-central area of the facility.

Description: The unit was an above ground, insulated, single-walled, steel 5,000-gallon tank was used for the collection of contaminated groundwater as part of the remediation program at the Salvage Yard T-58 Drum Storage Area (SWMU 117). Contaminated water removed during remediation activities was pumped to this tank. Due to the presence of chlorobenzene, the water was sent to the CECOS and SCA landfills in New York.

Date of Start-Up: The date of start-up was 1983.

Date of Closure: The unit was removed in 1986 and certified as closed with NYSDEC approval in 1987.

Waste Managed: This unit managed, over the course of its operations, 138,500 gallons of water contaminated with several priority pollutants, primarily chlorobenzene.

Release Controls: The unit was situated on an earthen pad with berms and a plastic liner.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 136, 158

Unit Number: 120 (No IBM number) (Photograph #62)

Unit Name: Former Fire Training Area

Location: The unit was located outdoors, near Building 075, in the west-central area of the facility.

Description: The unit was apparently used for IBM fire training operations. Oils were reportedly burned in pans in the grassy area. IBM representatives indicated that burning of solvents may have occurred in the area as well. The area was reportedly approximately 50 feet by 50 feet in area. Some stressed vegetation and bare spots on the ground were observed during the VSI. Further documentation on the unit is not available.

Date of Start-Up: The date of start-up could not be provided by IBM representatives.

Date of Closure: The date of closure could not be provided by IBM representatives.

Waste Managed: The unit managed waste oils and possibly solvents.

Release Controls: There were no release controls associated with the unit.

History of Releases: Groundwater contamination (free-floating oil) that was detected and remediated near Building 075 may be associated with the unit. Air releases occurred during burning.

References: 158

Unit Number: 121 (No IBM number) (Photograph #73)

Unit Name: Former Building 075 Septic Tank Area

Location: The unit was located outdoors, near Building 075, in the west-central area of the facility.

Description: This unit was associated with the Building 075 and included a septic tank and leach field, which was located in the area of the Former Fire Training Area (SWMU 120). The septic tank is apparently still in place but is not used. No sampling of tank contents has occurred. Further information on the unit is unavailable.

Date of Start-Up: The date of start-up is unknown.

Date of Closure: The unit is still in place, but no longer used. The date that the unit ceased operation is unknown.

Waste Managed: The unit managed sanitary sewage from Building 075. The unit reportedly did not manage hazardous wastes.

Release Controls: The unit was designed to release to the environment.

History of Releases: The unit, by design, released unknown quantities of sanitary wastes to the environment over an unknown period of time.

References: 28, 158

K. UNITS ASSOCIATED WITH BUILDINGS 020 AND 030

Buildings 020 and 030 are a utility plant located in the south-west area of the facility. There are six SWMUs associated with, or located in the vicinity of, the buildings.

SWMU No.	**Unit Name**
122-124	Fuel Blending Boilers
125	Building 030 Short Term Waste Storage Area
126	Boiler Feed Chemical Delivery Containment Pad
127	Antenna Drum Storage Area

Unit Numbers: 122-124 (IBM #20) (Photograph #65)

Unit Name: Fuel Blending Boilers

Location: The units are located inside Building 020, in the southwest area of the facility.

Description: The units are three 562-gallon steam boilers formerly used for incineration of waste oil mixed with fuel oil. The boilers are still used in the building for heating. However, the burning of waste oil was reportedly discontinued in 1954. There is limited documentation on this activity, but site personnel indicated that, due to boiler set-up, if one of the boilers was used for waste incineration, all three of the boilers were used. Currently, boiler blowdown is discharged to the IWTP (SWMUs 135-176) and SPDES Discharge Points 009, 013, and 017. Further documentation on this activity is unavailable.

Date of Start-Up: The units began operating in 1952.

Date of Closure: The units ceased incinerating waste oil in 1954. The units are still in operation as boilers.

Waste Managed: The units managed waste oil.

Release Controls: The boilers are located inside an enclosed building on a concrete floor.

History of Releases: The units are designed to release to the air.

References: 130, 158

Unit Number: 125 (IBM #86) (Photographs #66, 68 and 69)

Unit Name: Building 030 Short Term Waste Storage Area

Location: The unit is located inside Building 030, adjoining Building 020 in the southwest area of the facility.

Description: The unit is an indoor waste accumulation area for waste oils generated within Buildings 020 and 030. 55-gallon drums are stored in various locations on the first floor and in an adjoining 10 foot by 10 foot room. The room contained two drums of oil contaminated debris at the time of the VSI. Other containers present in the area were two oil-contaminated debris drums, 5-gallon oily waste cans, and a 30-gallon Graymills solvent tank. The first floor is bermed at the doorways. Drums are taken from here to the Building 028 RCRA-Regulated Hazardous Waste Storage Building (SWMUs 102-111).

Date of Start-Up: The unit began operation in 1976.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages waste oils potentially containing lead or cadmium or having the ignitable characteristic.

Release Controls: The area is surrounded by a concrete berm and is located indoors. Floor drains in the area go to the IWTP. Cracks were evident in the wall which extended to the exterior of the building.

History of Releases: There are no documented releases associated with this unit. Staining was evident on the floor, walls, and ceiling. The entire first floor showed evidence of oil spillage and sloppy waste management.

References: 130, 136, 137, 158

Unit Number: 126 (No IBM number) (Photograph #78)

Unit Name: Boiler Feed Chemical Delivery Containment Pad

Location: The unit is located outside Building 020, in the southwest area of the facility.

Description: The unit is an approximately 30- by 30-foot epoxy coated concrete containment pad which slopes toward an at-grade sump. The sump is approximately 3-feet long by 1-foot wide by 6-inches deep. The unit is used during the delivery of boiler feed chemicals to Building 020, which houses the power plant boilers. During unloading operations a valve in the bottom of the sump is kept closed. When the valve is open it discharges to the storm sewer system. The unit is surrounded by a concrete berm.

Date of Start-Up: The unit began operation in 1990.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages rainwater that may contain trace amounts of spilled sodium bisulfite and/or cyclohexamine.

Release Controls: The unit is constructed of concrete, is surrounded by a concrete berm, and is sloped toward a concrete containment sump.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Unit Number: 127 (IBM #21) (Photographs #75-77)

Unit Name: Antenna Drum Storage Area

Location: The unit is located north of Building 020 on an outdoor concrete pad at the former location of a communications antenna, in the southwest area of the facility.

Description: This container storage area was an unbermed 100-foot by 50-foot concrete pad. It was used for the storage of drummed wastes, including solvents, before being transported offsite for disposal. When the unit was deactivated, the drums were removed. During the VSI, evidence of drums was observed, including rings on the concrete showing the former storage location.

Date of Start-Up: The unit began operation prior to 1964.

Date of Closure: The unit ceased operations in 1973.

Waste Managed: The unit managed waste solvents in drums.

Release Controls: The drums were stored on unbermed concrete. However, the concrete at the time of the VSI was cracked and falling apart.

History of Releases: There are no specific documented releases associated with this unit. However, groundwater investigations in 1982 (installation of four wells) indicated a plume of priority organics, dominated by trichloroethylene and 1,1,1-trichloroethane. TCE was found as high as 50 ppm in well T-83R in the vicinity of the unit. Various organics were also found in hand augered soil samples taken near the unit in 1982, with TCE found as high as 3.4 ppm and PCB-1234 at 12 ppm. Facility representatives indicated that since the source of the contamination could not be found, no remediation occurred.

References: 130, 136, 158

L. UNITS ASSOCIATED WITH BUILDING 077

Building 077 is a storage facility located in the south-west area of the facility. There are seven SWMUs associated with, or in the vicinity of, the building

SWMU No.	**Unit Name**
128	Building 077 Container Storage Area
129	Former Waste Oil Leach Field
130-132	IWTP Effluent Holding Tanks
133	IWTP Effluent Spill Containment Tank
134	Former Effluent Stabilization Pond

Unit Number: 128 (IBM #95) (Photographs #80-84)

Unit Name: Building 077 Container Storage Area

Location: The unit is located inside Building 077, in the southwest area of the facility.

Description: The unit was a RCRA-regulated non-flammable hazardous drum storage area. The indoor, concrete area consisted of three bays, I, II, III, separated by cinder block walls on three sides. The storage capacity was 26,400 gallons or 480 55-gallon drums. Two bays were for storage of caustic waste and one bay was for storage of acid waste generated throughout the facility. Also, a loading dock and common area accessible to all bays were part of the unit. Wastes were removed from the unit for off-site management. Currently, the unit is used for electrical equipment storage. The unit's function was replaced by the storage areas in Building 028 (SWMU 102-111).

Date of Start-Up: The unit began operating in 1964.

Date of Closure: The unit stopped receiving waste in 1978. This unit was certified closed in April 1988 by Conestoga Rovers & Associates. However, final NYSDEC approval has not yet been received.

Waste Managed: The unit managed non-flammable organics, waste oil, contaminated debris, and PCB-containing capacitors and ballasts.

Release Controls: Floor trenches were located in front of each storage area to temporarily contain any spilled material. Each floor trench had a capacity of 75 to 100 gallons. In addition, each building entrance/exit was bermed with concrete, and the total bermed containment area of the building was greater than ten percent of the maximum volume of waste stored in the building.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 130, 136, 158, 160

Unit Number: 129 (IBM #22) (Photograph #86)

Unit Name: Former Waste Oil Leach Field

Location: The unit is located outdoors, south of Building 077 near the B454 shed, in the southwest area of the facility.

Description: The unit is an approximately 0.8 acre area of subsurface soil used for the land disposal of waste oil. Facility drawings indicate that a pipeline, apparently designed to carry waste cutting oils, led to the unit. The area of the unit was observed to be overgrown with vegetation during the VSI. No further information on the unit, including volume of waste managed, could be provided by IBM representatives.

Date of Start-Up: The unit reportedly began operation in the early 1940s.

Date of Closure: The pipeline leading to the unit was reportedly sealed in the 1960s. In the early 1970s, leakage was reported and the pipeline was sealed again.

Waste Managed: The unit managed waste cutting oils .

Release Controls: The unit was designed to release waste oil to the environment.

History of Releases: This unit was implicated as the source of contamination including vinyl chloride, TCE, and TCA in wells for the Former Effluent Stabilization Pond (SWMU 134). An investigation of the area began in November 1980. Several bedrock and soil monitoring wells were drilled. Consistent measurable concentrations of vinyl chloride, 1,1-dichloroethane, and trans-1,2-dichloroethylene were found in the groundwater. Vinyl chloride, as well as oil and grease, were determined to be from a local source. Maximum concentrations of chemicals found in the investigation are as follows:

1,1,1-trichloroethane	51,000 ppb
trichloroethylene	5,500 ppb
1,1-dichloroethylene	770 ppb
trans-1,2-dichloroethylene	640 ppb
1,1-dichloroethane	370 ppb
toluene	130 ppb
vinyl chloride	91 ppb

tetrachloroethylene	67 ppb
1,1,2-trichloroethane	17 ppb

No remediation has occurred because no separate phase was identifed and the facility felt that no impact resulted from the past disposal practices.

References: 63, 130, 136, 138

Unit Numbers: 130-132 (No IBM Number) (Photographs #34, #35, and #37-40)

Unit Name: IWTP Effluent Holding Tanks

Location: The units are located outdoors, south of Building 077, in the southwest area of the facility.

Description: The units are three 260,000-gallon steel, vertical-cylindrical tanks. The tanks are used to hold final effluent received from the IWTP via underground piping prior to discharge to the Hudson River through SPDES outfall 003.

Date of Start-Up: The units began operation in 1984.

Date of Closure: The units are currently active.

Waste Managed: The units manage treated industrial waste water.

Release Controls: The units are above ground tanks with no secondary containment. Controlled overflow from these units is directed to the IWTP Effluent Spill Containment Tank (SWMU 133).

History of Releases: There are no documented releases associated with these units. No evidence of release was noted during the VSI.

References: 22, 132, 168

Unit Number: 133 (No IBM Number) (Photograph #36)

Unit Name: IWTP Effluent Spill Containment Tank

Location: The unit is located outdoors, south of Building 077, adjacent to the IWTP Effluent Holding Tanks (SWMUs 130-132), in the southwest area of the facility.

Description: The unit is a 300,000 gallon steel vertical-cylindrical above ground tank. The tank receives overflow from the IWTP Effluent Holding Tanks (SWMUs 130-132) via above ground piping. Once the Holding Tanks have discharged a sufficient quantity of water to the Hudson River, the contents of this unit are transferred back to the holding tanks.

Date of Start-Up: Began operation in 1984.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages treated industrial waste water.

Release Controls: The unit is an above ground tank with no secondary containment system.

History of Releases: There are no documented releases associated with these units. No evidence of release was noted during the VSI.

References: 22, 132, 168

Unit Number: 134 (IBM #76) (Photograph #36)

Unit Name: Former Effluent Stabilization Pond

Location: The unit is located outdoors approximately 200 feet east of the Hudson River in the southwest corner of the facility.

Description: The unit, formerly RCRA-regulated, is a pond originally constructed by excavating an area 100-feet by 115-feet to a depth of 7.5-feet. The sides were sloped and the bottom dimensions were 70-feet by 85-feet. The pond was founded over bedrock with a minimum of 9 inches of sand followed by a synthetic membrane liner. The pond was lined in November 1980. It was used for holding treated effluent from the IWTP for samplingand solids settling, prior to final discharge to the Hudson River under the facility's SPDES permit. The unit was used for treatment of wastes, including pH adjustment or chlorination, if necessary. The sand and liner were removed when the unit was closed in 1984. Three small holes were found in the liner at closure. It was undetermined if these holes existed prior to closure or if they were caused during removal. Soil was removed to bedrock in the area. Closure sampling revealed no existing contamination.

Date of Start-Up: Constructed in the early 1960s

Date of Closure: The unit was closed in 1984 and closure certified on December 14, 1984. EPA approved closure.

Waste Managed: The unit managed treated effluent and F006 hazardous waste sludge from the industrial waste treatment plant.

Release Controls: The unit was lined with a synthetic liner in 1980 and surrounded by earthen berms. The liner and underlying soils were removed in 1984.

History of Releases: On October 31, 1983, a leak in the return line from the unit was observed. A crack in a welded joint allowed approximately 5,000 gallons of treated waste to release to the ground. The wastewater was being routed to treatment tanks for further treatment due to a high iron content. No evidence of remediation was found in the files.

Post-closure groundwater monitoring for silver and mercury for one year in 1985 - 1986 revealed no elevated levels of these contaminents. Therefore, monitoring was discontinued upon approval by EPA.

References: 36, 64, 130, 158

M. UNITS ASSOCIATED WITH BUILDING 450

Building 450 (B450) is the Industrial Waste Treatment Plant (IWTP) located in the south-west central area of the facility. There are 51 SWMUs associated with, or in the vicinity of, the building.

SWMU No.	**Unit Name**
135-176	Current Industrial Waste Treatment Plant
177-184	Former SWMUs Associated with the IWTP
185	Building 450 Demolition Landfill

Unit Numbers: 135-176 (Photographs - see Table IV-3)

Unit Name: Current Industrial Waste Treatment Plant

Location: The units are located at Building 450, in the central area of the facility.

Description: These units make up the Current Industrial Waste Treatment Plant (IWTP). The IWTP treats industrial wastes generated throughout the facility. The wastes are transferred here via above ground and underground piping. Elements of this system have been in place since the late 1940's. At that time, the system primarily consisted of the equalization tanks (SWMUs 135-136). A major upgrade of the system took place in 1983, in which most of the current treatment units were installed. In 1989, another upgrade occurred which allowed for greater treatment capacity, resulting in the current configuration. Table IV-3 describes the units making up the industrial waste treatment system. A schematic diagram of the system is shown in Figure II-2 and II-3. A description of the waste flow in these units is contained in Section II.D.3.

Date of Start-Up: The date of start-up for each unit is listed in Table IV-3. The current IWTP began in 1989.

Date of Closure: The units are currently in operation.

Waste Managed: The IWTP manages industrial wastes from throughout the plant. The wastes contain elevated levels of organic constituents and metals.

Release Controls: All piping associated with the units are double-walled with a 6-inch line contained within a 10-inch line. All drainage within the building goes to the B450 Sump (SWMU 174), which routes the drainage back to the Equalization Tanks (SWMUs 135-136).

History of Releases: On November 25, 1981, between 5,000 and 40,000 gallons of untreated industrial wastewater leaked from the underground piping surrounding one of the Equalization Tanks (SWMUs 135-136). The wastewater soaked into the ground and some reached Spring Brook. The extent of remediation is unknown, but it is believed that some contaminated soil was removed during construction of the new IWTP.

On October 28, 1983, approximately 20,000 gallons of treated water was released to the ground due to the lack of a sleeve in the pump pit during excavation activities. The extent of remediation is unknown.

On October 31, 1983, a leak in the return line from the industrial waste effluent stabilization pond (SWMU 134) was observed. A crack in a welded joint allowed approximately 5,000 gallons of treated waste to be release to the ground. The wastewater was being routed to treatment tanks for further treatment due to a high iron content. No remediation was reportedly conducted.

On January 16, 1984, approximately 1,500 gallons of untreated industrial waste was released to Spring Brook (2,500 gallons released total) due to a valve left open in the vault discharge line causing the discharge vault to overflow. The contaminated soil was reportedly removed.

On May 25, 1984, during installation of a fence, an underground fiberglass pipe connecting the equalization tanks with the effluent tanks was broken. Approximately 1,000 gallons of untreated effluent from the equalization tank discharged to the ground and a tributary brook discharging into Spring Brook. Pooled water was collected and returned to the IWTP. Contaminated soil was also reportedly removed.

On October 1, 1985, excavation activities broke a fiberglass line between the equalization tanks and the effluent tanks. Approximately 200 gallons of untreated waste with a pH of 11.5 was discharged to the ground. The contaminated soil was reportedly removed and disposed.

References: 22, 130, 158

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
135-136 Equalization Tanks* (Photographs #2 and #3) (IBM #28-29)	Above ground receiving tanks for industrial waste influent to the IWTP. The tanks have been in place since 1948. In 1984, 80,000 gallon tanks were placed inside the 120,000 gallon tanks. Prior to 1984, these were the treatment tanks for the original IWTP.	80,000 gallons each inside 120,000 gallon tanks.	1948 - present
137 First Stage Splitter Box (Photograph #5)	Above ground fiberglass tank which receives influent from equalization tanks. The unit is located inside B450. Splits the influent into two trains.	432 gallons	1989 - present
138-139 First Stage Primary Flash Mix Tanks (Photograph #6)	Above ground fiberglass tanks inside B450 which receives effluent from First Stage Splitter Box. Coagulant is added and the pH is adjusted.	≈ 2,500 gallons each	1989 - present
140-141 First Stage Secondary Flash Mix Tanks (Photograph #6)	Above ground fiberglass tanks inside B450 which receives effluent from First Stage Primary Mix Tanks. Polymer is added and the pH is further adjusted.	≈ 2,500 gallons each	1989 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
142-143 Solids-Contact Clarifiers** (Photograph #7)	Above ground steel tanks located outside B450 which receive effluent from First Stage Secondary Mix Tanks. The tanks are located within concrete secondary containment. Mixing, flocculation, and solids contact occurs.	20,000 gallons each	1983 - present
144 Second Stage Splitter Box (Photographs #9 and #10)	Above ground fiberglass tank located inside B450 which receives wastewater from the solids-contact clarifiers. Splits the wastewater into two streams.	432 gallons	1989 - present
145-146 Second Stage Primary Flash Tanks (Photographs #9 and #10)	Above ground fiberglass tanks inside B450 which receive effluent Second Stage Splitter Box. Coagulant is added and the pH is adjusted.	≈ 2,500 gallons each	1989 - present
147-148 Second Stage Secondary Flash Mix Tanks (Photograph #10)	Above ground fiberglass tanks inside B450 which receive effluent from Second Stage Primary Flash Tanks. Polymer is added and the pH is further adjusted.	≈ 2,500 gallons each	1989 - present
149-150 Flocculation Tanks** (Photograph #11)	Above ground fiberglass tanks inside B450 which receive effluent from Second Stage Secondary Flash Tanks. The tanks are set in the floor with a six-inch concrete berm around them. Wastewater is agitated to allow formulation of floc.	≈ 5,000 gallons each	1983 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
151-152 Lamella Separators** (Photographs #12 and #13) (IBM #56)	Above ground steel tanks with Lamella plates inside B450 which receive effluent from the Flocculation Tanks. Solids settle out as water is forced upwards.	Not provided by IBM	1983 - present
153 Sand Filter Splitter Box** (Photographs #14 and #15)	Above ground fiberglass tank inside B450 which receives effluent from Lamella Separators. Splits flow equally among four trains.	≈ 200 gallons	1983 - present
154-157 Sand Filters** (Photographs #15 and #16) (IBM #57)	Above ground steel tanks inside B450 which receive effluent from Sand Filter Splitter Box. Sand recirculates inside the tanks and catches particulate matter. Backflushing to the Equalization Tanks continuously occurs.	4,000 gallons each	1983 - present
158 Air Stripper Splitter Box** (No photograph)	Above ground tank located inside B450 which receives effluent from the Sand Filters. Splits the wastewater into two trains.	Not provided by IBM	1983 - present
159-160 Air Stripper Towers** (Photographs #17 to #19)	Counter current media packed towers located inside B450 which receive wastewater from the Air Stripper Splitter Box. Air is forced up through the media while water trickles down. These discharge to the air under a state permit.	225 cubic feet and 5 feet in diameter each	1983 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
161 Stripping Tower Effluent Sump** (Photograph #20) (IBM #58)	Steel open top tank set in the concrete floor of B450 which receives wastewater from the Air Stripper Towers.	1,450 gallons	1983 - present
162 Carbon Prefilter Tank (Photograph #23) (IBM #31)	Above ground steel tank located inside B450 which receives wastewater from the Stripping Tower Effluent Sump. Contains a multi-media filter (gravel, pea gravel, etc.) which traps any remaining solids.	Not provided by IBM	1989 - present
163-165 Carbon Absorber Vessels (Photograph #24) (IBM #31)	Three cylindrical above ground steel tanks located in B450. They receive and carbon treat wastewater from the Carbon Prefilter Tank. Two tanks operate at any one time in series.	20,000 pounds of carbon each	1989 - present
166 Spent Carbon Holding Tank (Photograph #25) (IBM #32)	Above ground cylindrical steel tank with cone bottom located in B450. Receives spent carbon from the Carbon Absorber Vessels.	4,500 gallons	1989 - present
167 Carbon System Backwash Tank (Photograph #26) (IBM #31)	Above ground fiberglass tank located inside B450 which temporarily receives wastewater from the Carbon Absorber Vessels. No treatment occurs, just storage.	22,404 gallons	1989 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
168 Final pH Adjustment Tank (Photograph #27)	Above ground fiberglass open top tank located inside B450 which receives water from the Backwash Tank. Final necessary pH adjustments are made here.	Not provided by IBM	1989 - present
169 Ferric Sludge Thickener** (Photograph #8)	Open top steel above ground tank located within the same secondary containment as the Solids-Contact Clarifiers. Sludge is received from the Solids-Contact Clarifiers and polymer is added to thicken the sludge.	Not provided by IBM	1983 - present
170 Ferric Sludge Holding Tank** (Photographs #21, #22 and #28)	Above ground steel, cone bottom tank located inside B450. Sludge is received from the Ferric Sludge Thickener. The tank was formerly used for spent carbon storage from 1983 to 1989.	Not provided by IBM	1983 - present
171 Alum Sludge Thickener** (No Photograph)	Open top steel above ground tank located within the same secondary containment as the Solids-Contact Clarifiers. Sludge is received from the Lamella Separators and polymer is added to thicken the sludge.	Not provided by IBM	1983 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
172 Alum Sludge Holding Tank** (Photographs #21, #22, and #28))	Above ground steel, cone bottom tank located inside B450. Sludge is received from the Alum Sludge Thickener. The tank was formerly used for carbon storage from 1983 to 1989.	Not provided by IBM	1983 - present
173 Rotary Vacuum Filter** (Photograph #29)	The unit is a metal box with a roll of fiber filter paper located in B450. It receives sludges from the Ferric Sludge and Alum Sludge Holding Tanks. The sludge is dewatered at this unit.	N/A	1983 - present
174 B450 Sludge Storage Area** (Photographs #30 and #31)	The unit is a storage area inside B450 beside the Rotary Vacuum Filter. Sludges and filter paper are discharged from the Rotary Vacuum Filter into Ceco-Paks. Two Ceco-Paks were evident at the time of the VSI. Ceco-Paks are special cardboard boxes attached to wooden pallets. The boxes are transferred by truck to the General and Non-Regulated Waste Storage Room (SWMU 190).	Ceco Paks are ≈ 5 feet on a side	1983 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

TABLE IV-3
Industrial Waste Treatment Plant SWMUs

Unit	Description	Capacity	Dates of Operation
175 B450 Sump** (Photographs #4 and #32) (IBM #59)	Steel sump located in the B450 basement for collection of spillage and drainage of wastewater throughout the building. It has stainless steel secondary containment and is set in concrete. The contents are routed to the Equalization Tanks.	7,000 gallons	1987 - present
176 IWTP Piping** (Photograph #1) (IBM #94)	Double walled PVC piping used throughout the IWTP in and around B450. They consist of a 6-inch line within a 10-inch line.	N/A	1983 - present

* - Unit existed as part of first treatment plant (1940s - 1983) and second treatment plant (1983 - 1989)

** - Unit existed as part of second treatment plant

Unit Numbers: 177-184 (Photographs - see Table IV-4)

Unit Name: Former Industrial Waste Treatment Plant Units

Location: The units are located at Building 450, in the central area of the facility.

Description: These units were part of the Former Industrial Treatment Plant and are currently inactive. The IWTP treats industrial wastes generated throughout the facility. The wastes are transferred here via above ground and underground piping. The unit's functions were replaced by the Current Industrial Waste Treatment Plant (SWMU 135-176). A complete description of each unit is given in Table IV-4. Figure II-4 shows a schematic diagram of the units.

Date of Start-Up: The date of start-up for each unit is given in Table IV-4.

Date of Closure: All of the units are inactive. See Table IV-4 for closure dates.

Waste Managed: The units managed industrial wastes at various phases of treatment. Additional information is contained in Table IV-4.

Release Controls: The Clay Drying Beds (SWMUs 177-178) were clay-lined. The Concrete Drying Tanks (SWMUs 179-180) were concrete-lined. The remainder of the units were located indoors on concrete floors.

History of Releases: There are no documented releases associated with the units. There was no evidence of release observed during the VSI.

References: 22, 130, 158

TABLE IV-4
Former SWMUs Associated with the Industrial Waste Treatment Plant

Unit	Description	Capacity	Dates of Operation
177-178 Clay Drying Beds (Photograph #94) (IBM #49)	Two clay-lined drying beds which were used to contain sludges from original treatment tanks (SWMUs 135-136). Sludges were taken off-site for disposal after drying.	120 feet long by 15 feet wide by 2 feet deep	1964-1978
179-180 Concrete Drying Tanks (Photograph #94) (IBM #49)	Two concrete open top tanks which were used to contain sludges from original treatment tanks (SWMUs 135-136). Sludges were taken off-site for disposal after drying. The units were removed in 1987.	120 feet long by 15 feet wide by 2 feet deep	1978-1983
181-182 Sludge Tanks (No photograph) (IBM #33, #92)	Two temporary sludge holding tanks which were used at the Current IWTP for managing sludges generated at the Lamella Separators (SWMUs 151-152). IBM #92 was constructed of wood and IBM #33 was of unknown construction.	IBM #33 - 4,500 gallons; IBM #92 - 5,500 gallons	IBM #33 - 1984-1987; IBM #92 - 1987-1989
183 Spent Carbon Blowcase Tank (No photograph) (IBM #34)	Above ground vertical stainless steel tank which was used as part of carbon filtration system. Managed spent carbon in transition from Carbon Absorber Vessels (SWMUs 163-165) to the Spent Carbon Holding Tank (SWMU 166)	700 gallons	1984-1989
184 Old IWTP Sump Pit (No photograph) (IBM #59)	Concrete pit with plastic liner used as secondary containment for operations within the IWTP (B450).	5,000 gallons	1984-1986

Unit Number: 185 (IBM #52) (Photograph #120)

Unit Name: Building 450 Demolition Landfill

Location: The unit is located outdoors, near Building 450 in the central area of the facility.

Description: The unit was reportedly a disposal area for soil, trees, and construction debris. The area is now covered by a parking lot. Facility representatives did not know the size of the unit or how it was constructed.

Date of Start-Up: Information on the date of start-up could not be provided by IBM representatives.

Date of Closure: Information on the date of closure could not be provided by IBM representatives.

Waste Managed: The unit managed soil, trees, and construction debris. There is no documentation of hazardous wastes being disposed at the unit.

Release Controls: Information on release controls could not be provided by IBM representatives. Based on the type of unit it was, release controls were unlikely.

History of Releases: There are no documented releases associated with the unit.

References: 130, 158

N. UNITS ASSOCIATED WITH BUILDING 025

Building 025 was a storage facility located in the southwest area of the facility. There is one SWMU associated with the building.

SWMU No.	**Unit Name**
186	Building 025

Unit Number: 186 (IBM #78, #50) (Photograph #79)

Unit Name: Building 025

Location: The unit was located outdoors in the Former Building 025 area, north of Building 020 in the southwest area of the facility.

Description: The unit is an area of open ground where facility Building 025 was located. This building was used as a canning factory prior to the 1940s by its original owners. From the 1940s to the 1960s, IBM used the building as a manufacturing and laboratory building. From 1968 to 1978 it was used as a chemical storage and distribution building. Three 2,500-gallon pickle vats were used to store a mixture of methylene chloride, 1,1,1-trichloroethane and tetrahydrofuran. Shortly after the tanks were put into use, all three burst, releasing the chemicals. The tanks' failures were apparently due to a chemical incompatibility problem. No further information about the tanks is known. A 400-gallon solvent recycling system (IBM #50) was used in the building from 1968 until 1973. The building was unused from 1978 to 1979 at which time it was demolished. No other information about the building could be provided by IBM personnel.

Date of Start-Up: The building began operation prior to the 1940s.

Date of Closure: The building was demolished in 1979.

Waste Managed: The unit managed methylene chloride, freon, 1,1,1-trichloroethane, trichloroethylene, and methyl chloroform.

Release Controls: IBM personnel could not provide information about release controls for the building.

History of Releases: In 1968, chemical storage tanks containing Furfasol M-17 (a mixture of methylene chloride, 1,1,1-trichloroethane, and tetrahydrofuran) in Building 025 developed leaks. 7,500 gallons of solvent were released to the underlying soil. During groundwater studies of the area in 1978, the above solvents and carbon tetrachloride and chloroform were found in the groundwater. Concentrations of total priority organics in bedrock groundwater exceeded 1,000 ppm.

A slurry wall was constructed in 1981 to prevent movement of spilled chemicals into the river and prevent river infiltration into excavations. Then approximately 2,200 cubic yards of contaminated soil and 155,000 gallons of water were removed.

A monitoring well was drilled in 1982 (Ref. 136) to track groundwater chemistry in the area. The following historical maximum concentrations were detected in this well.

methylene chloride	260,000 ppb
1,1,1-trichloroethane	44,900 ppb
trichloroethylene	6,760 ppb
1,1-dichloroethane	2,080 ppb
dichloroethylene	1,000 ppb
trans-1,2-dichloroethylene	1,000 ppb
tetrachloroethylene	1,000 ppb
toluene	1,000 ppb
vinyl chloride	330 ppb
chlorobenzene	100 ppb
chloroform	47 ppb
1,2-dichloroethane	25 ppb
ethylbenzene	25 ppb
trichlorofluoromethane	25 ppb

As is indicated above, a significant amount of contamination remains in the Building 025 Area after remediation has occurred.

References: 1, 130, 136, 158

O. UNITS ASSOCIATED WITH BUILDING 052

Building 052 is an office facility located in the west-central area of the facility. There are three SWMUs in the vicinity of the building.

SWMU No.	Unit Name
187-189	Building 052 Septic Systems

Unit Numbers: 187-189 (No IBM number) (Photographs #115-116)

Unit Name: Building 052 Septic Systems

Location: Two of the units are located south of and one is located to the west of Building 052 in the west-central area of the facility.

Description: The units are three abandoned septic tanks and leach fields. Facility representatives believed that these units did not receive industrial waste. It is believed that the units have been removed. No evidence of the units was observed during the VSI.

Date of Start-Up: IBM representatives could not provide information on the date of start-up.

Date of Closure: IBM representatives could not provide information on the date of closure.

Waste Managed: The units managed sanitary sewage.

Release Controls: The units released, by design, to the environment over an unknown period of time.

History of Releases: The units routinely released to the environment during their periods of operation.

References: 28, 158

P. UNITS ASSOCIATED WITH BUILDING 708

Building 708 is an office facility located in the north-central area of the facility. There are two SWMUs in the vicinity of the building.

SWMU No.	**Unit Name**
190	Miscellaneous Waste Storage Area
191	Asbestos Storage Area

Unit Number: 190 (No IBM number) (Photographs #103-105)

Unit Name: Miscellaneous Waste Storage Area

Location: The unit is located outdoors, approximately 100 yards east of Building 708 in the north-central area of the facility.

Description: The unit is a less than one acre area of open ground used for miscellaneous waste storage since before 1979. The area is also currently used for storage of snow removal equipment. Some of the equipment has apparently leaked oil over the years, resulting in small oil stains in various places throughout the unit. Construction and demolition debris, and two empty and rusting fuel oil tanks were observed during the VSI. Facility representatives could not provide any further information on these tanks.

Date of Start-Up: The date of start-up could not be provided by facility representatives. They did indicate that operations were conducted here as early as 1979.

Date of Closure: The unit is currently in use.

Waste Managed: The unit manages construction and demolition debris. Wastes observed during the VSI included tires, fencing, two empty rusting fuel oil tanks, trash cans, pallets, pipes, brick, empty drums, and other miscellaneous debris.

Release Controls: The unit is an unlined area of open ground used for the storage of miscellaneous waste.

History of Releases: There are no documented releases associated with the unit. Some small oil stains were observed during the VSI.

References: 7, 158

Unit Number: 191 (No IBM number) (Photographs #106-107)

Unit Name: Asbestos Waste Storage Area

Location: The unit is located outdoors east of Building 708, in the north-central area of the facility

Description: The unit is a fenced and concrete-paved storage area for asbestos wastes. Waste asbestos from removal activities is temporarily stored in a roll-off box at the unit prior to off-site disposal. At the time of the VSI, a 20 cubic yard roll-off box full of asbestos waste was located at the unit. The roll-off box was covered with a tarp.

Date of Start-Up: The start-up date for the unit is 1990 or 1991.

Date of Closure: The unit is currently active.

Waste Managed: The unit manages asbestos wastes.

Release Controls: The roll-off box is covered with a tarp and sits on a concrete pad.

History of Releases: There are no documented releases associated with the unit. No evidence of release was observed during the VSI.

References: 158

Q. OTHER UNITS

The remaining six SWMUs are not directly associated with a specific building. The Construction Debris Landfill (SWMU 192) is located in the northern portion of the facility. The sewer systems (SWMUs 193-196) are generally facility-wide. The exact location of the South Site Demolition Landfill (SWMU 197) could not be determined.

SWMU No.	**Unit Name**
192	Construction Debris Landfill
193	Current Industrial Waste Drainage System and Pump Stations
194	Former Industrial Drainage System
195	Stormwater Sewer System
196	Sanitary Sewer System
197	South Site Demolition Landfill

Unit Number: 192 (IBM #83) (Photographs #96-102)

Unit Name: Construction Debris Landfill

Location: The unit is located outdoors, in the northwest portion of the facility property.

Description: The unit is a 2-acre landfill used for the disposal of construction debris. The unit has a clay liner with a permeability of 1 x 10^{-6} centimeters per second and is equipped with leachate collection basins. These basins are periodically pumped out using on-site wells. The leachate is pumped into a leachate pump truck and disposed at the IWTP. The unit is surrounded by a 6-foot high fence. The initial cell has been completed and has fill to a depth of 30 feet. It has an underdrain system over the clay liner. It has two feet of soil over the intermediate cover, which is at least one foot deep. A diversion ditch surrounds the completed cell for surface drainage. Currently, the second cell is being filled. The second cell has a PVC liner with a permeability of 1 x 10^{-12} centimeters per second in addition to a clay liner.

The unit is no longer active and is undergoing closure in accordance with the facility's NYSDEC Part 360 permit.

Date of Start-Up: The unit began operation in 1986.

Date of Closure: The unit is currently inactive.

Waste Managed: The unit manages construction debris, including sheetrock, metal piping/ductwork, wood debris, wiring, roofing materials, dirt, concrete, asphalt, and other paving materials, non-asbestos insulation, and other miscellaneous material from building renovation activities.

Release Controls: The unit has a clay liner and a leachate collection system. Cell 2 has a PVC liner as well. The landfill is surrounded by a diversion ditch.

History of Releases: There are no documented releases associated with the unit. One incident occurred in which some unused roofing adhesives were deposited in the landfill. The material and surrounding soil were removed and sent to our approved landfill. Sampling was performed with no contamination found. According to facility representatives, down gradient wells in the area are at the same contaminant levels as upgradient levels.

References: 130, 158

Unit Number: 193 (IBM #62) (Photographs #70-72, #88-91, #108-112, #119, and #151)

Unit Name: Current Industrial Wastewater Drainage System

Location: The unit is located throughout the plant site.

Description: The unit collects waste waters from various buildings throughout the facility and conveys it to the IWTP. Wastewater is collected at buildings or areas of buildings in industrial waste pump stations, which forward the wastewater to the sewer lines. Table IV-5 lists industrial waste pump stations throughout the facility at which specific information is known. The sewer lines are constructed of double-walled polyethylene pipe. The unit was constructed to replace the Former Industrial Waste Drainage System (SWMU 194).

The number of industrial waste pump stations at each building is as follows:

Building 001 - 1
Building 002 - 10
Building 003 - 31
Building 004 - 32
Building 006 - 1
Building 010 - 1
Building 012 - 2
Building 020 - 7
Building 026 - 1
Building 030 - 1
Building 052 - 1
Building 454 - 1
Building 705 - 1
Building 706 - 1
Building 707 - 1
Building 708 - 1
Building 710 - 2

Date of Start-Up: The unit has been in operation since 1982.

Date of Closure: The unit is active.

Waste Managed: This unit manages wastewater from processes including electroplating, photo etching, and research labs. The intent of the system is to carry non-hazardous waste with low levels of possible constituents listed for IWTP influent. Concentrated wastes are isolated and contained at the source.

Release Controls: All of the piping is double-walled polyethylene.

History of Releases: On October 20, 1983, 500 gallons of industrial waste was released to Manhole #20 and into the unit. Analysis of the waste revealed that groundwater standards for pH, iron, phenols, acetone, and tetrahydrofuran were exceeded. However, no sampling of the soil or ground water in the vicinity of the release was reportedly conducted.

References: 130, 158

TABLE IV-5
IBM Industrial Waste Pump Stations

Unit and Location Operation	Capacity	Period of
B705 Basement IWPS	500 gal	1981-present
B706 Basement IWPS	750 gal	1980-present
B707 IWPS	3,000 gal	1970-present
B708 IWPS	750 gal	1979-present
B710 IWPS	800 gal	1985-present
B003 1st Floor IWPS	560 gal	1978-present
B052 IWPS	10,000 gal	1984-present
B006 IWPS	300 gal	1984-present
B020 Exterior Sump IWPS	15,000 gal	Early 1970s-present
B004 1st Floor IWPS	500 gal	1969-present
B020 IWPS	100 gal	1973-present
B020 IWPS	100 gal	1973-present
B020 IWPS	100 gal	1973-present
B020 IWPS	150 gal	1973-present
B020 IWPS	1,300 gal	1967-present
B454 IWPS	350 gal	1984-present
B026 IWPS	150 gal	unknown-present
North End B020 IWPS	150 gal	unknown-present

IWPS - Industrial Waste Pump Station

Unit Number: 194 (IBM #54) (Photograph #113)

Unit Name: Former Industrial Waste Drainage System

Location: The unit was located throughout the plant site.

Description: The unit collected waste from various buildings and conveyed it to the Former Industrial Waste Treatment Plant (SWMUs 135-136). The system had been built in stages as IBM expanded its facilities on site. Throughout most of the manufacturing area it was a vitrified tile system with jute or cement joints and masonry manholes. Although IBM determined that the sewer was in relatively good condition outside the manufacturing area, in the manufacturing area itself acid wastes had caused serious deterioration of the joints and manholes, prompting investigations and remediation of the unit and ultimate replacement by the Current Industrial Waste Sewer System (SWMU 193). Most of the system still remains in place throughout the plant.

Date of Start-Up: The start-up of the former system took place in the early 1940's.

Date of Closure: The unit was abandoned in 1982.

Waste Managed: This unit managed wastewater from processes including electroplating, photo etching, and research labs.

Release Controls: The unit consisted of below ground piping with no secondary containment.

History of Releases: The unit routinely released to surface water under the facility's SPDES Permit at various discharge points throughout the site. There were several instances in the file material documenting discharges which violated SPDES limits, including limits for BOD and halogenated hydrocarbons.

During groundwater investigations conducted in 1979, an area near the northwest corner of Building 004 was excavated. It was found that the line exiting the building was broken. A ground shift sheared the clay tile pipe at the point it penetrated the building wall. It is believed that synthetic organics found in groundwater in the area and in Spring Brook may have resulted from this condition. It is unknown if any remediation of this release was conducted.

On January 4, 1980, a portion of the line just west of the northwest corner of Building 004 was broken during excavation activities. The line at this location contained cooling tower blowdown, rinses from a photo lab, rinses from a fork lift truck maintenance and cleaning area, and processed non-contact cooling water. Approximately 4,000 gallons (plus 10 gallons of waste oil) was released to Spring Brook during remedial activities. The line was repaired and contaminated soil was sampled. Facility representatives could not provide results from this sampling.

On October 11, 1980, while replacing a tile section of the piping near Building 004 with plastic pipe, it was noted that leaking was occurring at the cement seal around the new pipe. A pump was installed and discharged the waste water from a collection pit to downstream of the break. During repairs the pump was shut down. As a result the SPDES limits for copper and ammonia were exceeded from discharge point 013.

On October 14, 1980, a line servicing B708 was broken during excavation. Waste was immediately routed to drums and the line was repaired.

On March 6, 1981, a line servicing Building 006 was broken during excavation activities. The affected soil was removed and the line repaired.

The system was investigated in 1982 to determine if the system was leaking into groundwater or surface water. It was determined that releases may have been occurring west of Building 003 and south of the tank farm. There was minor surface inflow to the system at manhole MH-16. Elevated soil concentrations were found west of Building 003, west of Building 004, north of B415, north of Building 414, and south of Building 450. In 1983, sediment was flushed from the system to reduce leaching to soil and groundwater. In 1984, portions of the unit were removed, including piping and soil west of Building 003, south of the BAT tank farm, and at manhole MH-31. No confirmatory sample data was provided by the facility.

References: 5, 10, 14, 17, 18, 20, 130, 136, 158

Unit Number: 195 (No IBM number) (No photograph)

Unit Name: Stormwater Sewer System

Location: The unit is located throughout the facility.

Description: This unit which is principally constructed of concrete manages stormwater from throughout the facility. Some of the stormwater may contain run-off from contaminated areas. Contaminated groundwater from the main manufacturing area building underdrains (SWMUs 38 and 65) has entered and continues to enter the stormwater sewer system. The system discharges via discharges 009 and 013 to Spring Brook (H-107) and ultimately to the Hudson River under SPDES permit.

Date of Start-Up: IBM representatives could not provide information on the date of start-up for the unit.

Date of Closure: The unit is currently operating.

Waste Managed: The unit manages stormwater and groundwater potentially containing TCE and other contaminants

Release Controls: There are no documented release controls associated with the unit.

History of Releases: Elevated concentrations of VOCs, particularly trichloroethylene, methylene chloride, and trans-1,2-dichloroethylene were found to be entering the storm drain from under Building 003 in 1981. Subsequent sampling found a variety of organic constituents in accessible manholes.

Maximum contaminent levels detected near Building 003 in 1981 and 1982 are listed below:

Carbon tetrachloride	15 ug/l
Chlorodibromomethane	9 ug/l
Chloroform	43 ug/l
Dichlorobromomethane	22 ug/l
Dichlorodifluoromethane	110 ug/l
1,1-dichloroethane	2 ug/l
1,2-dichloroethane	3 ug/l
1,1-dichloroethylene	5 ug/l
Trans-1,2-dichloroethylene	750 ug/l
1,2-dichloropropane	13 ug/l
Methylene chloride	1430 ug/l
Tetrachloroethylene	1 ug/l
Toulene	1 ug/l

1,1,1-trichloroethane	39 ug/l
Trichloroethylene	9770 ug/l
Vinyl chloride	25 ug/l

References: 136, 158

Unit Number: 196 (No IBM number) (No photograph)

Unit Name: Sanitary Sewer System

Location: The unit is located throughout the facility.

Description: The sanitary sewer system receives a dilute waste isopropyl alcohol (IPA)/water mixture from the carbon abatement process. The Carbon Abatement System Surge Tank (SWMU 55) discharges this mixture to the sanitary sewer system at the permitted rate of 0.7 gallons per minute. The unit discharges to the Arlington Sewage Treatment Plant.

Date of Start-Up: The unit has been receiving this waste since 1987.

Date of Closure: The unit is active.

Waste Managed: The unit manages sanitary sewage and a dilute IPA/water mixture.

Release Controls: There are no documented release controls in place.

History of Releases: There are no documented releases associated with this unit.

References: 138, 158

Unit Number: 197 (IBM #53) (No photograph)

Unit Name: South Site Demolition Landfill

Location: Facility representatives could not definitely provide the location of this unit, although they suspect it is located northwest of Building 020 in the southwestern portion of the facility.

Description: The unit was reportedly a disposal area for soil, trees, and construction debris. The supposed location of the unit is now overgrown with no evidence of any wastes being managed here.

Date of Start-Up: IBM representatives could not provide information on the date of start-up for the unit.

Date of Closure: The unit reportedly ceased operation in 1978.

Waste Managed: The unit managed soil, trees, and construction debris. There is no documentation of hazardous wastes being disposed at the unit.

Release Controls: Based on the type of unit it was, it is unlikely that any release controls were used.

History of Releases: There are no documented releases associated with the unit.

References: 138, 136, 130

AOC A - Spring Brook Sediments

This area consists of the sediments within the onsite portions of Spring Brook. Spring Brook originates approximately one mile northeast of the IBM Main Plant. The stream is either artificially channelized or culverted its entire length east of Route 9. The stream enters the facility through a culvert just north of Spackenkill Road and flows westward at the surface to the paved parking area east of Building 004, where it is culverted to pass under manufacturing buildings and emerges just southwest of Building 006. Spring Brook is joined underground by a tributary flowing from the northern portions of the developed parts of the facility (Ref 136).

A majority of the surface drainage from the facility, including potentially contaminated runoff, drains to Spring Brook. In addition, it is likely that there is a hydraulic connection between Spring Brook and the underground site gravel which is known to have received releases from the Building 004 Still (SWMU 59) and is known to be contaminated.

AOC B - Adjacent Hudson River Sediments

This area consists of the sediments within the Hudson River immediately adjacent to the western edge of the facility. These sediments receive surface drainage from the facility, including potentially contaminated runoff, that does not enter Spring Brook. In addition, because Spring Brook discharges to the Hudson River, these sediments may also receive water borne contaminants that were not deposited in the Spring Brook sediments.

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VI. SUMMARY OF CONCLUSIONS AND SUGGESTED FURTHER ACTIONS

Data gathered during the preliminary review (PR) and visual site inspection (VSI) of the IBM Main Plant in Poughkeepsie, New York, have been presented in Sections I through IV of this report. A total of 197 solid waste management units (SWMUs) and one 2 area of concern (AOC) have been identified at the facility. These units have been evaluated to determine their past and current potential for releasing hazardous wastes or constituents to the environment. The section below summarizes the conclusions of these evaluations, followed by suggestions for further actions at the facility.

For the purpose of this report, a high potential for release was assigned in cases where it was documented that a release occurred, visual evidence of release, improper or inadequate secondary containment, or other indications that releases to soil, groundwater, surface water or air may have occurred. A moderate release potential was assigned in cases where there may be a release depending on the volume. A low potential for release was assigned in cases where units are located inside buildings, are in good condition, have appropriate release controls or do not manage hazardous constituents. In cases where release potential is dependent upon the integrity of the unit, and the integrity could not be assessed as part of this investigation, this assessment has been indicated in the conclusions for the unit, and integrity testing has been suggested as a further action.

In general, some groups of SWMUs and the AOC can generally be logically grouped according to their contiguous nature for the purpose of determining extent of contamination. The logical grouping of SWMUs is as follows:

- Building 003 Still (SWMU 32) and Building 003 Underdrain System (SWMU 38);
- Waste Ammonium Persulfate Tank (SWMU 58), Building 004 Still (SWMU 59), Building 004 Underdrain System (SWMU 65), and Site Gravel; and
- Former Waste Disposal Site (SWMU 115) and Former Burn Pit (SWMU 116).

Other units may be grouped as more information is known.

Although a significant amount of effort has gone into IBM's Groundwater Protection Program (GWPP), more data is necessary to determine if further remedial activities are warranted. A particular concern is the lack of soils data. RCRA Facility Investigations (RFIs) are necessary at 13 SWMUs or groups of SWMUs at the facility. Because of the broad areas of contamination present at the facility, many of these RFIs may be conducted as part of single, integrated investigations, as briefly discussed above.

In addition to RFIs, 8 units or groups of units require sampling to determine if releases have occurred. A Sampling Visit Work Plan has been prepared for these units and is included in Appendix E. One unit requires integrity testing. Described below are suggested further actions for each of the SWMUs having release potentials other than low.

1-3. Unit Name: **Metal Mask Cleaning Waste Accumulation Drums**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

4-6. Unit Name: Metal Mask Developer Waste Accumulation Drums

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

7-8. Unit Name: Molybdenum Line Tanks

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

9. **Unit Name:** **Molybdenum Line Etch Room Accumulation Drum**

<u>Conclusions:</u>

<u>Soil</u> - The potential for release to soil/groundwater is low due the indoor location of the unit.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit.

<u>Suggested Further Action:</u>

There are no suggested further actions for this unit at this time.

10. <u>Unit Name:</u> **Nickel Plating/Electroform Accumulation Drum**

<u>Conclusions:</u>

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is low due to the indoor location of the unit.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit.

<u>Suggested Further Action:</u>

There are no suggested further actions for this unit at this time.

11. Unit Name: **Electroform Cleaning Waste Accumulation Drum**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

12. Unit Name: Electroform Developer Waste Accumulation Drum

Conclusions:

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is low due to the indoor location of the unit.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

13. Unit Name: **Former B003 Ion Exchange System**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

14-24. Unit Name: Ion Exchange System

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

25. Unit Name: **Tin Immersion Area Spill Control Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

26. Unit Name: **Glycerin/EDTA/Wastewater Storage Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

27. Unit Name: **Glycerin/EDTA/Wastewater Transport Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Air - The potential for release to air is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

28. Unit Name: **Hexavalent Chromium Treatment Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

29. Unit Name: Hexavalent Chromium Treatment Room Waste Accumulation Area

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: There are no suggested further actions for this unit at this time.

30. Unit Name: Metal Mask 90-Day Waste Storage Area

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: There are no suggested further actions for this unit at this time.

31. Unit Name: **Clark Board 90-Day Waste Storage Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

32. Unit Name: Building 003 Still

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater high due to documented releases associated with the unit.

Surface Water - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

The Building 003 Still (SWMU 32) recycled waste trichloroethylene (TCE) in Building 003 for an unknown period of time until the 1970s. The specific location of the unit could not be provided by IBM representatives. The release potential to soil, groundwater, and generation of subsurface gas has been determined to be high due to elevated TCE levels in monitoring wells. Further, the still was moved to Building 004 in the 1970s and, in that location, has been implicated as being a potential source for widespread contamination in the site gravel. It is reasonable to assume that the unit operated in a similar capacity in Building 003, and therefore has a high potential for release.

Initially, it is suggested that IBM conduct further historical research on the history and location of the unit as it operated in Building 003 so that the suggested RFI can be specifically oriented toward evaluating the extent of releases from the unit. Information that IBM should attempt to determine includes specific location of the unit, dates of operation, and types and volumes of wastes managed. Alternatively, the RFI can be enlarged to cover the entire Building 003 area if more specific information can not be discovered.

An RFI is warranted to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD) criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for trichloroethylene (EPA Method Nos. 8010 and 601) unless historical research conducted by IBM reveals other potential analytes.

33. Unit Name: Plating Waste/Organic Rinse Water Tank

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low because no leaks or spills reportedly occurred and any potentially contaminated soil was removed when the unit was removed.

Surface Water - The potential for release to surface water is low because no leaks or spills reportedly occurred and any potentially contaminated soil was removed when the unit was removed.

Air - The potential for release to air is low due to the underground location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low because no leaks or spills reportedly occurred and any potentially contaminated soil was removed when the unit was removed.

Suggested Further Action: There are no suggested further actions for this unit at this time.

34-35. Unit Name: **Photographic Waste Tanks**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

36. Unit Name: **Air Stripper Waste Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

37. Unit Name: Evaporator

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

38. Unit Name: B003 Underdrain System

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high based on the results of past investigations.

Surface Water - The potential for release to surface water is high based on analytical data and the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low due to the underground location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

An RFI is warranted to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit is located and sampled to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601). Surface water releases should be addressed under the facility's SPDES permit.

39-45. Unit Name: Carbon Vessels

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is high, but releases are permitted.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

46. Unit Name: Condenser

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

47. Unit Name: Separator

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

48. Unit Name: Freon Waste Tank #23

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: There are no suggested further actions for this unit at this time.

49. Unit Name: Carbon Abatement Waste Storage Area

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

50-51. Unit Name: Waste Xylene Tanks #21 and #22

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

52. **Unit Name:** Drum Fill Station

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

53. Unit Name: **Waste Xylene Transport Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Air - The potential for release to air is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the short residence time of the waste in the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

54. Unit Name: **Pollution Abatement Transfer Tank #13A**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the concrete spill containment structure.

Surface Water - The potential for release to surface water is low due to the concrete spill containment structure.

Air - The potential for release to air is low due to the enclosed tank.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the concrete spill containment structure.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

55. Unit Name: Surge Tank

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Groundwater - The potential for release to groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

56. Unit Name: Water/IPA Tank #26

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

57. Unit Name: **Plating Waste/General Industrial Waste Tank**

<u>Conclusions:</u>

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is low due to the indoor location of the unit.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit.

<u>Suggested Further Action:</u>

There are no suggested further actions for this unit at this time.

58. Unit Name: **Waste Ammonium Persulfate Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high due to documented releases.

Surface Water - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low due to the nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the non-volatile nature of the wastes managed by the unit.

Suggested Further Action:

An RFI is suggested for this unit to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit is located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics, copper, and pH (EPA Method Nos. 8010/601, 7210, and 9040, respectively). Surface water releases should be addressed under the facility's SPDES permit.

59. Unit Name: Building 004 Still

<u>Conclusions:</u>

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is high due to the documented past releases.

<u>Surface Water</u> - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

<u>Suggested Further Action:</u>

An RFI is suggested for this unit to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for trichloroethylene (EPA Method Nos. 8010 and 601).

60. Unit Name: **Building 004 Ion Exchange Units**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

61. Unit Name: Core Area #1

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action: There are no suggested further actions for this unit at this time.

62. Unit Name: Core Area #2

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

63. Unit Name Core Area #2 Waste Storage Cabinet

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

64. Unit Name: Core Encapsulation Area

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

65. Unit Name: B004 Underdrain System

<u>Conclusions:</u>

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is high based on past sampling results.

<u>Surface Water</u> - The potential for release to surface water is high because it is designed to ultimately discharge to surface water.

<u>Air</u> - The potential for release to air is low due to the subsurface location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

<u>Suggested Further Action:</u>

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit is located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601). Surface water releases should be addressed under the facility's SPDES permit.

66. Unit Name: **Former Pollution Abatement Transfer Tank #13A**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the release controls associated with the unit.

Surface Water - The potential for release to surface water is low due to the release controls associated with the unit.

Air - The potential for release to air is low due to the enclosed tank.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the nature of the wastes.

Suggested **Further Action:**

There are no suggested further actions for this unit at this time.

67-75. Unit Name: **Tool Room Grinding Machine Tanks**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

76-77. Unit Name: **Steam Cleaning Area Waste Tanks**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is unknown due to the lack of information about the units or the constituents managed.

Surface Water - The potential for release to surface water is unknown due to the lack of information about the units or the constituents managed.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is unknown due to the lack of information about the units or the constituents managed.

Suggested Further Action:

Initially, it is suggested that IBM conduct further historical research on the history and location of the units as they operated near Building 001 so that the suggested sampling can be specifically oriented toward determining the existence of releases from the units. Information that IBM should attempt to determine includes specific location of the units, information on past releases, specific types and volumes of wastes managed, and documentation of any cleanup efforts or confirmatory sampling associated with the removal of the tanks.

Since the units were located underground, it is suggested that the units be sampled through soil borings. Soil borings to the water table (at a minimum) should be drilled and sampled according to EPA-approved protocol to determine if releases from the units have occurred. Analytical parameters should include total metals, volatile organics, and semivolatile organics (EPA Method Nos. 6010, 8240, and 8270, respectively).

78. Unit Name: Steam Clean Waste and Waste Oil Tank #3

Soil/Groundwater - The potential for release to soil/groundwater is unknown due to the limited information about the unit.

Surface Water - The potential for release to surface water is unknown due to the limited information about the unit.

Air - The potential for release to air is low because the unit was underground.

Generation of Subsurface Gas - The potential for generation of subsurface gas is unknown due to the limited information about the unit.

Suggested Further Action:

Initially, it is suggested that IBM conduct further historical research on the history and location of the unit as it operated near Building 001 so that the suggested sampling can be specifically oriented toward determining the existence of releases from the unit. Information that IBM should attempt to determine includes specific location of the unit, information on past releases, specific types and volumes of wastes managed, and documentation of any cleanup efforts or confirmatory sampling associated with the removal of the tanks.

Since the unit was located underground, it is suggested that the unit be sampled through a soil boring to the water table (at a minimum) to determine if releases from the unit has occurred. Analytical parameters should include total metals, volatile organics, and semivolatile organics (EPA Method Nos. 6010, 8240, and 8270, respectively).

79. Unit Name: Core Area A

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

80. Unit Name: **Core Area A Waste Storage Cabinet**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - **The** potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

81. Unit Name: Core Area B

Conclusions:

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action: There are no suggested further actions for this unit at this time.

82. Unit Name: Core Area C

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

83. Unit Name: Core Area D

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

84. Unit Name: Core Area D Waste Storage Cabinet

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

85. Unit Name: Core Area E

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the containment for the above ground piping.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the containment for the above ground piping.

Air - The potential for release to air is low due to the indoor location of the unit and the containment for the above ground piping.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the containment for the above ground piping.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

86. Unit Name: **B690 90-Day Waste Storage Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

87-88. **Unit Name:** B690 Stills

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the units.

Surface Water - The potential for release to surface water is low due to the indoor location of the units.

Air - The potential for release to air is low due to the indoor location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

89. Unit Name: Former Waste Xylene Tank #18

__Conclusions:__

__Soil/Groundwater__ - The potential for release to soil/groundwater is high based on past releases and analytical results.

__Surface Water__ - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

__Air__ - The potential for release to air is low due to the underground location of the unit.

__Generation of Subsurface Gas__ - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

__Suggested Further Action:__

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the units. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the units were located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601).

90. Unit Name: **Former Waste Xylene Tank #19**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high based on past releases and analytical results.

Surface Water - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low due to the underground location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the units. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the units were located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601).

91. Unit Name: **Waste Xylene/IPA/Water Tank #17**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high based on past releases and analytical results.

Surface Water - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low due to the underground location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the units. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the units were located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601).

92. Unit Name: **Carbon Abatement Waste Tank #13B**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high based on past releases and analytical results.

Surface Water - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low due to the underground location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the units. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the units were located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601).

93. **Unit Name:** **BCSF Truck Loading Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the unit's indoor location and the release controls in place.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the release controls in place.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the release controls in place.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

94. Unit Name: BCSF Waste IPA Tank

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the release controls associated with the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the release controls associated with the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the release controls associated with the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

95. Unit Name: **BCSF Waste Xylene Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the release controls associated with the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the release controls associated with the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the release controls associated with the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

96. Unit Name: **BCSF Waste Glycerin/EDTA/Water Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit and the release controls associated with the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit and the release controls associated with the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit and the release controls associated with the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

97. Unit Name: BCSF Carbon Canister System

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the small amounts of wastes managed and the location of the unit on a concrete pad.

Surface Water - The potential for release to surface water is low due to the small amounts of wastes managed and the location of the unit on a concrete pad.

Air - The potential for release to air is low due to the contained nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the small amounts of wastes managed.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

98. Unit Name: Truck Crib Sump

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: There are no suggested further actions for this unit at this time.

99. Unit Name: **Waste Oil Accumulation Drum**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

100. Unit Name: Safety Kleen Tank

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

101. Unit Name: Oily Debris Container

<u>**Conclusions:**</u>

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is low due to the indoor location of the unit.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit.

<u>**Suggested Further Action:**</u> There are no suggested further actions for this unit at this time.

102. Unit Name: General and Non-Regulated Waste Storage Room

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

103. Unit Name: Caustic Waste Storage Room

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

104. Unit Name: Acid Waste Storage Room

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

105. Unit Name: Oxidizer Waste Storage Room

<u>Conclusions:</u>

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is low due to the indoor location of the unit.

<u>Surface Water</u> - The potential for release to surface water is low due to the indoor location of the unit.

<u>Air</u> - The potential for release to air is low due to the indoor location of the unit.

<u>Generation of Subsurface Gas</u> - The potential for generation of subsurface gas is low due to the indoor location of the unit.

<u>Suggested Further Action:</u>

There are no suggested further actions for this unit at this time.

106. Unit Name: Flammable Waste Storage Room

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: Provide confirmation that the spill containment tank contains no wastes.

107. Unit Name: Solvent Dispense Room

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: Provide confirmation that the spill containment tank contains no wastes.

108-109. Unit Name: Flo-Back® Parts Washers

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action: There are no suggested further actions for these units at this time.

110. Unit Name: **Empty Drum and Miscellaneous Waste Storage Room**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

111. Unit Name: B028 Loading Dock

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the release controls in place and the concrete construction of the unit.

Surface Water - The potential for release to surface water is low due to the release controls in place and the concrete construction of the unit.

Air - The potential for release to air is low due to the release controls in place.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the release controls in place and the concrete construction of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

112. **Unit Name:** Former Steam Clean Room

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

Provide confirmation that the spill containment tank contains no wastes.

113. Unit Name: **Loading Dock Spill Containment Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the lack of hazardous waste management by the unit.

Surface Water - The potential for release to surface water is low due to the lack of hazardous waste management by the unit.

Air - The potential for release to air is low due to the lack of hazardous waste management by the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the lack of hazardous waste management by the unit.

Suggested Further Action:

Provide confirmation that the spill containment tank contains no wastes.

114. Unit Name: **Former Steam Clean Waste Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to no indication of release at closure.

Surface Water - The potential for release to surface water is low due to no indication of release at closure.

Air - The potential for release to air is low due to no indication of release at closure.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to no indication of release at closure.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

115. Unit Name: Former Waste Disposal Site

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high due to the practice of land disposal at the unit and confirmed groundwater contamination.

Surface Water - The potential for release to surface water is moderate based on the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low based on the nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes and the practice of land disposal at the unit.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics, metals, and cyanide (EPA Method Nos. 8010/601, 6010, and 9010/335.2, respectively). The hillside where the site overlooks the Hudson River should be inspected for seeps and any surface seeps should be sampled according to EPA-approved procedures and analyzed for the above parameters.

116. Unit Name: Former Burn Pit

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high due to the direct deposition of wastes containing hazardous constituents to the soil and the presence of documented groundwater contamination.

Surface Water - The potential for release to surface water is moderate due to the demonstrated connection between groundwater and surface water.

Air - The potential for air release is low since the unit is inactive.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes and the fact that wastes were disposed directly to the soil.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics (EPA Method Nos. 8010/601).

117. Unit Name: **Salvage Yard T-58 Drum Storage Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

118. Unit Name: Former Crusher

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

119. Unit Name: **T-58 Groundwater Recovery Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low based on the enclosed nature of the unit and the release controls that were present.

Surface Water - The potential for release to surface water is low because of the release controls that were present.

Air - The potential for release to air is low due to the low concentrations of volatile wastes managed and the enclosed nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low because of the release controls that were present.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

120. Unit Name: **Former Fire Training Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high due to the unit's management of liquids containing hazardous constituents on unlined soil.

Surface Water - The potential for release to surface water is moderate based on the demonstrated connection between groundwater and surface water.

Air - The potential for air release is low since the unit is inactive.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the likelihood that any volatile constituents which would potentially generate subsurface gas would have been emitted to the atomosphere before reaching the subsurface soil.

Suggested Further Action:

Initially, it is suggested that IBM conduct further historical research on the history and location of the unit as it operated so that the suggested sampling can be specifically oriented toward evaluating the presence of hazardous wastes at the unit. Information that IBM should attempt to determine includes specific location of the unit, more specific descriptions of the operation of the unit, information on past releases, and specific types and volumes of wastes managed.

Soil sampling is suggested for this unit. Ammonium of three soil samples should be collected from a shallow depth (0-2 feet) in the area of the unit. The location of the samples should be based on the historical research conducted by IBM. Alternatively, if no further information is available, it will be necessary to sample the entire area encompassing the unit. Analytical parameters should include volatile and semivolatile organics, total metals and PCBs (EPA Method Nos. 8240, 8270, 6010, and 8080 respectively).

121. Unit Name: **Former B075 Septic Tank Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low because the unit did not manage wastes containing hazardous constituents.

Surface Water - The potential for release to surface water is low because the unit did not manage wastes containing hazardous constituents.

Air - The potential for release to air is low due to the underground location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low because the unit did not manage wastes containing hazardous constituents.

Suggested Further Action:

A sample of the contents (sludge and/or water) of the unit should be collected and analyzed for volatile and semi volatile organics and total metals.

122-124. Unit Name: Fuel Blending Boilers

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The past potential for release to air was high. The current potential for release to air is low because wastes are no longer managed by these units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for these units at this time.

125. Unit Name: **B030 90-Day Waste Storage Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is moderate due to the evidence of waste spillage and questionable integrity of the walls and floor of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

It is recommended that the integrity of the unit be evaluated. If the integrity is determined to be suspect, confirmatory soil sampling is recommended. Shallow soil samples (0-2') may be necessary in the areas where releases may have occurred, based on the integrity evaluation.

126. Unit Name: **Boiler Feed Chemical Delivery Containment Pad**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the release controls in place.

Surface Water - The potential for release to surface water is low due to the release controls in place.

Air - The potential for release to air is low due to the lack of exposure of wastes to air.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the release controls in place.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

127. Unit Name: **Antenna Drum Storage Area**

Conclusions:

<u>Soil/Groundwater</u> - The potential for release to soil/groundwater is moderate based on the presence of documented contamination near the unit and the poor condition of the unit at the time of the VSI. However, the documented contamination can not necessarily be attributed to the unit.

<u>Surface Water</u> - The potential for release to surface water is moderate based on the demonstrated connection between groundwater and surface water and the presence of documented contamination near the unit and the poor condition of the unit at the time of the VSI. However, the documented contamination can not necessarily be attributed to the unit.

<u>Air</u> - The potential for release to air is low since the unit has been removed.

<u>Generation of Subsurface Gas</u> - The potential for subsurface gas generation is moderate due to the volatile nature of the wastes and the presence of documented contamination near the unit and the poor condition of the unit at the time of the VSI. However, the documented contamination can not necessarily be attributed to the unit.

Suggested Further Action:

Soil sampling is suggested for this unit. A minimum of three soil samples should be collected from a shallow depth (0-2 feet). The samples should be collected adjacent to the unit and in the cracked areas of the unit. Analytical parameters should include volatile and semivolatile organics (EPA Method Nos. 8240 and 8270).

128. Unit Name: B077 Container Storage Area

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location of the unit.

Surface Water - The potential for release to surface water is low due to the indoor location of the unit.

Air - The potential for release to air is low due to the indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

129. Unit Name: Former Waste Oil Leach Field

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high because wastes containing hazardous constituents were discharged directly to the subsurface soil.

Surface Water - The potential for release to surface water is moderate based on the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low based on the nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of wastes disposed to the subsurface soil.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics and metals (EPA Method Nos. 8010/601 and 6010, respectively).

130-132. Unit Name: **IWTP Effluent Holding Tanks**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the non-hazardous nature of the waste.

Surface Water - The potential for release to surface water is low due to the non-hazardous nature of the waste.

Air - The potential for release to air is low due to the non-hazardous nature of the waste.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the non-hazardous nature of the waste.

Suggested **Further Action:**

There are no suggested further actions for these units at this time.

133. Unit Name: **IWTP Effluent Spill Containment Tank**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the non-hazardous nature of the waste.

Surface Water - The potential for release to surface water is low due to the non-hazardous nature of the waste.

Air - The potential for release to air is low due to the non-hazardous nature of the waste.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the non-hazardous nature of the waste.

Suggested Further Action: There are no suggested further actions for this unit at this time.

134. Unit Name: **Former Effluent Stabilization Pond**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low based on the design of the unit and the unit's certified closure.

Surface Water - The potential for release to surface water is low due to the design of the unit and the unit's certified closure.

Air - The potential for release to air is low due to the nature of the wastes.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the nature of the wastes and the unit's certified closure.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

135-176. Unit Name: **Current Industrial Waste Treatment Plant**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high because of documented releases.

Surface Water - The potential for release to surface water is high because of documented releases.

Air - The potential for release to air is low due to the release controls in place.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the surficial nature of releases from the units.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the units. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the units are located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for purgeable organics and metals (EPA Method Nos. 8010/601 and 6010, respectively).

177-184. Unit Name: Former Industrial Waste Treatment Plant Units

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low due to the indoor location and release controls associated with the units.

Surface Water - The potential for release to surface water is low due to the indoor location and release controls associated with the units.

Air - The potential for release to air is low due to the indoor location and release controls associated with the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low due to the indoor location and release controls associated with the units.

Suggested Further Action:

There are no suggested further actions for these units at this time.

185. Unit Name: B450 Demolition Landfill

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is unknown based on the lack of information about the unit.

Surface Water - The potential for release to surface water is unknown based on the lack of information about the unit.

Air - The potential for release to air is low due to the nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is unknown based on the lack of information about the unit.

Suggested Further Action:

Initially, it is suggested that IBM conduct further historical research on the history and location of the unit as it operated. Information that IBM should attempt to determine includes specific location of the unit, size and method of construction of the unit, information on past releases, and specific types and volumes of wastes managed. If the facility cannot document that no hazardous wastes were disposed at this unit, it is suggested that soil samples be collected. A minimum of three soil borings to water table (at a minimum) should be drilled and sampled according to EPA-approved procedures. Analytical parameters should include volatile and semivolatile organics and metals (EPA Method Nos. 8240, 8270, and 6010, respectively).

Alternatively, the unit could be included with the suggested RFI for the Current Industrial Waste Treatment Plant (SWMUs 135-176). The scope of the suggested RFI could be expanded to include soil borings at this unit or soil borings can independently be drilled in the former location of the unit.

186. Unit Name: Building 025

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high based on documented past releases and the documented continued presence of groundwater contamination following remediation.

Surface Water - The potential for release to surface water is moderate based on the demonstrated connection between groundwater and surface water.

Air - The potential for release to air is low since the unit was indoors.

Generation of Subsurface Gas - The potential for the generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA TEGD criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for volatile organics (EPA Method Nos. 8240/624).

187-189. Unit Name: B052 Septic Systems

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low because these units did not manage wastes containing hazardous constituents.

Surface Water - The potential for release to surface water is low because these units did not manage wastes containing hazardous constituents.

Air - The potential for release to air is low due to the underground location of the units.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low because these units did not manage wastes containing hazardous constituents.

Suggested Further Action:

There are no suggested further actions for theses units this time.

190. Unit Name: **Miscellaneous Waste Storage Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is unknown based on limited information about past unit history. The presence of tanks and drums at the unit increase concern about potential releases.

Surface Water - The potential for release to surface water is low due to the flat topography of the unit.

Air - The potential for release to air is low based on the nature of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is unknown based on limited information about past unit history. The presence of tanks and drums at the unit increase concern about potential releases.

Suggested Further Action:

It is suggested that at a minimum, shallow soil samples (0-2 feet) be collected in the area of the unit, particularly in the areas of drum and tank storage. Analytical parameters should include volatile and semivolatile organics and metals (EPA Method Nos. 8240, 8270, and 6010, respectively).

191. Unit Name: **Asbestos Waste Storage Area**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low because no wastes containing hazardous constituents are managed at this unit.

Surface Water - The potential for release to surface water is low because no wastes containing hazardous constituents are managed at this unit.

Air - The potential for release to air is low because no wastes containing hazardous constituents are managed at this unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low because no wastes containing hazardous constituents are managed at this unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

192. Unit Name: Construction Debris Landfill

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low based on the release controls present at the unit.

Surface Water - The potential for release to surface water is low based on the release controls present at the unit.

Air - The potential for release to air is low based on the release controls and the nature of the wastes.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low based on the inert nature of the wastes.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

193. Unit Name: **Current Industrial Wastewater Drainage System and Pump Stations**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is unknown because of the underground location of this unit.

Surface Water - The potential for release to surface water is unknown because of the underground location of this unit.

Air - The potential for release to air is low based on the subsurface and indoor location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is unknown because of the underground location of this unit.

Suggested Further Action:

Because of the history of past releases, the integrity of the Current Industrial Wastewater Drainage System (SWMU 193) should be investigated. Integrity information should be provided for all remaining underground storage tanks and in-ground industrial waste pump stations associated with the unit.

194. Unit Name: Former Industrial Wastewater Drainage System

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is high due to the history of releases from the unit.

Surface Water - The potential for release to surface water is high due to the history of releases from the unit.

Air - The potential for release to air is low due to the subsurface location of the unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is high due to the volatile nature of the wastes.

Suggested Further Action:

An RFI is suggested to determine the extent of soil and groundwater contamination in the area of the unit. Soil borings should be drilled to appropriate depths (to water table depth, at a minimum) throughout the area where the unit was located (primarily in the main manufacturing area) to determine the analytical levels in soil. Existing wells in the downgradient area should be evaluated according to RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD) criteria to determine their suitability as monitoring wells to be included in the RFI. A minimum of three wells (one upgradient and two downgradient) should be used to determine the extent of groundwater contamination. If existing wells are determined to be inadequate, new wells should be drilled and sampled according to TEGD criteria. Soil and groundwater samples should be analyzed for volatile organics and metals (EPA Method Nos. 8240/624 and 6010, respectively).

Alternatively, investigation of this unit could be combined with

RFIs suggested for other units such as the Building 003 Underdrain System (SWMU 38) or the Building 004 Underdrain System (SWMU 65). This possibility should be investigated during the preparation of RFI work plans for the facility.

195. Unit Name: **Stormwater Sewer System**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low based on the construction of the unit.

Surface Water - The potential for release to surface water is high as the unit is designed to release under SPDES permit to surface water.

Air - The potential for release to air is low based on the dilute nature of wastes managed by the unit.

Subsurface Gas - The potential for generation of subsurface gas is low based on the nature of the wastes and the construction of the unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

196. Unit Name: Sanitary Sewer System

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low based on the nature of the wastes managed.

Surface Water - The potential for release to surface water is low based on the nature of the wastes.

Air - The potential for release to air is low based on the design of the unit.

Subsurface Gas - The potential for generation of subsurface gas is low based on the nature of wastes managed.

Suggested Further Action: There are no suggested further actions for this unit at this time.

197. Unit Name: **South Site Demolition Landfill**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is low based on the wastes managed by this unit.

Surface Water - The potential for release to surface water is low based on the limited wastes managed by this unit.

Air - The potential for release to air is low based on the subsurface location of this unit.

Generation of Subsurface Gas - The potential for generation of subsurface gas is low based on the wastes managed by this unit.

Suggested Further Action:

There are no suggested further actions for this unit at this time.

AOC A. Unit Name: Spring Brook Sediments

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is moderate because any hazardous constituents contained in the sediments could be transported to the underlying soil and groundwater during dry periods when surface water discharges to groundwater.

Surface Water - The potential for release to surface water is moderate because any hazardous constituents contained in the sediments could be flushed into the surface water during periods when surface water is recharged by underlying groundwater.

Air - The potential for release to air is low because the sediments are located underwater.

Generation of Subsurface Gas - The potential for generation of subsurface gas is moderate because volatile hazardous constituents contained in the sediments could be transported to the underlying soil during dry periods when surface water discharges to groundwater.

Suggested Further Action:

Confirmatory soil sampling is suggested to determine if the sediments contain RCRA hazardous constituents. Shallow sediments should be collected from locations where surface runoff enters the surface water. Samples should be analyzed for all Appendix IX constituents.

AOC B. Unit Name: **Adjacent Hudson River Sediments**

Conclusions:

Soil/Groundwater - The potential for release to soil/groundwater is moderate because any hazardous constituents contained in the sediments could be transported to the underlying soil and groundwater during dry periods when surface water discharges to groundwater.

Surface Water - The potential for release to surface water is moderate because any hazardous constituents contained in the sediments could be flushed into the surface water during periods when surface water is recharged by underlying groundwater.

Air - The potential for release to air is low because the sediments are located underwater.

Generation of Subsurface Gas - The potential for generation of subsurface gas is moderate because volatile hazardous constituents contained in the sediments could be transported to the underlying soil during dry periods when surface water discharges to groundwater.

Suggested Further Action:

Confirmatory soil sampling is suggested to determine if the sediments contain RCRA hazardous constituents. Shallow sediments should be collected from locations where surface runoff enters the surface water and where Spring Brook enters the Hudson River. Samples should be analyzed for all Appendix IX constituents.

APPENDIX E

SAMPLING VISIT WORK PLAN OUTLINE

SAMPLING VISIT WORK PLAN
IBM CORPORATION
Poughkeepsie, New York
EPA I.D. NYD080480734
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SAMPLING VISIT WORK PLAN

IBM CORPORATION
Poughkeepsie, New York
EPA I.D. NYD00224065

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1.0 INTRODUCTION

This Sampling Visit Work Plan (SVWP) details the procedures and rationale for soil sampling at the IBM Main Plant, Poughkeepsie, New York. A Visual Site Inspection (VSI) of this facility was conducted on May 14-17, 1991, 1990. As a result of the VSI and the Preliminary Review (PR), 197 Solid Waste Management Units (SWMUs) and 1 Area of Concern (AOC) were identified. The VSI Summary Report recommends sampling of soils at nine SWMUs. They include the following:

- SWMU 33 - Plating Waste/Organic Rinsewater Tank
- SWMUs 76-77 - Steam Cleaning Area Waste Tanks
- SWMU 78 - Steam Clean Waste and Waste Oil Tank #3
- SWMU 120 - Former Fire Training Area
- SWMU 121 - Former B075 Septic Tank Area
- SWMU 127 - Attenna Drum Storage Area
- SWMU 185 - B450 Demolition Landfill
- SWMU 190 - Miscellaneous Waste Storage Area

The purpose of this document is to identify sampling locations and present the requirements for sample collection. All aspects of sample collection and analysis must be conducted per EPA-approved methodologies. Sampling locations and sampling methodologies are identified in this report.

The purpose of the visit is to gather preliminary analytical data to fill data gaps that remain after completion of the VSI. The analytical results from the sampling visit will be used by EPA to determine:

a) whether a release has occurred and/or

b) whether any further action should be suggested.

IBM will be responsible for collecting all samples in accordance with this Sampling Visit Work Plan. Any deviations from this plan must be approved by EPA Region II or by the New York State Department of Environmental Conservation (NYSDEC) personnel present during sampling and must be documented in a field log.

IBM will retain an approved laboratory to perform analyses. Laboratory analysis will be completed by a laboratory certified by the NYSDEC. The analytical data from the samples shall be validated by EPA Region II or NYSDEC personnel.

IBM will also be responsible for preparing a site safety plan to be written specifically for the sampling to be conducted as prescribed in this SVWP.

This SVWP includes the following major sections:

- Project Management

- Sampling Parameters and Rationale
- Field and Lab QA/QC
- Sampling Procedures

2.0 PROJECT MANAGEMENT

This section describes the requirements for site personnel and organization, personnel duties, and the site investigation.

2.1 Site Personnel and Duties

The IBM team responsible for the implementation of the sampling plan shall be made up of personnel who are adequately trained and who have been fully briefed on the anticipated or potential hazards that might be encountered.

The team shall consist of a team leader/coordinator and sufficient personnel to carry out the following functions and tasks:

- A sampler who will take the actual samples under the direction of the team leader.
- A sample coordinator who will package and prepare for shipment all samples, making sure that all chain-of-custody requirements are met.
- A recorder who shall be responsible for maintaining a field log from which a detailed narrative of the site visit can be developed.
- A photographer responsible for producing a photographic record of the site visit and for the development of a photographic log.
- A safety officer responsible for developing a site safety plan to be implemented during field sampling operations. The safety officer will also oversee implementation of the safety plan in the field.

2.2 Site Investigation Requirements

The facility must provide a narrative document for the sampling activities. The narrative and the map should provide an accurate description of the sites. It should contain sufficient detail so that it will not be necessary to depend on the personal recollections of those involved in the sampling to reconstruct a clear picture of the sites or of the activities that were carried out. The site visit narrative must contain at least the following information:

- The purpose of sampling;
- The names, titles, and functions of all members of the team conducting the sampling;
- The location and general description of the sites including their placement relative to other structures, operations, highways, railroads, etc. This will include the environmental placement of the sites;
- The type and condition of all structures and waste storage, transfer, and treatment facilities; and
- The types of wastes handled at the sites and the operations carried out on these wastes.

IBM must submit a site map with the narrative illustrating the locations of all samples collected. This map must show the location, size, and general contents of any and all waste storage/management structures or areas on the sites. The site map must also locate and identify any and all waste transfer points, staging areas, and unloading areas as well as all potential contaminant transmission routes. These latter routes would include all surface waters, drainage ditches, leachate seeps, storm sewers, sanitary sewers, all ground-water monitoring wells, or wells that might be used to access and evaluate possible contamination of the underlying aquifer(s).

As an ancillary to the site map and the supporting narrative, a photographic record of the sites shall be maintained by IBM. An initial set of photographs, produced and submitted as part of the documentation of completion of the sampling plan, shall also be included. In those cases where the object being photographed is not easily differentiated from its surroundings (e.g., a sampling point location), a flag or stake showing its exact location shall be included in the photograph. An object of known size shall be included in each photograph as a dimensional standard. A photographic log shall be maintained. This log shall contain the following information: a description of the object being photographed, the film type and speed, the film roll number, the frame number, the time and date the photograph was taken, and the identification and size of the dimensional standard being used.

3.0 SAMPLING PARAMETERS AND RATIONALE

This section specifies the criteria to be used for the sampling. These criteria include: (1) sampling points and (2) analytical requirements. The sampling points are defined by the SWMU name and number and the sequence in which the SWMUs are to be sampled. The analytical requirements are described by the order of sample collection, the analytical parameters, the container type and size for each parameter, and the preservation method.

3.1 Identification of Sampling Points

Background soil samples will be collected by IBM, as well as soil samples at the SWMUs. Background soil samples are collected to provide a baseline of soil data at the units.

- Two background soil samples will be collected. The tentative locations of the background samples are north of the Construction Debris Landfill (SWMU 192) in an undisturbed area of the property. The suitability of the background soil locations will be verified by EPA Region II or NYSDEC personnel during the sampling visit, and new locations will be chosen at that time if necessary.

In addition, the following quality control samples must be collected to verify analytical results:

- A minimum of two duplicate soil samples are to be collected at the discretion of the field team leader;

- One set of equipment blanks (rinsate from equipment decontamination). Note that additional equipment blanks may be necessary and collection of equipment blanks is dependent upon the frequency of equipment decontamination;

- A trip blank must be provided by the laboratory prior to the initiation of sampling activities. This blank must remain with the sample containers, unopened, in the field for the duration of sampling activities.

Sampling locations for each of the units are shown in Figures 1 through 5. These locations are subject to change based on further historical research to be conducted by IBM. Sampling locations for several units cannot be determined until IBM provides more information.

To reduce the potential for cross-contamination during sampling, sampling will proceed from points of expected least contamination to points of expected highest contamination. The sampling order will be determined in the field. Table E-1 identifies the sampling medium, depth, method/type, and the analysis parameters for each sample location.

Sampling points for each individual SWMU are discussed in the following sections.

Table E-1

SWMU SAMPLING VISIT ACTIVITIES

SWMU	NO. AND TYPE OF SAMPLES	DEPTH	METHOD	ANALYTICAL PARAMETERS
33. Plating Waste/ Organic Rinsewater Tank	3 soil borings	5 foot intervals	Split spoon	volatile organics, semivolatile organics, total metals, pH
76-77. Former Steam Cleaning Area Waste Tanks	3 soil borings	5 foot intervals	Split spoon/Hand auger	volatile organics, semivolatile organics, total metals
78. Former Steam Clean Waste and Waste Oil Tank #3	1 soil boring	5 foot intervals	Split spoon	volatile organics, semivolatile organics, total metals
120. Former Fire Training Area	3 shallow soil borings	0-2 feet	Split spoon/Hand auger	volatile organics, semivolatile organics, total metals
121. Former B075 Septic Tank Area	1 sludge sample	contents of tank	TBD	volatile organics, semivolatile organics, total metals, pH
127. Antenna Drum	3 shallow soil borings	0-2 feet	Split spoon/Hand auger	volatile organics, semivolatile organics
185. B450 Demolition Landfill	3 soil borings	5 foot intervals	Split spoon	volatile organics, semivolatile organics, total metals
190. Miscellaneous Waste Storage Area	3 shallow soil borings	0-2 feet	Split spoon/Hand auger	volatile organics, semivolatile organics, total metals

Table E-1

SWMU SAMPLING VISIT ACTIVITIES

SWMU	NO. AND TYPE OF SAMPLES	DEPTH	METHOD	ANALYTICAL PARAMETERS
Background Soil Samples	2 surface soil samples	0-6 inches	Trowel	volatile organics, semivolatile organics, total metals, pH
Duplicate Soil Samples	At least 2	varies	Trowel/split spoon	volatile organics, semivolatile organics, total metals, pH
Equipment Rinsate Blanks	1 or more water blanks	NA	Final equipment rinse	volatile organics, semivolatile organics, total metals, pH
Trip Blanks	1 water blank	NA	Lab prepared blank	volatile organics

3.1.1 Plating Waste/Organic Rinsewater Tank (SWMU 33)

The specific location of the unit could not be provided by IBM during the VSI. It is known to have been located outside Building 003-S. If the specific location of the unit cannot be pinpointed by IBM, a minimum of three soil borings are recommended in the area of B003-S. The recommended locations are indicated on Figure E-1.

3.1.2 Former Steam Cleaning Area Waste Tanks (SWMUs 76-77)

No information on the former locations of the units could be provided by IBM. Until more information can be provided, sampling locations for the three recommended soil borings cannot be indicated.

3.1.3 Former Steam Clean Waste and Waste Oil Tank #3 (SWMU 78)

The unit was located in the Building 001 alcove. A soil boring is recommended in the location indicated in Figure E-2, which is the former location of the tank.

3.1.4 Former Fire Training Area (SWMU 120)

The unit was located in the area west of Building 075. Three shallow soil samples are recommended for the area as indicated in Figure E-3.

3.1.5 Former B075 Septic Tank Area (SWMU 121)

This unit is located west of Building 075. Figure E-3 indicates the location of the unit, believed to be accessible by a manhole. One sample of the unit's contents will be collected.

3.1.6 Antenna Drum Storage Area (SWMU 127)

This unit is located northeast of Building 030 on the western edge of the facility. Three shallow soil samples are recommended for the unit. Although the approximate locations are shown in Figure E-4, theses samples should be taken adjacent to the concrete pad and in cracks in the pad.

3.1.7 B450 Demolition Landfill (SWMU 185)

Three soil borings are recommended for this former unit, located in the area currently used as the Industrial Waste Treatment Plant (Building 450) parking lot. Figure E-5 indicates the proposed soil boring locations.

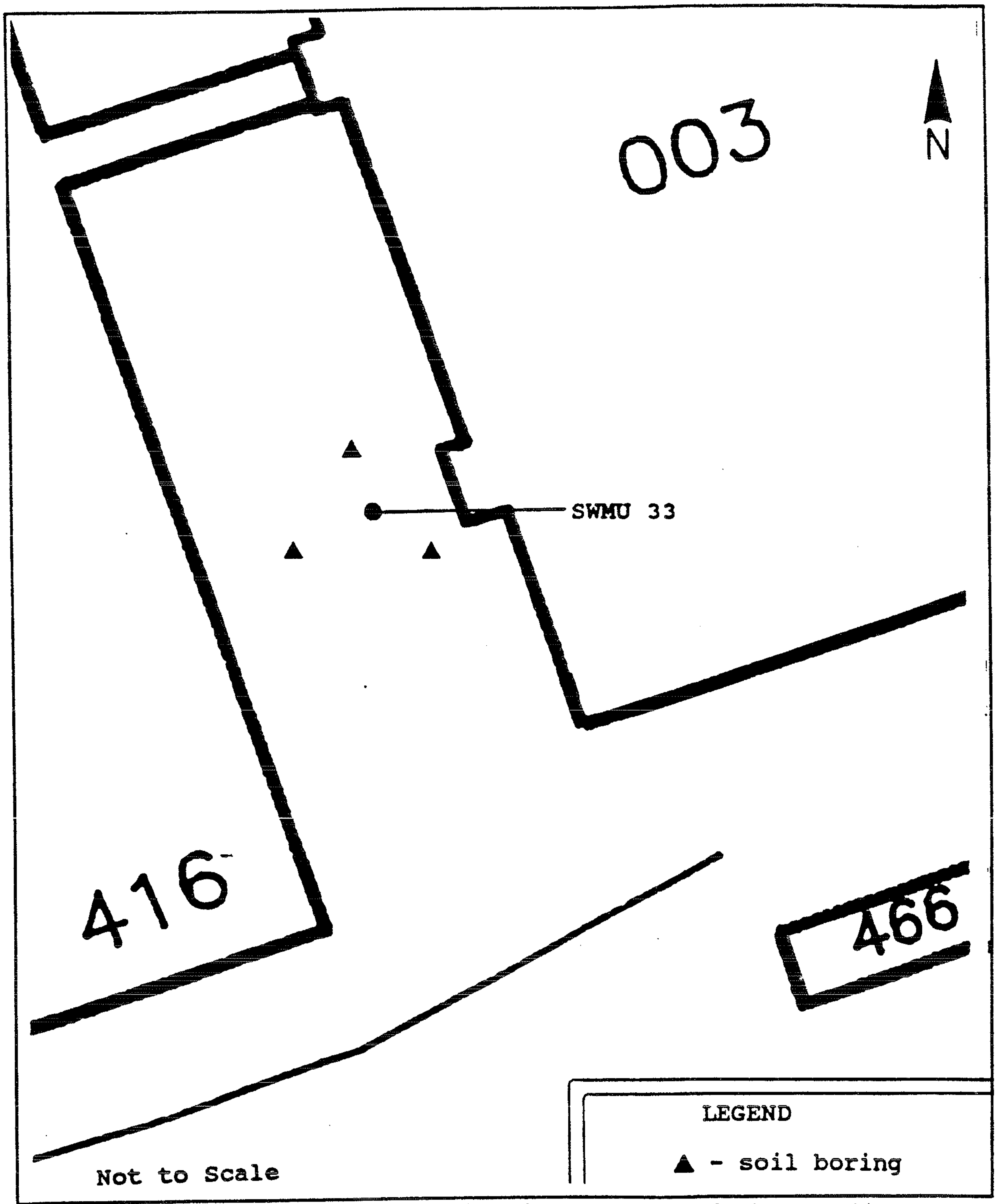


Figure E-1 Plating Waste/Organic Rinsewater Tank (SWMU 33) Suggested Sampling Locations

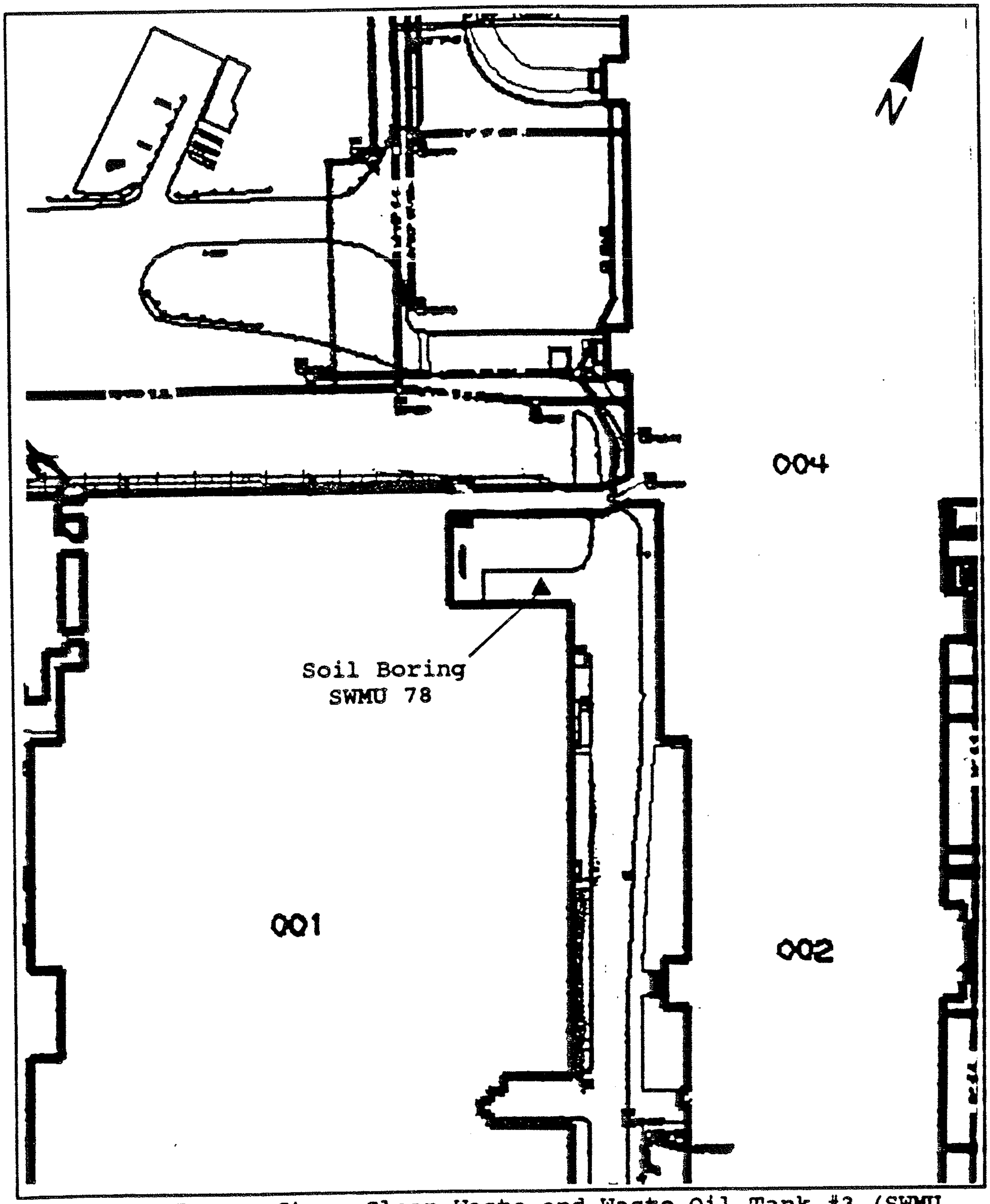


Figure E-2 Former Steam Clean Waste and Waste Oil Tank #3 (SWMU 78) Suggested Sampling Locations

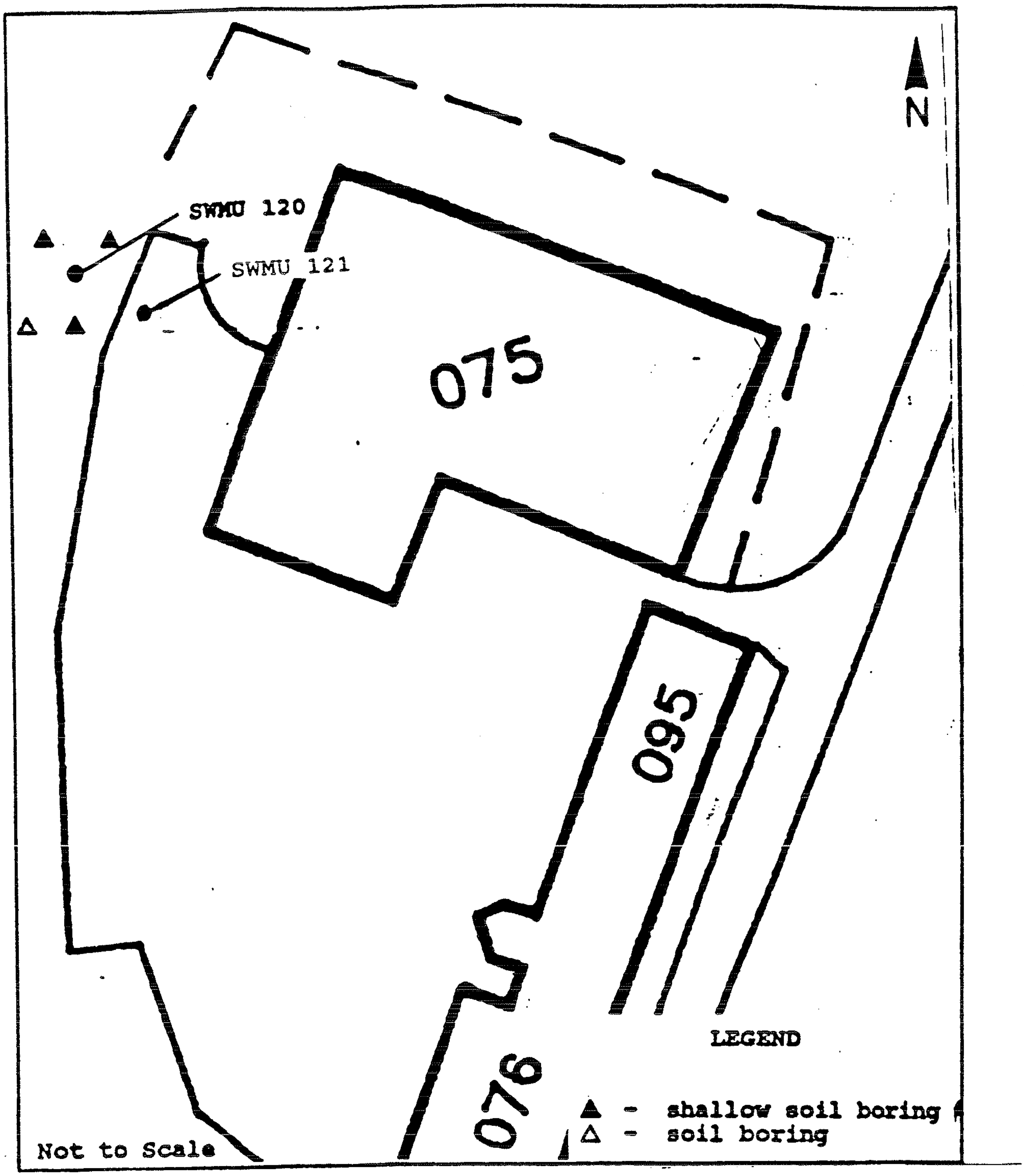
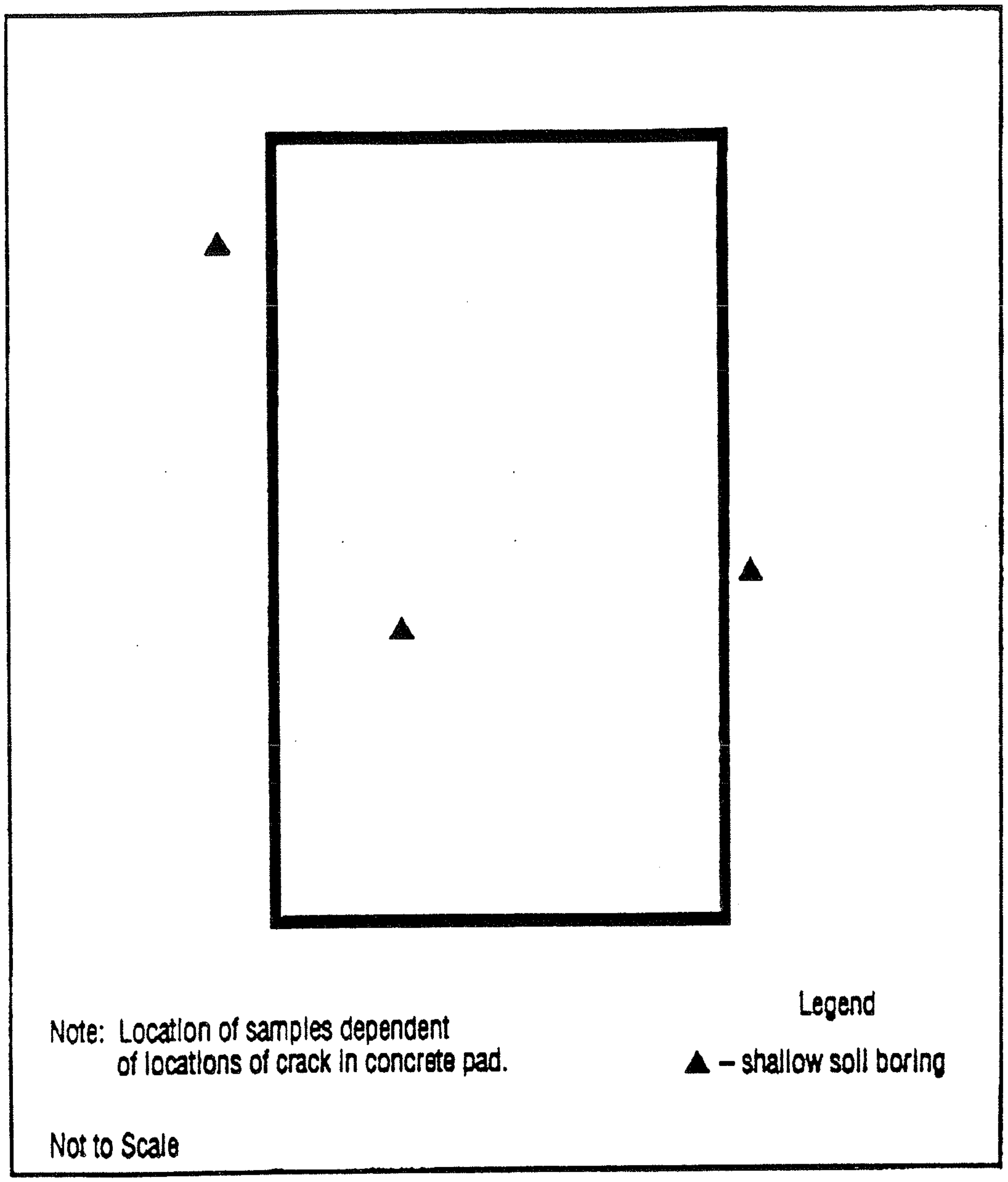


Figure E-3 Former Fire Training Area (SWMU 120) and Former B075 Septic Tank Area (SWMU 121) Suggested Sampling Locations



Note: Location of samples dependent
of locations of crack in concrete pad.

Not to Scale

Figure E-4 Antenna Drum Storage Area (SWMU 127)
Suggested Sampling Locations

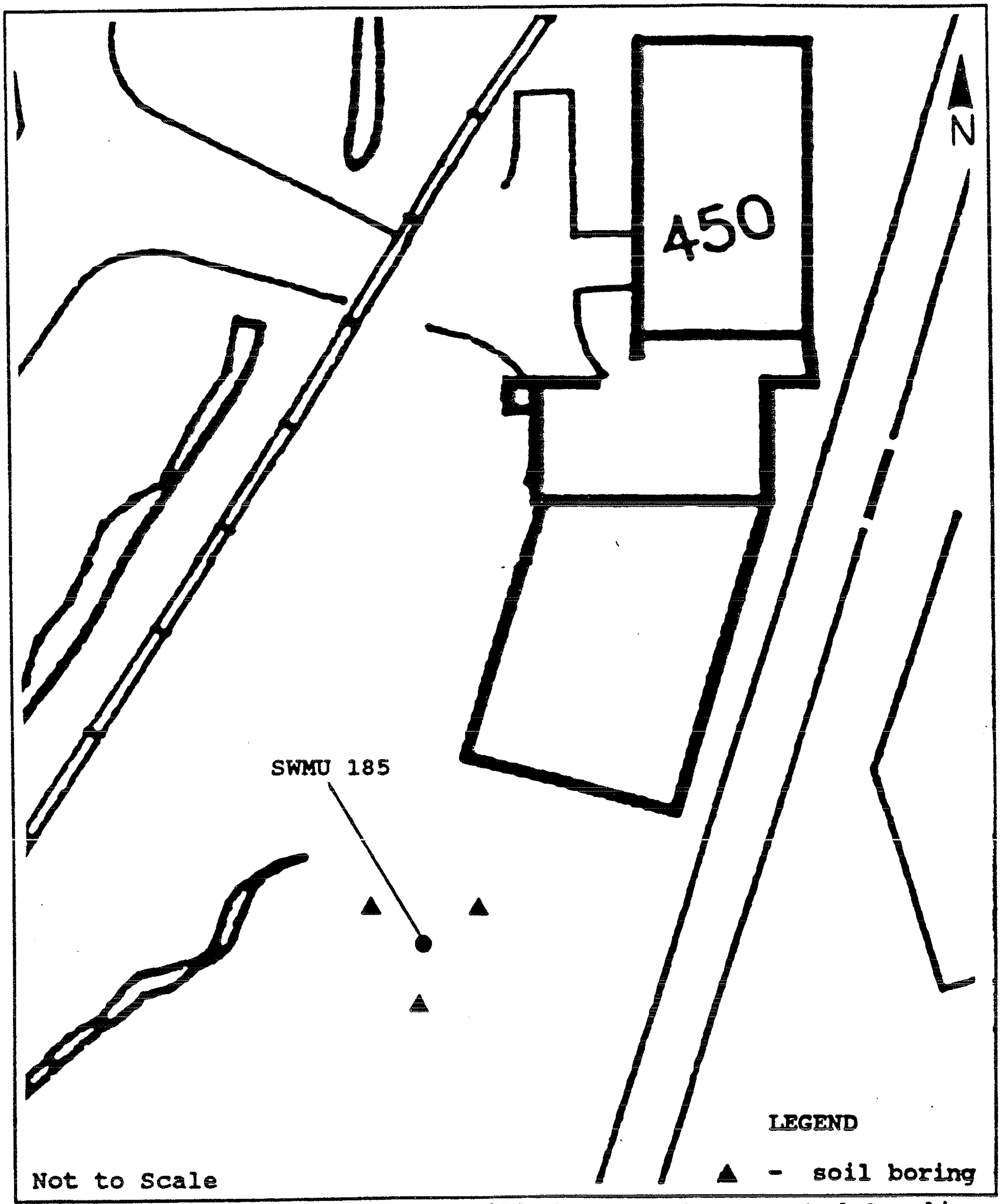


Figure E-5 B450 Demolition Landfill (SWMU 185) Suggested Sampling Locations

3.1.8 Miscellaneous Waste Storage Area (SWMU 190)

The unit is located east of Building 708. Figure E-6 indicates the suggested sample locations, which consist of three shallow borings (0-2 feet) in the area of drum and tank storage.

3.2 Analytical Requirements

Analytical requirements for each unit are determined based on the constituents managed. For those units for which the wastes managed are unknown, sampling is specified for any constituents which may have been managed there. Specific sampling parameters for each unit are presented below. Table E-2 presents the sample preparation and analysis procedures required in this SVWP.

3.2.1 Plating Waste/Organic Rinsewater Tank (SWMU 33)

This unit was an underground tank which managed plating wastes, waste acid, and rinse water containing organics. Therefore, samples collected at this unit should be analyzed for metals, volatiles, and semi-volatiles.

3.2.2 Former Steam Cleaning Area Waste Tanks (SWMUs 76-77)

These units were underground tanks that managed steam clean wastes. In addition, the units could have potentially managed other unspecified wastes. Therefore metals, volatiles, and semi-volatiles are the analytes of concern.

3.2.3 Former Steam Clean Waste and Waste Oil Tank #3 (SWMU 78)

This unit was an underground tank that managed steam cleaning wastes and waste oil, as well as potentially managing other unspecified wastes. Therefore, samples for this unit should be analyzed for metals, volatiles, and semivolatiles.

3.2.4 Former Fire Training Area (SWMU 120)

This unit was an area of soil upon which waste oils and possibly waste solvents were burned for fire training purposes.
Because the waste oils and solvents could have been contaminated with a variety of materials, metals, volatiles, and semi-volatiles are the analytes of concern.

3.2.5 Former B075 Septic Tank Area (SWMU 121)

It is unknown if the unit managed hazardous constituents, but the potential exists due to its nature. The contents sample should be analyzed for volatile and semi-volatile organics, total metals, and pH.

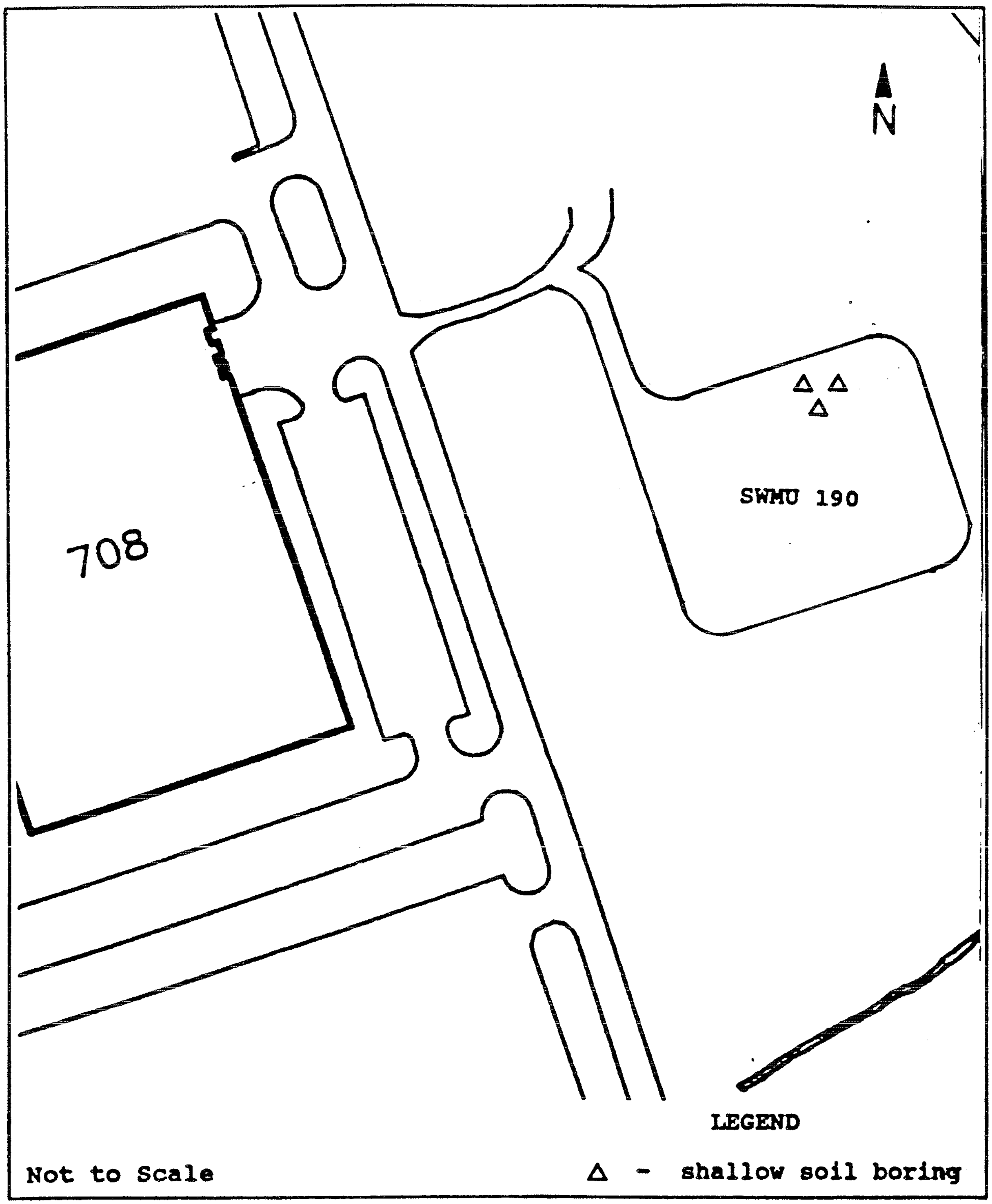


Figure E-6 Miscellaneous Waste Storage Area (SWMU 190) Suggested Sampling Locations

IBM

Table E-2

SAMPLE PREPARATION AND ANALYSIS PROCEDURES

PARAMETER	MATRIX	PREPARATION	ANALYSIS
Volatile organics	soil	SW-846 - 5030	SW-846 - 8240 or 8260
	water		CFR 136 - 624 8240 or 8260
Semivolatile organics	soil	SW-846 - 3540/ or 3550	SW-846 - 8270
	water		CFR 136 - 625 8270
Trace metals, except Hg	soil/ water	SW-846 - 3050 or - 3010	SW-846 - 6010
Hg by 7471 pH	soil/ water		SW-846 - 9045/ 9040

Note: Alternative analytical methods may be proposed by IBM, pending approval by EPA.is duplicating. The duplicate soil samples will be managed as all other samples, and the laboratory will not be informed that they are duplicate samples. It is expected that at least two duplicate samples will be collected.

1. VOLATILE ORGANICS

2. SEMIVOLATILE ORGANICS

3. TOTAL METALS

3.2.6 Antenna Drum Storage Area (SWMU 127)

~~waste~~ This unit was an outdoor drum storage area at which solvents were stored. Therefore, samples t this unit should be analyed for volatiles and semi-volatiles.

3.2.7 Demolition Landfill (SWMU 185)

This unit was a land disposal unit at which a variety of unsepcified wastes were disposed. Therefore, the analytes of concern are metals, volatiles, and semi-volatiles.

3.2.8 Miscellaneous Waste Storage Area (SWMU 190)

The SWMU is a storage yard for vehicles and scrap equipment and supplies, including old fuel-oil tanks, 55-gallon drums and other miscellaneous debris. Oil staining was observed in the vehicle storage area. Therefore, metals and volatile and semivolatile organics are the analytes of interest.

4.0 FIELD AND LAB QA/QC

The reliability of the data generated from the sampling depends on the quality of the sample collected, the accuracy and completeness of the documentation and record keeping, and the validity and reproducability of the analytical methods. In order to ensure reliable results, the following standard procedures will be used.

4.1 Containers and Preservatives

The types and sizes of containers and preservatives to be used to hold samples are described in Table E-3. The containers will be obtained by IBM prior to sampling.

4.2 Sample Identification

To ensure proper identification and tracking of samples, each sample collected will be clearly and precisely marked with a sample tag, and the tag will be securely attached to the sample. The sampling location will be documented, and the sample description and identification will be cross-referenced in the field logbook. Photographs and written descriptions of each sampling point will be recorded for verification.

4.3 Chain-of-Custody Documentation

A chain-of-custody record will be completed and will accompany each shipping container of samples transported for laboratory analysis. A copy of this document will be retained by the field sampling team. The chain-of-custody record will be placed in a waterproof bag and taped to the underside of the lid of the

Table E-3

SAMPLE COLLECTION CHECKLIST

PARAMETER	CONTAINER[1]	PRESERVATIVE	HOLDING TIME
Volatiles - soil	2 40-ml glass vials	4° C	10 days
Volatiles - water	2 40-ml glass vials	HCl to pH $\leq$ 2; 4° C	10 days
Semivolatiles and pH - soil	1 8-oz wide mouth glass jar	4° C	10 days until extraction and 40 days until analysis
Semivolatiles and pH - water	4 1-liter amber glass bottles	4° C	5 days until extraction and 40 days until analysis
Total metals - soil	1 8-oz wide mouth glass jar	4° C	6 months
Total metals - water	1 1-liter polyethylene bottle	HNO_3 to pH $\leq$ 2; 4° C	6 months

shipping container being used for transport. The field sampling team will request an updated, signed copy of the chain-of-custody document upon delivery of samples to the receiving lab.

4.4 Blanks and Duplicates

In order to verify that sampling techniques and procedures result in quality samples, equipment blanks, trip blanks, and duplicate samples will be collected and analyzed.

Equipment blanks will be collected to determine whether decontamination procedures have been effective in removing all contaminant residues from the sampling devices. The initial equipment blank will be prepared by the sampling team with deionized analyte-free water run over each piece of sampling equipment (e.g. trowels, split spoon samplers, augers, etc.) prior to sampling. The deionized analyte-free water must be transferred directly into sample containers. If sampling equipment is reused, successive equipment blanks will be necessary.

A trip blank will be prepared by the analytical laboratory prior to the initiation of field sampling activities. It will consist of deionized analyte-free water contained in 40-ml VOA vial(s). The trip blanks will be taken to the field by the team leader for the duration of the sampling event and will accompany the samples to the laboratory for analysis.

Duplicate soil samples are necessary in a minimum of 5 percent of the samples to evaluate the precision of the analytical methods. Each will be collected and prepared identically to the sample it The laboratory will provide spike recovery data on all samples to measure the accuracy of the analytical instruments.

5.0 SAMPLING PROCEDURES

Sampling activities will be conducted according to procedures outlined in the following sections.

5.1 Site Safety Parameters and Boundaries

IBM is responsible for the preparation and implementation of a site health and safety plan in accordance with current NIOSH and OSHA standards.

The area surrounding each sampling point must be inspected and all pertinent observations must be recorded, including any environmental factors which may affect the sampling process. Prior to and during sampling, all measurements must be recorded in a field logbook.

In order to confine any possible release of hazardous agents to the smallest area, the area immediately surrounding the sampling point (within approximately a 10-foot radius) will be the designated "exclusion zone" (EZ). All sampling activities must be confined to the EZ. Immediately outside the EZ must be a designated "contamination reduction zone" (CRZ) that will contain equipment for decontamination of personnel, sampling equipment, and safety equipment.

5.2 Sampling Equipment and Supplies

The following lists itemize the minimum anticipated required field equipment and supplies.

Field Equipment

Air monitoring equipment (e.g., OVA, photoionization detector)
Steel split spoons
Steel hand augers
Stainless steel trowels
Stainless steel pans
Stainless steel ice picks (if ground is frozen)
Ponar Grab Sampler

Field Supplies

Sample containers and preservatives as required by Table 3
Sample tags
Chain-of-Custody documents
Lab forms
Clear plastic sheeting (4 mil)
Disposable elastic gloves
Decontamination solvent as described in Section 3.1
Reagent-grade deionized water
Non-phosphate detergent
5-gallon plastic buckets
Polyethylene wash bottles (500 ml)
Bottle brushes, long handled
Paper towels
Trash bags (plastic)
Tap water (for equipment washing)
Plastic basins or tubs
Ziplock bags (large)
Water-proof tape
Water-proof markers
Ice
Ice chests
Stakes
Boundary tape
First aid kit
Emergency eyewash
Suitable liquid waste container(s) per Section 3.2

5.3 Sample Collection

This section describes the procedures to be used for collecting each sample. All soil samples will be collected using a hollow stem auger and split spoon, or the equivalent. Snow and surface vegetation must be scraped from the ground prior to sampling.

The following procedures must be used to collect samples:

1. Soil samples will be collected using split spoon samplers or the equivalent.
2. Prior to each use, split spoons will be decontaminated using the methods described in Section 3.1.
3. Surface and near-surface soil samples will be collected continuously from the surface to a minimum depth of two feet. Soil borings will be sample at five foot intervals starting at the surface, making sampling intervals 0-2', 5-7', 10-12', 15-17'... to the water table.
4. Soil samples will consist of composites of each two foot interval.
5. The split spoon or other sampler will be driven two feet for each sampling interval.
6. The split spoon shall be opened by the sampling personnel. The sampling personnel must put on a new pair of disposable plastic gloves prior to opening each spoon.
7. The sample will be visually inspected for obvious contamination and will be scanned using an OVA or other type of vapor analyzer.
8. The volatile organic sample will be collected from the portion of the two-foot sample in which the highest readings were recorded on the OVA. If no elevated readings are recorded, then the sampling personnel will randomly choose the volatile organic sample interval.
9. Using a decontaminated stainless steel trowel or knife, the sampling personnel will remove the volatile organic sample from the split spoon. The sample will be placed directly into the VOA vials. The container must be filled completely, leaving no headspace if possible.
10. The remainder of the soil in the split spoon will be placed in a decontaminated stainless steel bucket or pan for compositing. The soil will then be homogenized

and placed in the sample jars, beginning with the semi-volatile sample. All sample containers must be filled so that there is a minimum of void space in the container.

11. Any soil remaining in the bucket shall be placed on plastic sheeting next to the hole.

12. The exterior of the sample container must be decontaminated prior to further handling.

13. The sample label must be clearly and precisely completed and attached to each sample container as the sample is collected. At a minimum, the sample label must include the following: collection time and date; sample identification number and name of location; sampler signature; and type of analysis. Clear plastic tape will be placed over the entire label.

14. The sample bottles will then be decontaminated, dried with a disposable wipe, and placed in a cooler on ice prior to shipment to the laboratory.

15. The borehole can then be backfilled with the cuttings.

16. The chain-of-custody document, lab forms, and field logbook notations must be completed. The field logbook must include a detailed description of the conditions at each sampling location and details regarding each sample collection, including the collection date and time; preservation method used; a soil characterization; the OVA or photoionization detector reading; the samples collected and the order in which the sample jars are filled; the homogenization method; and any other pertinent data. The logbook also must include a description of the precise location of each sampling point.

17. In the case of the septic tank contents sample, the specific sampling procedure will be determined in the field. Apparently, the tank can be accessed via a manhole. A grab sampler may be used to obtain a sample.

5.4 Sample Management and Shipment

Proper handling of samples is essential to protect the analytical integrity of the samples, definitively identify and track the samples, comply with chain-of-custody requirements, and secure the samples from damage or tampering. All samples will be shipped to the analytical laboratory via an overnight delivery service within 24 hours of collection or hand delivered to the laboratory the day of sampling.

Samples will be kept on ice in coolers from the time of sample collection until sample shipment. Samples will be wrapped in bubble wrap and placed in plastic bags prior to being placed on ice in the shipping container. Ice will be double-bagged in plastic bags. Additional bubble wrap may be added for cushioning of samples. Chain-of-custody documents will be placed in ziplock bags and taped securely to the lid of the shipping container. Shipping containers will be securely taped shut with strapping tape. A minimum of two custody seals will be applied. Shipping containers will be sent to the lab at the end of each sampling day.

5.5 Waste Disposal

Disposal of any waste generated during the sampling will be IBM's responsibility. The facility must use a suitable container in which to collect any liquid waste generated during the sampling. Non-disposable items such as clothing must be effectively contained and decontaminated.

APPENDIX F

AIR POLLUTION SOURCE MANAGEMENT SUMMARY FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

DATED MARCH 24, 1992

IBM CORPORATION
Main Plant, Poughkeepsie
Dutchess County, New York

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

			EMISSIONS			
CONTAMINANT NAME	CAS CODE	NUMBER	ESTIMATED ERP	ACTUAL		PERMISSIBLE
			(TPY)	(LBS/HR)	(TPY)	(TPY)
GLYCERIN MIST	00056-81-5	7	8.181	0.351	1.538	1.538
UREA CH4N2O	00057-13-6	1	0.004	0.000	0.004	0.004
EDTA	00060-00-4	7	0.578	0.123	0.174	0.174
DIETHYL ETHER	00060-29-7	2	0.105	0.023	0.105	0.105
THIOUREA CH4N2S	00062-56-6	4	0.131	0.029	0.130	0.130
EDTA, SODIUM SALT	00064-02-8	1	0.004	0.000	0.004	0.004
ETHANOL	00064-17-5	10	10.332	2.358	0.605	0.614
FORMIC ACID	00064-18-6	1	0.056	0.012	0.001	0.001
ACETIC ACID	00064-19-7	11	0.551	0.125	0.513	0.513
BARBITURIC ACID	00067-52-7	1	0.004	0.000	0.004	0.004
METHANOL	00067-56-1	10	3.214	0.733	0.311	0.311
ISOPROPYL ALCOHOL	00067-63-0	31	533.159	20.203	17.367	28.340
ACETONE	00067-64-1	13	23.945	5.466	0.342	0.687
CHLOROFORM	00067-66-3	4	0.078	0.017	0.016	0.016
PROPANOL	00071-23-8	1	0.004	0.000	0.004	0.004
N-BUTYL ALCOHOL	00071-36-3	2	0.030	0.006	0.001	0.001
BENZENE	00071-43-2	1	0.004	0.000	0.004	0.004
METHYL CHLOROFORM	00071-55-6	17	79.277	18.099	57.524	62.288
METHANE	00074-82-8	1	0.008	0.001	0.005	0.005
HYDROGEN CYANIDE	00074-90-8	1	0.004	0.000	0.004	0.004
PROPANE (9CI)	00074-98-6	3	5.895	1.345	0.074	4.361
ETHYL AMINE	00075-04-7	1	0.004	0.000	0.004	0.004
ACETONITRILE	00075-05-8	1	1.909	0.435	0.032	0.032
METHYLENE CHLORIDE	00075-09-2	7	11.116	2.537	4.441	4.441
BROMODICHLOROMETHANE	00075-27-4	2	0.017	0.003	0.012	0.012
ISOBUTANE	00075-28-5	3	1.668	0.380	0.026	0.026
DICHLOROFLUOROMETHAN	00075-43-4	1	49.055	11.199	0.559	0.559
FREON 22	00075-45-6	1	0.004	0.000	0.002	0.002
TRIFLUOROMETHANE	00075-46-7	2	7.888	1.800	0.093	0.093
NITROMETHANE	00075-52-5	5	0.043	0.009	0.006	0.006
CFC 142B	00075-68-3	1	982.871	224.399	11.199	11.199
TRICHLOROFLUOROETHAN	00075-69-4	2	879.109	200.709	10.035	10.035
FREON 12	00075-71-8	2	1408.384	321.548	16.051	16.051
TETRAFLUORO METHANE	00075-73-0	2	9.907	2.261	1.246	1.246
FREON 113	00076-13-1	26	170.684	38.968	71.078	13905.269

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

CONTAMINANT NAME	CAS CODE	NUMBER	EMISSIONS ESTIMATED ERP (TPY)	ACTUAL (LBS/HR)	ACTUAL (TPY)	PERMISSIBLE (TPY)
DICHLORTETRAFLUORETH	00076-14-2	1	876.000	200.000	10.000	10.000
CHLOROPENTAFLUOROETH	00076-15-3	2	116.512	26.600	1.331	1.331
CAMPHOR	00076-22-2	1	0.004	0.000	0.004	0.004
PROPYLENE DICHLORIDE	00078-87-5	1	0.004	0.000	0.001	0.001
METHYL ETHYL KETONE	00078-93-3	9	2.987	0.684	0.071	0.071
TRICHLOROETHYLENE	00079-01-6	2	0.315	0.071	0.312	0.312
HYDROXYACETIC ACID	00079-14-1	2	0.468	0.106	0.223	0.223
DIBUTYL PHTHALATE	00084-74-2	2	0.008	0.001	0.006	0.006
NAPHTHALENE	00091-20-3	3	0.013	0.002	0.005	0.005
PHENIDONE	00092-43-3	1	0.004	0.000	0.001	0.001
XYLENE,ORTHO-	00095-47-6	1	0.004	0.000	0.000	0.000
ETHYL METHACRYLATE	00097-63-2	1	0.004	0.000	0.004	0.004
DIETHYLAMINOETHANOL	00100-37-8	2	0.008	0.001	0.006	0.006
ETHYL BENZENE	00100-41-4	8	199.723	1.126	2.661	2.692
STYRENE	00100-42-5	2	0.008	0.001	0.008	0.008
BENZYL CHLORIDE	00100-44-7	1	0.004	0.000	0.004	0.004
BENZYL ALCOHOL	00100-51-6	8	7.222	0.625	1.387	1.387
ETHYLENE GLYCOL	00107-21-1	2	0.021	0.004	0.022	0.022
HEXYLENE GLYCOL	00107-41-5	1	0.026	0.005	0.000	0.000
METHYL ISOBUTYL KETO	00108-10-1	2	0.302	0.068	0.088	0.088
ISOPROPYL ACETATE	00108-21-4	1	0.004	0.000	0.000	0.000
TOLUENE	00108-88-3	19	14.125	0.539	0.310	0.656
CHLOROBENZENE	00108-90-7	1	0.004	0.000	0.004	0.004
CYCLOHEXYLAMINE	00108-91-8	1	0.004	0.000	0.004	0.004
CYCLOHEXANONE	00108-94-1	1	0.302	0.068	0.003	0.003
PHENOL	00108-95-2	1	0.004	0.000	0.004	0.004
METHYLAMINOETHANOL	00109-83-1	1	0.004	0.000	0.001	0.001
METHYL CELLOSOLVE	00109-86-4	1	0.061	0.013	0.001	0.001
TETRAHYDROFURAN	00109-99-9	2	2.969	0.677	0.019	0.019
HEXANE	00110-54-3	3	0.985	0.224	0.030	0.679
GLYCOLMONOETHYLETHER	00110-80-5	2	0.757	0.172	0.001	0.001
PYRIDINE	00110-86-1	2	0.026	0.005	0.004	0.004
CELLOSOLVE ACETATE	00111-15-9	6	16.963	3.872	0.753	0.753
GLUTARALDEHYDE	00111-30-8	2	0.008	0.001	0.006	0.006
DIETHANOLAMINE	00111-42-2	2	0.039	0.008	0.035	0.035

PGM-EASMPY

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

CONTAMINANT NAME	CAS CODE	NUMBER	EMISSIONS			
			ESTIMATED ERP	ACTUAL		PERMISSIBLE
			(TPY)	(LBS/HR)	(TPY)	(TPY)
GLYCOL ETHER	00111-46-6	2	0.065	0.014	0.065	0.065
ETHYLENGLYCOLMONBUTY	00111-76-2	4	0.381	1.085	0.012	0.012
BUTOXETHOXETHOLACETA	00112-15-2	2	0.035	0.007	0.035	0.035
TRIETHYLENETETRAMINE	00112-24-3	1	0.008	0.001	0.000	0.005
TETRAFLUOROETHYLENE	00116-14-3	1	0.017	0.003	0.000	0.000
TRIETHYLAMINE	00121-44-8	1	0.030	0.006	0.000	0.000
HYDROQUINONE	00123-31-9	5	0.144	0.032	0.139	0.139
DIACETONE ALCOHOL	00123-42-2	1	0.227	0.051	0.002	0.002
N-BUTYL ACETATE	00123-86-4	10	3.906	0.891	0.148	0.148
CARBON DIOXIDE	00124-38-9	6	1.568	0.357	0.493	0.493
THIOLANE-1,1-DIOXIDE	00126-33-0	2	0.227	0.051	0.114	0.114
SODIUM ACETATE	00127-09-3	2	0.013	0.002	0.012	0.012
TETRACHLOROETHYLENE	00127-18-4	3	0.814	0.185	0.001	0.001
DIMETHY PHTHALATE	00131-11-3	2	0.008	0.001	0.008	0.008
METHYL CYANOACRYLATE	00137-05-3	1	0.700	0.159	0.008	0.700
DISODIUM EDTA	00139-33-3	1	0.004	0.000	0.004	0.004
ETHANOLAMINE	00141-43-5	5	1.094	0.241	0.054	0.053
ETHYL ACETATE	00141-78-6	1	0.656	0.149	0.007	0.007
N-HEPTANE	00142-82-5	3	1.182	0.269	0.201	0.213
OXALIC ACID	00144-62-7	2	0.008	0.001	0.008	0.008
METHYLAMINOPHENOL,P-	00150-75-4	1	0.004	0.000	0.003	0.003
TRANDICHLOROETHYLENE	00156-60-5	2	0.105	0.023	0.104	0.104
LEAD ACETATE	00301-04-2	1	0.004	0.000	0.004	0.004
1-BUTANAMINE	00311-89-7	2	0.464	0.105	0.461	0.461
CALCIUM CARBONATE	00471-34-1	1	0.004	0.000	0.004	0.004
SODIUM CARBONATE	00497-19-8	1	0.004	0.000	0.004	0.004
PODOCARPADIENOICACID	00514-10-3	1	0.004	0.000	0.004	0.004
GLUCONIC ACID	00526-95-4	1	0.004	0.000	0.001	0.001
SODIUM SESQUICARBONA	00533-96-0	1	0.004	0.000	0.004	0.004
1,2-DICHLOROETHENE	00540-59-0	1	0.004	0.000	0.004	0.004
COPPER CYANIDE	00544-92-3	2	0.039	0.008	0.039	0.039
GOLD POTASSIUM CYANI	00554-07-4	1	0.004	0.000	0.004	0.004
POTASSIUM CARBONATE	00584-08-7	1	0.004	0.000	0.003	0.003
CARBON MONOXIDE	00630-08-0	3	0.030	0.006	0.014	0.014
METHYL PYRROLIDONE	00872-50-4	2	0.188	0.042	0.095	0.095

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

CONTAMINANT NAME	CAS CODE	NUMBER	ESTIMATED ERP	-------ACTUAL-------		PERMISSIBLE
			(TPY)	(LBS/HR)	(TPY)	(TPY)
HEXAMETHYLDISILAZANE	00999-97-3	1	0.162	0.036	0.009	0.009
CHROMIUM OXIDE	01308-38-9	1	0.148	0.033	0.008	0.008
IRON OXIDE	01309-37-1	2	0.328	0.074	0.018	0.018
MAGNESIUM OXIDE	01309-48-4	1	0.030	0.006	0.002	0.002
LEAD OXIDE	01309-60-0	1	0.004	0.000	0.004	0.004
POTASSIUM HYDROXIDE	01310-58-3	2	0.017	0.003	0.016	0.016
SODIUM HYDROXIDE	01310-73-2	14	0.565	0.118	0.492	0.493
SODIUM OXIDE	01313-59-3	1	0.039	0.008	0.002	0.002
NICKEL OXIDE	01313-99-1	1	0.183	0.041	0.011	0.011
NICKEL(111) OXIDE	01314-06-3	1	0.183	0.041	0.011	0.011
ZIRCONIUM OXIDE	01314-23-4	1	0.043	0.009	0.002	0.002
MANGANESE OXIDE	01317-34-6	1	0.026	0.005	0.003	0.003
MANGANESE OXIDE	01317-35-7	1	0.026	0.005	0.003	0.003
LEAD MONOOXIDE	01317-36-8	1	0.004	0.000	0.004	0.004
COPPER OXIDE	01317-38-0	1	0.004	0.000	0.000	0.000
COPPER OXIDE (CU2 O)	01317-39-1	1	0.004	0.000	0.000	0.000
XYLENE,M,O&P MIXT.	01330-20-7	23	924.149	6.809	13.294	13.294
TIN OXIDE	01332-29-2	1	0.004	0.000	0.004	0.004
HYDROGEN	01333-74-0	5	0.394	0.089	0.386	0.386
CHROMIUM OXIDE	01333-82-0	1	0.004	0.000	0.004	0.004
CARBON BLACK	01333-86-4	1	0.004	0.000	0.004	0.004
AQUA AMMONIA	01336-21-6	3	0.245	0.032	0.143	0.144
MEK PEROXIDE	01338-23-4	1	0.004	0.000	0.004	0.004
SODIUM SILICATE	01344-09-8	4	0.039	0.008	0.038	0.038
TIN CHLORIDE	01344-13-4	1	0.004	0.000	0.000	0.000
ALUMINUM OXIDE	01344-28-1	3	0.884	0.172	0.028	0.028
MANGANESE OXIDE	01344-43-0	1	0.004	0.000	0.000	0.000
COPPER CHLORIDE	01344-67-8	1	0.004	0.000	0.004	0.004
IRON OXIDE	01345-25-1	1	0.324	0.073	0.018	0.018
OXIRANE	02426-08-6	1	0.008	0.001	0.009	0.009
SULFUR HEXAFLUORIDE	02551-62-4	1	0.048	0.010	0.048	0.048
CUPRIC NITRATE	03251-23-8	1	0.004	0.000	0.000	0.000
CARBONIC ACID NI SAL	03333-67-3	1	0.008	0.001	0.009	0.004
SULFAMIC ACID	05329-14-6	4	0.411	0.093	0.355	0.307
AMMONIUM NITRATE	06484-52-2	4	0.043	0.006	0.027	0.026

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                                        IBM SOUTH RD
                                                    DUTCHESS COUNTY
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   IDENTIFICATION     NAME                                  ADDRESS                        MUNICIPALITY     SIC

   134600 0096        IBM, POUGHKEEPSIE FACILITY            SOUTH RD                       POUGHKEEPSIE    3679
                                                         ------------------------EMISSIONS------------------------

   CONTAMINANT NAME              CAS CODE     NUMBER      ESTIMATED ERP    -------ACTUAL-------    PERMISSIBLE

                                                              (TPY)        (LBS/HR)     (TPY)        (TPY)


   SILICIC ACID 2NA              06834-92-0     2             0.039         0.008       0.020        0.020

   ETHYL CYANOACRYLATE           07085-85-0     1             0.004         0.000       0.004        0.004

   GLUTARALDEHYDE BISUL          07420-89-5     1             0.004         0.000       0.004        0.004

   ALUMINUM                      07429-90-5     6             1.949         0.030       0.127        0.127

   IRON                          07439-89-6     3             8.194         0.538       0.360        0.360

   MANGANESE                     07439-96-5     1             0.026         0.000       0.000        0.000

   MOLYBDENUM (8CI9CI)           07439-98-7     4             0.017         0.003       0.008        0.008

   NEON                          07440-01-9     1            16.604         3.790       0.492        0.492

   NICKEL AS METAL               07440-02-0     2             0.008         0.001       0.000        0.000

   POTASSIUM K                   07440-09-7     1             0.004         0.000       0.000        0.000

   SILICON                       07440-21-3     1             0.004         0.000       0.004        0.004

   SILVER                        07440-22-4     1             0.004         0.000       0.000        0.000

   TIN                           07440-31-5     2             0.017         0.003       0.018        0.018

   ARGON  AR                     07440-37-1     2            19.412         4.431       0.131        0.131

   ARSENIC                       07440-38-2     1             0.004         0.000       0.000        0.000

   BERYLLIUM                     07440-41-7     1             0.004         0.000       0.000        0.000

   CADMIUM                       07440-43-9     1             3.101         0.000       0.001        0.000

   CHROMIUM VI                   07440-47-3     1             0.004         0.000       0.000        0.000

   COBALT                        07440-48-4     1             0.030         0.006       0.000        0.000

   COPPER                        07440-50-8     6             3.959         0.052       0.220        0.221

   GOLD AU                       07440-57-5     2             0.008         0.001       0.000        0.000

   HELIUM  HE                    07440-59-7     1             4.577         1.044       3.343        3.343

   ZINC                          07440-66-6     3             9.675         0.003       0.012        0.012

   SULFUR DIOXIDE                07446-09-5     5             0.052         0.011       0.048        0.048

   POTASSIUM CHLORIDE            07447-40-7     1             0.043         0.009       0.044        0.044

   TITANIUM TETRACHLORI          07550-45-0     1             0.004         0.000       0.000        0.000

   IODINE                        07553-56-2     1             0.017         0.003       0.009        0.009

   MONOSODIUM PHOSPHATE          07558-80-7     1             0.004         0.000       0.004        0.004

   SILICA                        07631-86-9     5            24.317         1.084       0.537        0.537

   SILICON DIOXIDE               07631-89-9     3             0.337         0.068       0.157        0.157

   SODIUM BISULFITE              07631-90-5     2             0.008         0.001       0.007        0.007

   HYDROGEN CHLORIDE             07647-01-0     5             0.385         0.087       0.367        0.367

   ***USE 07647-01-0             07647-01-1     8             2.321         0.403       1.762        1.764

   SODIUM CHLORIDE               07647-14-5     1             0.021         0.004       0.022        0.022

   SODIUM BROMIDE  NABR          07647-15-6     2             0.013         0.002       0.013        0.013
```

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

CONTAMINANT NAME	CAS CODE	NUMBER	EMISSIONS			
			ESTIMATED ERP	ACTUAL		PERMISSIBLE
			(TPY)	(LBS/HR)	(TPY)	(TPY)
PHOSPHORIC ACID MIST	07664-38-2	2	0.026	0.005	0.026	0.026
HYDROGEN FLUORIDE	07664-39-3	1	0.004	0.000	0.004	0.004
AMMONIA	07664-41-7	5	0.280	0.062	0.256	0.257
SULFURIC ACID	07664-93-9	12	0.687	0.156	0.652	0.652
SODIUM METABISULFITE	07681-57-4	3	0.021	0.004	0.022	0.022
NITRIC ACID MIST	07697-37-2	5	0.232	0.052	0.217	0.217
SULFUR	07704-34-9	3	4.344	0.002	0.009	0.009
FERRIC CHLORIDE	07705-08-0	4	0.538	0.062	0.062	0.272
NICKEL CHLORIDE	07718-54-9	1	0.043	0.009	0.044	0.044
HYDROGEN PEROXIDE	07722-84-1	4	0.091	0.017	0.079	0.030
NITROGEN	07727-37-9	1	0.004	0.000	0.004	0.004
SODIUM SULFATE	07757-82-6	2	0.052	0.011	0.052	0.052
SODIUM SULFITE	07757-83-7	2	0.065	0.014	0.064	0.064
COPPER SULFATE	07758-98-7	1	0.013	0.002	0.013	0.013
SILVER NITRATE	07761-88-8	3	0.013	0.002	0.012	0.012
SODIUM THIOSULFATE	07772-98-7	2	0.026	0.005	0.026	0.026
STANNOUS CHLORIDE	07772-99-8	1	0.008	0.001	0.006	0.006
SODIUM PERSULFATE	07775-27-1	4	0.823	0.187	0.824	0.821
POTASSIUM DICHROMATE	07778-50-9	2	0.188	0.042	0.188	0.188
FLUORINE	07782-41-4	2	0.008	0.001	0.008	0.008
OXYGEN O2	07782-44-7	1	1.673	0.000	0.000	0.000
CHLORINE	07782-50-5	3	0.013	0.002	0.012	0.012
AMMONIUM THIOSULFATE	07783-18-8	4	0.175	0.039	0.171	0.171
NICKEL SULFATE	07786-81-4	1	0.017	0.003	0.017	0.017
POTASSIUM CHROMATE	07789-00-6	2	0.013	0.002	0.013	0.013
AROMATIC HYDROCARBON	08002-06-9	4	0.398	0.090	0.047	0.047
KEROSENE	08008-20-6	1	0.004	0.000	0.002	0.002
OIL MIST (MINERAL)	08012-95-1	8	3.644	0.831	0.065	0.065
ALCOHOL-ETHER	08013-43-2	3	0.122	0.027	0.075	0.075
BLANDOL MINERAL OIL	08020-83-5	2	0.030	0.006	0.031	0.031
NAPTHA	08030-30-6	1	0.004	0.000	0.004	0.004
LIGROINE (IN)	08032-32-4	3	0.573	0.130	0.046	0.046
STODDARD SOLVENT	08052-41-3	3	17.747	4.051	0.197	13.534
TEFLON 110	09002-84-0	1	0.004	0.000	0.004	0.004
PVC	09002-86-2	1	0.245	0.005	0.024	0.024

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

			EMISSIONS			
CONTAMINANT NAME	CAS CODE	NUMBER	ESTIMATED ERP	ACTUAL		PERMISSIBLE
			(TPY)	(LBS/HR)	(TPY)	(TPY)
POLYPROPYLENE	09003-07-0	1	0.004	0.000	0.004	0.004
POLYVINYLCHLORIDEPOL	09003-22-9	1	0.013	0.000	0.004	0.004
PHENOLIC RESIN	09003-35-4	2	0.026	0.001	0.008	0.008
CELLULOSE NITRATE	09004-70-0	2	1.327	0.302	0.022	0.022
POLYMETHYLMETHACRYLA	09011-14-7	2	0.179	0.040	0.006	0.179
DIMETHYL POLYSILOXAN	09011-19-2	1	0.017	0.003	0.000	0.000
POLYAMIDE RESIN AM	09064-41-9	1	0.008	0.001	0.009	0.009
OZONE	10028-15-6	3	1.042	0.237	1.041	1.041
SODIUM CHROMATE(VI)	10034-82-9	1	0.017	0.003	0.017	0.017
ALUMINUM SULFATE	10043-01-3	2	0.013	0.002	0.012	0.012
BORACIC ACID (H3BO3)	10043-35-3	2	0.223	0.050	0.222	0.222
SILICON OXIDE SIO	10097-28-6	1	0.017	0.003	0.002	0.002
LEAD NITRATE	10099-74-8	1	0.004	0.000	0.000	0.000
POTASSIUM SULFITE	10117-38-1	2	0.021	0.004	0.020	0.020
BARIUM CHLORIDE	10361-37-2	1	0.004	0.000	0.004	0.004
SODIUM DICHROMATE	10588-01-9	1	0.004	0.000	0.004	0.004
PHOSPHOMOLYBDIC ACID	11104-88-4	1	0.004	0.000	0.004	0.004
NITROGEN OXIDE NOX	11104-93-1	1	0.004	0.000	0.004	0.004
BORIC ACID	11113-50-1	2	0.070	0.015	0.070	0.008
CHROMIUM DIOXIDE	12018-01-8	1	0.148	0.033	0.008	0.008
AMMONIUM CHLORIDE	12125-02-9	2	0.008	0.001	0.008	0.008
TITANIUM OXIDE TIO	12137-20-1	1	0.004	0.000	0.000	0.000
TITANIUM OXIDE	13463-67-7	2	0.052	0.011	0.003	0.003
ZINC CHROMATE	13530-65-9	1	0.061	0.013	0.001	0.001
FERRATE,HEXACYANOTRI	13746-66-2	5	0.162	0.031	0.135	0.135
NICKEL SULFAMATE	13770-89-3	2	0.070	0.015	0.069	0.284
DEUTERIUM SULFATE	13813-19-9	2	0.797	0.181	0.793	0.013
POTASSIUM FERROCYANI	13943-58-3	1	0.004	0.000	0.004	0.004
STANNIC OXIDE	18282-10-5	1	0.004	0.000	0.004	0.004
SILVER OXIDE	20667-12-3	1	0.004	0.000	0.004	0.004
FERRIC AMMONIUM EDTA	21265-50-9	1	0.035	0.007	0.035	0.035
STANNOUS OXIDE	21651-19-4	1	0.004	0.000	0.004	0.004
POLYVINYLIDENEFLUORI	24937-79-9	1	28.688	6.549	0.327	0.327
NYLON 6	25038-54-4	1	0.004	0.000	0.004	0.004
EPOXY HARDENER	25068-38-6	1	0.008	0.001	0.009	0.009

AIR POLLUTION SOURCE MANAGEMENT SYSTEM
FACILITY PROCESS EMISSION SUMMARY BY CAS NUMBER

IBM SOUTH RD
DUTCHESS COUNTY

IDENTIFICATION	NAME	ADDRESS	MUNICIPALITY	SIC
134600 0096	IBM, POUGHKEEPSIE FACILITY	SOUTH RD	POUGHKEEPSIE	3679

CONTAMINANT NAME	CAS CODE	NUMBER	EMISSIONS ESTIMATED ERP			
				ACTUAL		PERMISSIBLE
			(TPY)	(LBS/HR)	(TPY)	(TPY)
DIPROPGLYCOLMETHETHR	34590-94-8	2	1.559	0.355	0.747	0.747
COBALT COMPLEX	53108-50-2	1	0.004	0.000	0.004	0.004
AZ303 DEVELOPER	56093-56-2	2	0.083	0.018	0.082	0.082
AMINES,COCO ALKYLBIS	61791-31-9	1	0.004	0.000	0.004	0.004
CHLORINATED PARAFFIN	63449-39-8	1	4.379	1.000	0.050	0.050
ISOALKANES	64365-06-6	2	16.919	3.862	2.846	2.846
NAPTHA	64741-42-0	1	0.656	0.149	0.007	0.007
ISOPAR G	64741-65-7	1	0.350	0.079	0.009	0.009
ISOPAR M	64741-73-7	1	1.147	0.261	0.065	0.065
	64742-06-9	1	0.372	0.084	0.004	0.004
NAPTHA HEAVY HYDROTR	64742-48-9	2	0.328	0.074	0.074	0.074
SOLVENT NAPTHA MED	64742-88-7	1	0.902	0.205	0.010	0.010
PARAFFIN OILS	64771-71-7	1	0.004	0.000	0.004	0.004
ALCOHOLS, C1-3	68475-56-9	5	0.525	0.018	0.061	0.061
HYDROCARBON MISC.	68476-39-1	1	0.039	0.008	0.008	0.008
POLYAMINE PHOSPHATES	68911-74-0	2	0.052	0.011	0.053	0.053
KETONES	68990-20-5	1	0.017	0.003	0.000	0.000
FLUORINERTS	86508-42-1	6	146.699	33.492	146.115	146.115
UNKNOWN		19	2.917	0.665	0.228	0.228
PARTICULATES	NY075-00-0	4	13.153	0.003	0.016	0.016
PARTICULATES(METAL)	NY075-00-2	14	0.302	0.023	0.091	0.091
PARTICULATES ORGANIC	NY075-00-3	1	0.013	0.000	0.004	0.004
XENON (XE 131)	NY131-54-0	1	0.148	0.033	0.004	0.004
TOTAL INORGANIC NEC	NY299-00-0	1	0.004	0.000	0.004	0.004
ALL AROMATIC ALCOHOL	NY350-00-0	2	0.017	0.003	0.017	0.017
ALL AROMATIC ETHERS	NY360-00-0	2	0.017	0.003	0.017	0.017
NON-METHANE ALKANES	NY520-00-0	2	1.896	0.432	0.373	0.373
TOTAL ALIPHATIC HYD	NY559-00-0	2	0.429	0.097	0.016	0.016
OTHER ALIPHATIC ALDE	NY615-00-0	1	0.070	0.015	0.077	0.077
OTHER ALIPHATIC ACID	NY660-00-0	1	0.004	0.000	0.004	0.004
MISCELLANEOUS ORG	NY990-00-0	18	3.477	0.793	0.150	0.150
MISC INORGANICS	NY999-00-4	6	0.035	0.007	0.034	0.034

NOTE - ESTIMATED ERP IS BASED UPON 8760 HOURS PER YEAR

APPENDIX G

INDUSTRIAL CHEMICAL SURVEYS

DATED: February 28, 1977, as revised
July 30, 1981
January 17, 1986
November 21, 1989

IBM CORPORATION
Main Plant, Poughkeepsie
Dutchess County, New York

IBM

International Business Machines Corporation

P.O. Box 950
Poughkeepsie, N. Y. 12602
Department 724
Building 415-1
(914) 463-5463

77 342

RECEIVED

MAR 17 1977

DIVISION OF PURE WATERS
BUREAU OF INDUSTRIAL PROGRA

February 28, 1977

New York State Department
of Environmental Conservation
50 Wolf Road
Albany, New York 12233

Attention: Industrial Chemical Survey

Attached is the completed questionaire your office requested in a letter dated, December 10, 1976.

The data submitted indicates the usage in 1976. The report covers those chemicals which have usage greater than 50 gallons or 50 pounds per year, with the exception of the two chemicals benzene and J-100 (a mixture of perchloroethylene and phenol).

In addition to those listed the following proprietary chemicals were used.

Betz boiler and cooling tower water treatment chemicals:

NAME	ANNUAL USAGE	AMOUNT ON HAND
Betz C-30	50	0 gallons
Betz-Corrogen	1500	1000 pounds
Betz 463	7920	3080 pounds
Betz 1543	10560	7680 pounds
Betz 1935	17240	2940 pounds

Photographic chemicals:

NAME	ANNUAL USAGE	AMOUNT ON HAND
Kodak	439	325 gallons
Nacco	812	1650 gallons
Datagraphic	0	224 gallons

HPM/tmw/0023

Plus, IBM Poughkeepsie used:

NAME	ANNUAL USAGE	AMOUNT ON HAND
Epoxy Kits	1584	474 pounds

Very truly yours,

Michael P. Mezzio

M. P. Mezzio

MPM/tmw/0093

Attachments

•15-5 (12/76)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233

RECEIVED
MAR 17 1977
DIVISION OF PURE WATERS
BUREAU OF INDUSTRIAL PROGRAMS

INDUSTRIAL CHEMICAL SURVEY

PART I

ASE COMPLETE AND RETURN TO THE ABOVE ADDRESS, ATTENTION: INDUSTRIAL CHEMICAL SURVEY.

MPANY NAME International Business Machines Corporation		SIC CODE (If known) 3573	OFFICE USE ONLY 13 77342
MPANY MAILING ADDRESS D/745 B/415, South Road	CITY Poughkeepsie	STATE New York	ZIP CODE 12602
NT NAME (If different) –	CONTACT NAME Michael P. Mezzio		TELEPHONE Area 914-463-5463
NT ADDRESS (If different) Street	CITY –	STATE –	ZIP CODE –

NCIPAL BUSINESS OF PLANT
Assemble Business Machines

TE: (If parent company, give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.)

N.A.

PART II
Discharge Information

WATER

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☒ Yes ☐ No
   Name of System Town of Poughkeepsie Arlington Sewer District
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number 0 0 0 5 5 4 1 ☒ Yes ☐ No
3. Do you discharge liquid wastes in any other manner? ☒ Yes ☐ No
   Explain Contract venders are used as listed below.

If any of the above are "Yes":
- a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct ☒ Yes ☐ No
  contact cooling water and scrubber water)? ☒ Yes ☐ No
- b. Do you discharge non-contact cooling water? ☐ Yes ☒ No
- c. Do you discharge collected storm drainage only? ☐ Yes ☒ No
- d. Do you discharge sanitary wastes only?

II-AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☒ Yes ☐ No
2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) 1 3 4 6 0 0 0 0 9 6

SOLID & CONCENTRATED LIQUID WASTES

1. List Name and Address of Firm (Including yourself) removing wastes other than office and cafeteria refuse.

Name Rollins Environmental Services, Inc.
Address P.O. Box 221, Bridgeport, NJ 08014 City State Zip Code

Name Chem-Trol Pollution Services, Inc.
Address P.O. Box 200, Model City, N.Y. 14107 City State Zip Code

3. Pollution Controls, Inc
ElDorado, Ark.

2. List Location(s) of Landfill(s) owned and used by your facility.

			Active	Inactive
1	South Road, Poughkeepsie, NY	Construction Debris Only	☒	☐
2			☐	☐

PESTICIDES

1. Does this facility:
   - Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ No
   - Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ No
   - Formulate Pesticides? ☐ Yes ☒ No
   - Repackage Pesticides? ☐ Yes ☒ No
2. EPA Establishment Number N.A. ☐☐☐☐☐☐ – ☐☐ – ☐☐☐

IBM FOR [illegible]

PART III

77342

SUBSTANCES OF CONCERN
(Refer to attached TABLE I)

Complete all information for these substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A – F which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blende packaged, distributed, no longer used, et
Methylene Chloride	A02	32,700	6,665		x	Cleaning Operations
Chloroform	A03	280	110	x		Cleaning Operations
Freon TF	A05	30,400	6,520		x	Cleaning Operations
FC-86 (Flurocarbon)	A90	91	230	X		Cleaning / Coolant
Methyl Chloroform	A07	42,000	4,000	X		Cleaning Operations
Trichloroethylene	A12	18,000	0	x		Cleaning Operations
Perchloroethylene	A13	1,425	865	x		Cleaning Operations
Benzene	D01	1	2	x		Cleaning Operations
Toluene	D02	1	190	x		Cleaning Operations
Xylene	D03	5,800	1,100	x		Cleaning Operations
J-100 (perchlor & phenol)		8	7	x		Cleaning Operations
FC-78 (Flurocarbon)	A99	50	25	x		
FC-43 (Flurocarbon)	A99	50	25	x		

ou use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

NAME OF SUBSTANCE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	SUPPLIER	PURPOSE OF USE (State whether produced, reac blended, packaged, distribut no longer used, etc.)
See Cover Letter						

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made here are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

ATURE (Owner, Partner, or Officer) | DATE

E (Printed or Typed) | TITLE

ATTACHMENT #4 . REVISION UPDATE TO SUBMISSION DATED 2/28/77

(12/76)

Rcd 10/1/78 GIP

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233

INDUSTRIAL CHEMICAL SURVEY (Revised)

PART I

PLEASE COMPLETE AND RETURN TO THE ABOVE ADDRESS, ATTENTION: INDUSTRIAL CHEMICAL SURVEY.

COMPANY NAME: International Business Machines Corporation

SIC CODE (If known): 3573

OFFICE USE ONLY: 3

COMPANY MAILING ADDRESS: Old Orchard Road

CITY: Armonk

STATE: New York

ZIP CODE: 10504 788

PLANT NAME (If different): I.B.M. Poughkeepsie

CONTACT NAME: R.Spann (mailing address below)*

TELEPHONE: Area 914 463-5463

PLANT ADDRESS (If different): Bldg. 070 Dept. 772

CITY: Poughkeepsie

STATE: New York

ZIP CODE: 12602

PRINCIPAL BUSINESS OF PLANT: Business machines assembly

NOTE: (If parent company, give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.) NA

*R. M. Spann
Department 772, Building 070
P.O. Box 950
Poughkeepsie, NY 12602

Revision

REVISION
DATE 6/16/82

PART II
Discharge Information

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☒ Yes ☐ N
   Name of System Town of Poughkeepsie Arlington Sewer District
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number 0 0 0 5 5 4 1 ☒ Yes ☐ N
3. Do you discharge liquid wastes in any other manner? ☐ Yes ☐ N
   Explain Contract vendors are listed below

If any of the above are "Yes":

a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☒ Yes ☐ N
b. Do you discharge non-contact cooling water? ☒ Yes ☐ N
c. Do you discharge collected storm drainage only? ☐ Yes ☒ N
d. Do you discharge sanitary wastes only? ☐ Yes ☒ N

1. Does your facility have sources of possible emissions to the atmosphere? ☒ Yes ☐ N
2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) 1 3 4 6 0 0 0 0 9 6

LIQUID WASTES

1. List Name and Address of Firm (Including yourself) removing wastes other than office and cafeteria refuse.

1. Name: Rollin Environmental Service, Inc.
   Address: P.O. Box 221 City: Bridgeport, State: NJ Zip Code: 06014
2. Name: Chem-Trol Pollution Control Services, Inc.
   Address: P.O. Box 200 City: Model City State: NY Zip Code: 14107
3. Pollution Control, Inc.
   El Dorado, Ark.

2. List Location(s) of Landfill(s) owned and used by your facility.

			Active	Inactive
1	South Road, Poughkeepsie, NY	Construction debris, closed '77	☐	☒
2	South Road, Poughkeepsie, NY	Chemical wastes closed mid-1960s	☐	☒

1. Does this facility:
   - Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ N
   - Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ N
   - Formulate Pesticides? ☐ Yes ☒ N
   - Repackage Pesticides? ☐ Yes ☒ N

2. EPA Establishment Number

Update to submission dated
2/28/77

ATTACHMENT #4
PART III

REVISION

SUBSTANCES OF CONCERN
(Refer to attached TABLE I) (RevisedDATE

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A – F which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blended packaged, distributed, or longer used, etc
Methylene Chloride	A02	6135	1135	x		Cleaning Operations
Methyl Chloroform	A07	11384	1975	x		Cleaning Operations
Perchloroethylene	A13	2398	300	x		Cleaning Operations
Benzene	D01		2*	x		Cleaning Operations
Toluene	D02	1	188	x		Cleaning Operations
Xylene	D03	4208	4340	x		Cleaning Operations
"J-100" (Perchloroethylene and phenol)		8	7	x		Cleaning Operations
FREON TF	A05	10462	2435	x		Cleaning Operations
"FC-86" (Fluorocarbon)	A99	785	62	x		Cleaning/Coolant

Note: The 2 gallon of benzene is planned to be sent to a licensed waste disposal vendor.

ou use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

NAME OF SUBSTANCE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	SUPPLIER	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed no longer used, etc.)
ee attachment "Substances of Concern"						

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made here are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

NATURE (Owner, Partner, or Officer)

DATE

ME (Printed or Typed)
.W. Vandewinckel

TITLE
Manager, Plant Engineering

REVISION

DATE

SUPPLEMENT TO ATTACHMENT #4
August 17, 1978

UPDATE TO SUBMISSION DATED FEBRUARY 28, 1977

(Terms which are believed to be trademarks are capitalized or in quotes. Terms believed to be generic are indicated by lower case.)

Substances of Concern

In addition to those listed, the following proprietary chemicals were used:

Betz Laboratories boiler and cooling tower water treatment chemicals:

NAME	ANNUAL USAGE	AMOUNT ON HAND
BETZ - CORROGEN	2,000	500 pounds
BETZ 463	10,180	1,760 pounds
BETZ 1543	11,040	2,112 pounds
BETZ 1935	19,110	3,920 pounds

Photographic Chemicals:

NAME	ANNUAL USAGE	AMOUNT ON HAND
Kodak	1,009	256 gallons
NAACO	2,178	1,000 gallons
Datagraphic	11	150 gallons

In addition:

NAME	ANNUAL USAGE	AMOUNT ON HAND
Epoxy Kits	2,544	420 pounds

Note: As with the February 28, 1977 submission, only those chemicals with usage greater than 50 gallons or 50 pounds per year are being reported; with the exeception of benzene, toluene and J-100.

-5 (12/76)

NEW YORK TE DEPARTMENT OF ENVIRONMENTAL CONSERVAT
ALBANY, NEW YORK 12233

INDUSTRIAL CHEMICAL SURVEY

PART I

COMPLETE AND RETURN TO THE ABOVE ADDRESS, ATTENTION: INDUSTRIAL CHEMICAL SURVEY.

NY NAME: International Business Machines Corp.
SIC CODE (If known): 3573
OFFICE USE ONLY

NY MAILING ADDRESS: Old Orchard Road
CITY: Armonk
STATE: New York
ZIP CODE: 10504

NAME (If different): IBM Poughkeepsie
CONTACT NAME: W. A. Gianopulos *Mailing address below
TELEPHONE Area (914) 463-5123

ADDRESS (If different): B/ 070 D/771
CITY: Poughkeepsie
STATE: New York
ZIP CODE: 12602

AL BUSINESS OF PLANT: Business Machines Assembly

If parent company, give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.) N/A

*W. A. Gianopulos
Building 070 Department 771
P. O. Box 950
Poughkeepsie, NY 12602

PART II
Discharge Information

. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☒ Yes ☐ No
Name of System Town of Poughkeepsie Arlington Sewer District

2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number 0 0 0 5 5 4 1 ☒ Yes ☐ No

. Do you discharge liquid wastes in any other manner? ☒ Yes ☐ No
Explain Contract vendors listed below

f any of the above are "Yes":
a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☒ Yes ☐ No
b. Do you discharge non-contact cooling water? ☒ Yes ☐ No
c. Do you discharge collected storm drainage only? ☐ Yes ☒ No
d. Do you discharge sanitary wastes only? ☐ Yes ☒ No

. Does your facility have sources of possible emissions to the atmosphere? ☒ Yes ☐ No

. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) 1 3 4 6 0 0 0 0 9 6

. List Name and Address of Firm (Including yourself) removing wastes other than office and cafeteria refuse.

Name: Cecos International, Inc.
Address: P.O. Box 619 City: Niagra Falls State: NY Zip Code: 14302

Name: Rollins Environmental Service, Inc.
Address: P.O. Box 221 City: Bridgeport, State: NJ Zip Code: 06014

3. SCA SERVICES
P.O. Box 200
Model City
NY 14107
(See attachment)

2. List Location(s) of Landfill(s) **owned** and used by your facility.

			Active	Inactive
1	South Rd, Poughkeepsie (Construction debris)	Closed 1977	☐	☒
2			☐	☐

. Does this facility:
Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ No
Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ No
Formulate Pesticides? ☐ Yes ☒ No
Repackage Pesticides? ☐ Yes ☒ No

2. EPA Establishment Number ☐☐☐☐☐☐ – ☐☐ – ☐☐☐

PART III

SUBSTANCES OF CONCERN
(Refer to attached TABLE I)

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A – F which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
methylene chloride	A02	7000	1000	x		Cleaning operations
methyl chloroform	A07	14000	5000	x		Cleaning operations
perchlorethylene	A13	100	50	x		Cleaning operations
Toulene	D02	100	50	x		Cleaning operations
Xylene	D03	6000	2500	x		Cleaning operations
Freon TF	A05	5000	1000	x		Cleaning operations
FC - 86	A05	900	400	x		Cleaning/coolant
FICC	A05	9000	1500	x		Cleaning operations
Cupric chloride	M06	1005	95	x		Metal Plating
Copper sulfate	M06	175	150		x	Metal plating
stannous chloride	M99	125	125		x	Metal plating

NOTE: NOT INCLUDED IN THIS LISTING IS SMALL MISC. USAGE SUCH AS ANALYTICAL LABORATORY USAGE.

ou use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

NAME OF SUBSTANCE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	SUPPLIER	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
See attachment	"Substance of Concern"					

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

ATURE (Owner, Partner, or Officer) A W Vandewinckel

DATE 7/30/81

ME (Printed or Typed) A W VANDEWINCKEL

TITLE PLANT ENGINEER

1-15-5(5/83)

UPDATED INDUSTRIAL CHEMICAL SURVEY (Previous Survey: 4/22/81)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233

INDUSTRIAL CHEMICAL SURVEY

PART I

Please refer to attached table I

PLEASE COMPLETE AND RETURN TO THE ABOVE ADDRESS, ATTENTION: INDUSTRIAL CHEMICAL SURVEY.

COMPANY NAME: International Business Machines Corporation
SIC CODE (If known): 3573
OFFICE USE ON: 13 3178856

COMPANY MAILING ADDRESS: Post Office Box 950, South Road
CITY: Poughkeepsie 1302
STATE: New York
ZIP CODE: 12602

PLANT NAME (If different): same as above
CONTACT NAME: H. Nguyen
TELEPHONE Area (914) 432-3547

PLANT ADDRESS (If different) Street: same as above
CITY:
STATE:
ZIP CODE:

PRINCIPAL BUSINESS OF PLANT: computer manufacturing

NOTE: (If parent company, give name and addresses of all divisions, subsidiaries, etc., located in New York State. A separate questionnaire is to be completed and submitted for each.)

PART II
Discharge Information

WATER

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☒ Yes ☐
   Name of System: Town of Poughkeepsie Arlington Sewer District 002 6271
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number 0 0 0 5 5 4 1 ☒ Yes ☐
3. Do you discharge liquid wastes in any other manner? ☒ Yes ☐
   Explain ______

If any of the above are "Yes":

a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☒ Yes ☐
b. Do you discharge non-contact cooling water? ☒ Yes ☐
c. Do you discharge collected storm drainage only? ☐ Yes ☐
d. Do you discharge sanitary wastes only? ☐ Yes ☐

AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☒ Yes ☐
2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) 1 3 4 6 0 0 0 0 9 6 (see attachment 1)

SOLID & CONCENTRATED LIQUID WASTES

1. List Name and Address of Firm (including yourself) removing wastes other than office and cafeteria refuse.

Name: Cecos Treatment Corporation CX-015
Address: 51 Broderick Rd. City: Bristol, State: CT Zip Code: 06010

Name: Cecos International, Inc. 9X-137
Address: 2321 Kenmore Ave. City: Buffalo, State: New York Zip Code: 14207 (See attachment II)

2. List Location(s) of Landfill(s) owned and used by your facility.

			Active	Inactive
1	South Road, Poughkeepsie (Construction debris).	Closed 1977 Removed 1980	☐	☐
2			☐	☐

PESTICIDES

1. Does this facility:
   - Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☒
   - Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☒
   - Formulate Pesticides? ☐ Yes ☒
   - Repackage Pesticides? ☐ Yes ☒
2. EPA Establishment Number ☐☐☐☐☐☐ – ☐☐ – ☐☐☐

ATTACHMENT I

Locations and Facility Codes as shown on Air Pollution Control Application for Permits

1). South Road
134600 0096

2). Airport Bldg. 953
135600 0399

3). Country Club
134600 0001

4). Boardman Road
134600 0402

5). Neptune Road
134600 0422

6). High Street
131300 0389

7). Manchester Road
134600 0412

8). Noxon Road
133400 0018

ATTACHMENT II

Names and Addresses of firms removing wastes other than office and cafeteria refuse (Cont'd)

3). Rollins Environmental Services, Inc.
Post Office Box 221, Bridgeport, New Jersey 08014 JA-001

4). McKesson Envirosystems Company
Post Office Box 406, New Castle, Kentucky 40050 KX-002

5). Ensco Incorporated
1015 Louisiana Street, Little Rock, Arkansas 72202 AX-003

6). SCA Services
Post Office Box 200, Model City, New York 14107 9A-081
(currently not using)

PART III

SUBSTANCES OF CONCERN
(Refer to attached TABLE I)

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A – F which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	(✓) LB.	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
(See "attachment 3" for substances of concern)						
(See "attachment 4" for additional substances of concern used in smaller volumes (< 50 gal or < 400 lbs.))						
(see "attachment 5" for additional chemicals used on site)						
(see "attachment 6" for gasses used on site)						

ou use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

NAME OF SUBSTANCE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	(✓) LB.	SUPPLIER	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
(see "attachment 7" for trade names and manufacturers of chemicals with unknown constituents (> 50 gal or > 400 lbs. used))						
(See "attachment 8" for additional trade names of chemicals with unknown constituents (< 50 gal or < 400 lbs. used))						

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

NATURE (Owner, Partner, or Officer) HNguyen

DATE 1/17/86

ME (Printed or Typed) Huong Nguyen

TITLE Senior Associate Engineer

ATTACHMENT 3

SUBSTANCES OF CONCERN

(> 50 gal Or 400 lbs)

NAME OF SUBSTANCE		CODE	AVERAGE ANNUAL USAGE
CHROMIUM NITRATE		M05	220 GALS
CUPRIC SULFATE		M06	4,754 LBS
FERRIC CHLORIDE		M99	150,000 LBS
FERRIC SULFATE		M99	7,000 LBS
FERROUS SULFATE		M99	7,201 LBS
FREON 12	0000 75-71-8	A05	9,975 LBS
FREON 502	039432-81-0	A05	2,250 LBS
FREON TDF		A05	19,491 LBS
FREON TDFC		A05	17,030 LBS
FREON TE		A05	1,845 LBS
FREON TE-35		A05	1,000 LBS
FREON TF	000076-13-1	A05	142,840 LBS
FREON TMS (93% FREON, 7% METHANOL)		A05	37,644 LBS
FREON TP-35		A05	525 LBS
MCM (92% METHYLENE CHLORIDE, 8% METHANOL)		A02	1,300 GALS
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)	00071-55-6	A07	150,578 LBS
METHYLENE CHLORIDE	0000 75-09-2	A02	1,152 GALS
NICKEL SULFAMATE		M89 m09	100 GALS
NICKELOUS SULFATE		M89 m09	500 LBS
POTASSIUM FERRICYANIDE		G99	66,740 LBS
POTASSIUM FERROCYANIDE		G99	13,460 LBS
PR-491 (60% METHYLENE CHLORIDE, 15% METHANOL, 20% PROPYLENE CHLORIDE)		A02	3,740 GALS
TETRANHYDROFURAN		G99	79 GALS
XYLENE (% ETHYLBENZENE AS CONTAMINANT)	001330-20-7	D03	60,026 GALS
XYLENE (% ETHYLBENZENE AS CONTAMINANT)	001330-20-7	D03	2,889 LBS

ATTACHMENT 4

ADDITIONAL SUBSTANCES OF CONCERN USED IN SMALLER VOLUMES (< 50gal or 400lbs)

NAME OF SUBSTANCE		
ALUMINUM		m99
ALUMINUM OXIDE		m99
ALUMINUM OXIDE		m99
ALUMINUM SULFATE		m99
CHLOROFORM	0000 67-66-3	A03
CHROMIUM	007440-47-3	m05
CHROMIUM TRIOXIDE		m05
COPPER (PELLETS)	007440-50-8	m06
COPPER NITRATE		m06
COPPER SULFATE		m06
CUPRIC CHLORIDE		m06
CUPRIC NITRATE TRIHYDRATE		m06
DIBUTYL PHTHALATE		
DICHLOROETHANE		
DIETHYL PHTHALATE		
ETHYLBENZENE		
FERRIC AMMONIUM SULFATE		
FERROUS AMMONIUM SULFATE		
FICC (70% FREON, 30% IPA)		
FREON MS-160		
FREON MS-180		
FREON QUICK FREEZE MS-240		
FREON TA		
FREON TMC		
LEAD ACETATE		
LEAD NITRATE		
MAGNESIUM CHLORIDE		
MANGANESE SULFATE		
MERCURIC NITRATE		m08
MERCURY	00 7439 97 6	m08
MONOCHLOROBENZENE		
NAPHTHALENE		
NICKEL CARBONATE		m09
NICKEL SULFATE		m09
PERCHLOROETHYLENE	000 127 184	A13
PHENOL	000 108 95 2	F01
PYRIDINE		
SILVER NITRATE		
STANNOUS CHLORIDE		
TOLUENE	000 108-88-3	D02
TRICHLOROBENZENE		
TRICHLOROETHYLENE		
TRICHLOROTRIFLUOROETHANE		
ZINC SULFATE		m13

ATTACHMENT 5

ADDITIONAL CHEMICALS USED ON SITE

NAME OF CHEMICAL

ACETIC ACID
ACETIC, ANHYDRIDE
ACETONE
ACETONITRILE
5 AMMONIA, ANHYDROUS
AMMONIUM FLUORIDE
AMMONIUM HYDROXIDE
AMMONIUM PERSULFATE
ANTHRAQUINONE
10 ANTHRICITE
BARBITURIC ACID
BARIUM HYDROXIDE
BENZYL ALCOHOL
BORIC ACID
CALCIUM CHLORIDE DIHYDRATE
CARBON DIOXIDE
CERIC SULFATE
DEHYDROABIETIC ACID
DIMETHYL SULFOXIDE (DMSO)
20 DIPHENYLCARBAZIDE
EDTA (ETHYLENEDIAMINETETRAACETIC ACID)
ETHANE
ETHYL ACETATE
ETHYL ALCOHOL
25 ETHYL SILICATE
ETHYLENE GLYCOL
ETHYLENEDIAMINE
FORMIC ACID
GLYCERINE
30 HEPTANE
HEXAMETHYL DISILIZANE
HEXANE
HTH
HYDRAZINE HYDRATE
35 HYDROCHLORIC ACID
HYDROFLUORIC ACID
HYDROGEN PEROXIDE
IODINE
ISOAMYL ACETATE
40 ISOPROPAL ACETATE
LIMONENE
MANNITOL
METHANOL
METHYL ALCOHOL
45 METHYL BLUE
METHYL ETHYL KETONE
46

ATTACHMENT 5

ADDITIONAL CHEMICALS USED ON SITE

NAME OF CHEMICAL

METHYL RED
MURIATIC ACID
N-METHYL-Z-PYRROLIDONE
N-PROPYL ALCOHOL
5 NITRIC ACID
NITRIC OXIDE
NITROGEN, LIQUID
PHENOLPHTHALEIN
PHOSPHOMOLYBDIC ACID
10 PHOSPHORIC ACID
POTASSIUM HYDROXIDE
POTASSIUM IODIDE
POTASSIUM NITRATE
POTASSIUM PERMANGANATE
15 POTASSIUM THIOCYANATE
PROPYLENE GLYCOL
PYROCATECHOL
SODIUM BICARBONATE
SODIUM CARBONATE
20 SODIUM CHLORIDE
SODIUM FLUORIDE
SODIUM HYDROXIDE
SODIUM HYPOCHLORITE
SODIUM META BISULFITE
25 SODIUM OXALATE
SODIUM PERSULFATE
SODIUM PHOSPHATE
SODIUM SULFATE
SODIUM SULFIDE
30 SODIUM SULFITE, ANHYDROUS
SODIUM TARTRATE DIHYDRATE
SODIUM THIOSULFATE
SODIUM TUNGSTATE DIHYDRATE
SULFAMIC ACID
35 SULFUR
SULFUR DIOXIDE
SULFUR HEXAFLUORIDE
SULFURIC ACID
TETRAHYDROFURAN
TETRAMETHYLGUANIDINE
40 THIOUREA
41

41 + 46 = 87

ATTACHMENT 6

GASES USED ON SITE

NAME OF GAS
ACETYLENE
AIR (COMPRESSED AIR)
ARGON
BERNZAMATIC (PROPANE)
BUTANE
FREON 11
FREON 114
FREON 115
FREON 13
FREON 14
FREON 22
FREON 23
FREON 500
FREON 503
HELIUM
HYDROGEN
METHANE
NITROGEN
NITROMETHANE
NITROUS OXIDE
OXYGEN
PROPANE

ATTACHMENT 7

TRADE NAMES AND MANUFACTURERS OF CHEMICALS WITH UNKNOWN CONSTITUENTS

(> 50 gal or 400 lbs)

MFG CODE *	TRADE NAME OF CHEMICAL	AVERAGE ANNUAL USAGE
1	ADHESIVE, PERMABOND (EASTMAN) 910	280 GALS
52	ADHESIVE, RTV 102 SILICONE WHITE	80 GALS
61	ANTI-FREEZE	782 GALS
62	AQUA SOL	110 GALS
8	BETZ, CORR-SHIELD 736	220 GALS
8	BETZ, CORROGEN WATER TREAT	6,000 LBS
8	BETZ, FERROSPERSE	55 GALS
8	BETZ, INHIBITOR #30K	N/A
8	BETZ, INHIBITOR #752	19,320 LBS
8	BETZ, LIQUI-TREAT AL-1543	960 LBS
8	BETZ, LIQUI-TREAT AL-1935	980 LBS
8	BETZ, NEUTRA FILM #463	19,800 LBS
8	BETZ, POLYMER #1123L	3,800 LBS
8	BETZ, SLIMCIDE #508	3,000 LBS
34	CARBON, ACTIVATED (4 X 6 MESH)	2,000 LBS
34	CARBON, AQUA NUCHAR ACTIVATED	50,010 LBS
79	CLEANER, 409	700 GALS
9	CLEANER, AMWAY INDUSTRO CLEAN	55 GALS
10	CLEANER, EASY OFF WINDOW	360 GALS
69	CLEANER, LIQUI-NOX	104 GALS
4	CLEANER, NEUTRA CLEAN #7	3,360 LBS
5	CLEANER, PENNWALT K-2	581 LBS
	CLEANER, PVC	78 GALS
	CLEANER, SPRAYWAY GLASS	150 GALS
75	CLEANER, SUPER GREASE - GONE NB	110 GALS
179	CLEANERS, FOR CEILING TILE	65 GALS
2	COOLANT, DOW CORNING SUMMER-WINTER	110 GALS
109	DE-ICING FLUID, AIRCRAFT C	55 GALS
173	DISPERSANT, BENSON ELECTROSTATIC	157 GALS
88	EMULSIFIER ZE-48	55 GALS
	ETCHANT, NEUTRA ETCH V-1	380 GALS
31	ETCHANT, PF ETCH	1,540 GALS
50	FC-43	3,770 LBS
50	FC-72	29,834 LBS
50	FC-84	42,000 LBS
14	FLUX, ALPHA 102-1500	400 GALS
15	FLUX, LONCO 3355-11	385 GALS
15	FLUX, LONCO CF 430	341 GALS
15	FLUX, LONCO CF 430 M	143 GALS
	JET FUEL A1	3,000 GALS
1	KODAK, PMT ACTIVATOR #197-8022	56 GALS
20	NAACO, HI REZ DEVELOPER CONCENTRATE	6,600 GALS
20	NAACO, REVERSAL BLEACH CONCENTRATE	2,640 GALS
20	NAACO, REVERSAL CLEAR	1,760 GALS
20	NAACO, ZIP FIX (CONCENTRATE PART I)	3,300 GALS
180	OAKITE, DRYCID	330 GALS

* SEE CORRESPONDING LIST OF MANUFACTURER'S NAMES AND ADDRESSES

ATTACHMENT 7

TRADE NAMES AND MANUFACTURERS OF CHEMICALS WITH UNKNOWN CONSTITUENTS

(> 50 gal or 400 lbs)

MFG CODE *	TRADE NAME OF CHEMICAL	AVERAGE ANNUAL USAGE
180	OAKITE, LIQUALIN	165 GALS
	OIL, ARCO DURO AWS 150	110 GALS
129	OIL, BLASOCUT 2000 UNIVERSAL	60 GALS
131	OIL, DUO SEAL PUMP	670 GALS
133	OIL, HABCOOL 344 TAPPING	110 GALS
134	OIL, HEAT TRANSFER FLUID UC 500	1,165 GALS
135	OIL, HYDRAULIC #150 PREMIUM AW	110 GALS
137	OIL, MOBIL #600	110 GALS
137	OIL, MOBIL DTE #24	1000 GALS
137	OIL, MOBIL DTE HEAVY MEDIUM	450 GALS
137	OIL, MOBIL SHC 639	110 GALS
137	OIL, MOBIL VACVOLINE #1405	110 GALS
137	OIL, MOBIL VELOCITE #10	650 GALS
138	OIL, MOLUB ALLOY 20	1,660 GALS
126	OIL, MONOLEC AIR-COMP GRADE 6202	80 GALS
126	OIL, MONOLEC TURBINE LE #6402	110 GALS
126	OIL, MONOLEC TURBINE LE #6404	110 GALS
139	OIL, MONSANTO OS-124	200 GALS
116	OIL, NYETACT #517	156 GALS
98	OIL, SHELL OMALA H	55 GALS
98	OIL, SHELL TURBO #150-40 WT	110 GALS
98	OIL, SHELL TURBO #68	110 GALS
140	OIL, SUNVIS 951	440 GALS
	OIL, SUNWAY #90	113 GALS
181	OIL, TEXACO CAPELLA WF 68	110 GALS
181	OIL, TEXACO TRANSFORMER	50 GALS
142	OIL, UNITRAC FLUID (VALVOLINE)	110 GALS
145	OIL, YORK C	110 GALS
147	PAINT, IBM BLACK #825	600 GALS
147	PAINT, IBM CLASSIC BLUE #696	113 GALS
147	PAINT, IBM ROSE GARNET #698	100 GALS
147	PAINT, IBM SKY BLUE #720	144 GALS
147	PAINT, IBM VARIOUS COLORS	266 GALS
147	PAINT, IBM WHITE #647	150 GALS
148	PAINT, KRYLON VARIOUS COLORS	250 GALS
6	PENETONE, BUS WASH CLEANER	220 GALS
6	PENETONE, CLEANER CQ-832	1,200 GALS
6	PENETONE, NAVEE 42 SOLVENT	130 GALS
6	PENETONE, PEN-STRIP 5061	390 GALS
88	PENETRANT,ZL-ZZC	55 GALS
150	PHOTO, ELECTROSTIC SOLUTION #83-0-104055	120 GALS
	PRIMER, 548 LIGHT GRAY	200 GALS
29	SEALER, FLOOR (RAWHIDE)	1,350 GALS
159	SEL-REX CU BATH M MAKE-UP	110 GALS
4	SHIPLEY, AZ 303 DEVELOPER	1,900 GALS
4	SHIPLEY, AZ THINNER	83 GALS

* SEE CORRESPONDING LIST OF MANUFACTURER'S NAMES AND ADDRESSES

ATTACHMENT 7

TRADE NAMES AND MANUFACTURERS OF CHEMICALS WITH UNKNOWN CONSTITUENTS

(> 50 gal or 400 lbs)

MFG CODE *	TRADE NAME OF CHEMICAL	AVERAGE ANNUAL USAGE
4	SHIPLEY, AZ111 PHOTO RESIST	70 GALS
4	SHIPLEY, IMMERSION TIN LT-26	2,679 LBS
4	SHIPLEY, TIN POSIT LT-34	1,213 GALS
14	SOLDER, TIN BISMUTH	2,800 LBS
14	SOLDER, TIN-LEAD	3,600 LBS
	SOLVENT, DEGREASER SOLUTION	520 GALS
136	SOLVENT, ISOPAR M	55 GALS
84	SOLVENT, SAFETY SS-480	110 GALS
137	SOLVENT, SOVASOL #5	686 GALS
12	STRIPPER, MAC DERMID S-43	120 GALS
168	STRIPPER, MAGNUS 152 DX	55 GALS
167	STRIPPER, URESOLVE PLUS/URESOLVE PLUS SG	130 GALS
171	THINNER, #1702	155 GALS
176	WATER TREAT CHEM, ENTEC #321	1,320 GALS
176	WATER TREAT CHEM, ENTEC #353	1,320 GALS
176	WATER TREAT CHEM, ENTEC #703	220 GALS
176	WATER TREAT CHEM, ENTEC #713	220 GALS
176	WATER TREAT CHEM, ENTEC #725	110 GALS
176	WATER TREAT CHEM, ENTEC #733	110 GALS
176	WATER TREAT CHEM, ENTEC #907	110 GALS
175	WATER TREAT CHEM, G-C FORMULAR #245	400 LBS
175	WATER TREAT CHEM, G-C FORMULAR #291	480 LBS
175	WATER TREAT CHEM, G-C FORMULAR 20 LZ	500 LBS
175	WATER TREAT CHEM, G-C FORMULAR 30 A	600 LBS

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* SEE CORRESPONDING LIST OF MANUFACTURER'S NAMES AND ADDRESSES

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

ACTIVATED CARBON 12 X 40 MESH
ACTIVATOR, CP #290 B
ACTIVATOR, PD 28-0222
ADHESIVE, 3M PRONTO INSTANT CA-5
ADHESIVE, 3M SCOTCHGRIP #34
ADHESIVE, 3M SCOTCHGRIP #826
ADHESIVE, 3M SCOTCHGRIP #880
ADHESIVE, 3M SCOTCHWELD #3520
ADHESIVE, ABLEBOND #789-3
ADHESIVE, ACME E-SOLDER RESIN 3021 A
ADHESIVE, ALPHA ARON VIGOR 101
ADHESIVE, BEST-TEST PAPER CEMENT
ADHESIVE, BOAT ARMOUR
ADHESIVE, BOSTIK THERMOGRIP
ADHESIVE, CONAP CE-1157
ADHESIVE, CONTACT CEMENT
ADHESIVE, DUCO HOUSEHOLD CEMENT #6244P
ADHESIVE, E-Z MASS CAST S-40
ADHESIVE, ELMERS GLUE
ADHESIVE, KRAZY GLUE
ADHESIVE, M-BOND 200
ADHESIVE, M-BOND A-12
ADHESIVE, M-BOND AE-10
ADHESIVE, M-COAT C
ADHESIVE, M-COAT D
ADHESIVE, M-COAT Q
ADHESIVE, M-COAT-G
ADHESIVE, PERMABOND QUICKBOND #610
ADHESIVE, PERMABOND SUPER GLUE #747
ADHESIVE, PVC CEMENT
ADHESIVE, RESISTER CEMENT #78
ADHESIVE, RTV 103 SILICONE BLACK
ADHESIVE, RTV 106 SILICONE RED
ADHESIVE, RTV 112 SILICONE WHITE
ADHESIVE, RTV 116 SILICONE
ADHESIVE, RTV 118 SILICONE (GE)
ADHESIVE, RTV 630 SILICONE A & B
ADHESIVE, RTV 732 SILICONE BLACK
ADHESIVE, SANFORD RUBBER CEMENT
ADHESIVE, SCOTCHGRIP #1099
ADHESIVE, SCOTCHGRIP #1357
ADHESIVE, SICOMET 2400
ADHESIVE, SICOMET 7900
ADHESIVE, SICOMET 99
ADHESIVE, SILASTIC 737
ADHESIVE, SILASTIC 739

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

ADHESIVE, VASCOCEL SEAL
ADHESIVE, WELDWOOD CONTACT CEMENT
AEROSOL, DUST CHASER
AEROSOL, DUST-OFF
AEROSOL, EFFA DUSTER (MICRO DUSTER)
AEROSOL, PHFFT DUSTER (FREON 12)
ALPHA NEUTRALIZER #2443
ALUMINA, NEUTRAL A-950
ALUMINUM POWDER, 200 MESH
ALUMINUM, BRAZING KIT
ANSTAC 2M
BESTINE
BETZ, 439
BETZ, BROMTHYMOL BLUE IND. #417B
BETZ, CALCIUM INDICATOR #293
BETZ, CHELANT BUFFER SOLUTION CODE #954
BETZ, CHELANT DYE SOLUTION CODE #953
BETZ, GALLIC ACID #276
BETZ, HARDNESS BUFFER #291
BETZ, HARDNESS INDICATOR #290
BETZ, HARDNESS TITRATION #292
BETZ, MOLYBDATE #236
BETZ, PHENOL RED INDICATOR #418 B
BETZ, PHENOLPHTHALEIN INDICATOR #212
BETZ, PHOSPHATE STANDARD #264
BETZ, POTASSIUM CHROMATE INDICATOR #213
BETZ, POTASSIUM IODIDE IODATE #237
BETZ, SILVER NITRATE #207
BETZ, SODIUM HYDROXIDE #255
BETZ, STANNOUS REAGENT #239
BETZ, SULFITE INDICATOR #219
BETZ, SULFURIC ACID #283
BETZ, SULFURIC ACID .5% #256
BETZ, SULFURIC ACID CODE #202
BETZ, WATER SOLUBLE POLYMER #1120
BETZ, WATER TREAT CHEM AP-II
BUFFER SOLUTION 7.PH
BUFFER SOLUTIONS - VARIOUS
CARBON, ACTIVATED CHARCOAL S-51
CARBON, G-60 (POWDERED)
CHILLER, SPRAY-ON CIRCUIT
CLEANER, ALCONOX
CLEANER, CALCLEAN
CLEANER, CHEM ACTION
CLEANER, CHEM-CREST 14
CLEANER, CIRCUIT SCRUB H

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

CLEANER, CITRIKLEEN
CLEANER, CONTACTEEN 210-12
CLEANER, DO-ALL KLEEN SURF
CLEANER, ENCOMPASS
CLEANER, FANTASTIK SPRAY
CLEANER, FAULT FINDER
CLEANER, IBM TAPE TRANSPORT
CLEANER, IBM TAPE UNIT
CLEANER, KRENGEL STAMP #216
CLEANER, MARKEM 204
CLEANER, MARKEM 320
CLEANER, MARKEM 500
CLEANER, MARKERBOARD
CLEANER, MOGUL C-64
CLEANER, N-L CONCENTRATE
CLEANER, NORCOL INDUSTRIAL SYSTEM CLEANER
CLEANER, PERMA BRAND STAMP CLEANER #30
CLEANER, PORTO BLAST PENTRATE
CLEANER, SPRA-LUBE #GC8888
CLEANER, SPRAY NINE
CLEANER, SPRAYWAY ANTI-STATIC #955
CLEANER, SUPER-COTE LENS & MIRROR
CLEANER, TECHNI-ELECTRO B/N
CLEANER, THERMO FAX BELT
CLEANER, WINDEX GLASS
CLEANER, WINDSHIELD WASHER FLUID
CLOROX
COATING, CONAP CE-1157
COATING, COSMOLINE #1102
COATING, DOW CORNING 1-2577
COATING, ECCOCOAT GSB
COATING, HUMISEAL #1A33
COATING, PDS PLASTIC
COATING, ROBLACK CU
COLLODION VITAL
DEVELOPER, 3M TYPE "R"
DEVELOPER, A & M MIX 83-1-104476
DEVELOPER, CP #296 B
DEVELOPER, CP #298 B
DEVELOPER, FAULT FINDER #1013
DEVELOPER, POS ONE
DEVELOPER, RISTON 2000
DEVELOPER, VGC
DIAMOND PASTE 1 MICRON
DIAMOND PASTE 6 MICRON
DISINFECTANT SANAMINE

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

DISPERSANT VERSATEC CLEAR
DOW CORNING #1-2577 ADHESIVE
DOW CORNING #200 FLUID
DOW CORNING #340 SILICONE GREASE
DOW CORNING #4 COMPOUND
DOW CORNING HIGH VACUUM GREASE
DOW CORNING PRIMER #1200
DOW CORNING VALVE SEAL
DRIERITE 8 MESH (BLUE)
DYE, ADDITIVE C206
DYE, FLUORESCEIN
DYE, MORDANT BLUE 69
EMULSITONE SOLUTION 163
EPOXY, 3M SCOTCHWELD #1838 A& B
EPOXY, ACME CONDUCTIVE #3021
EPOXY, BOND FAST SET #530321
EPOXY, BUTANE, 1, 2
EPOXY, CG-4226
EPOXY, CONAP K-230 A/B
EPOXY, CORVEL TOUCHUP #LC 1368
EPOXY, DELTA BOND
EPOXY, DEVCON #353 (EPO-TEX)
EPOXY, DEVCON 5 MINUTE
EPOXY, ECCOBOND #285 WITH CATALYST #11
EPOXY, EPO-TECH 302
EPOXY, EPO-TECH 353 ND
EPOXY, EPOKWICK HARDENER #301
EPOXY, EPON CURING AGENT D
EPOXY, EPON CURING AGENT Z
EPOXY, EXTRA FAST #8778
EPOXY, FAST CURE KIT
EPOXY, FENWAL ADHESIVE #900-000-000-315
EPOXY, FENWAL RESIN PACK #80055-208
EPOXY, HARDENER, ARALDITE #951
EPOXY, HARDENER, BUEHLER 20-8132/8133
EPOXY, HARDENER, KOLDMOUNT #3342
EPOXY, HARDENER, KOLDMOUNT #3346
EPOXY, HYSOL CLEAR SET #0151
EPOXY, HYSOL FROZEN KIT #0151
EPOXY, HYSOL HARDENER TH2-3520
EPOXY, HYSOL PATCH KIT #608-A & B
EPOXY, HYSOL PC-15 PART A & B
EPOXY, NOVALAC (WHITE)
EPOXY, OMEGA #08-101-1/2
EPOXY, OMEGA #0B-101-16
EPOXY, RESIN, ARALDITE 502

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

EPOXY, RESIN, EPON 1031
EPOXY, RESIN, EPON 828
EPOXY, RESWELD A/B
EPOXY, STRIPPER, CT #325
EPOXY, TRA BOND BA-F120
EPOXY, TRA BOND F-230 RESIN/HARDENER
EPOXY, UNISET A-312
ETCHANT, FERRIC CHLORIDE 36-40 DEGREES
FC-77
FIXER, VCG
FLUX REMOVER, MS-165
FLUX REMOVER, MS-170
FLUX REMOVER, MS-180
FLUX, ALPHA 100-40
FLUX, ALPHA 200 L
FLUX, ALPHA 201 B
FLUX, ALPHA 709
FLUX, ALPHA 830
FLUX, ALPHA 941
FLUX, ALPHA VARIOUS
FLUX, ALUMINUM SOLDERING
FLUX, FLOTECTIC 1100
FLUX, KESTER 197
FLUX, KESTER SOLDER 1571
FLUX, STAY CLEAN
FLUX, STAY SILV
GAS MIXTURE, LASER
GAS, CALIBRATION IN HELIUM
GAS, DE-100
GAS, NITROGEN MIXTURE
GAS, P-10
GAS, PDE-100
GLAZE REMOVER, RAPID ONE STEP CONCENTRATE
GLYCERINE (FISHER G-33)
GREASE, ALVANIA #1
GREASE, ALVANIA #2
GREASE, DIE MAKER
GREASE, GULFSTREAM P-L-C
GREASE, INGERSOL #28
GREASE, LITHIUM SOAP #2
GREASE, LUBRIKO M-6
GREASE, LUBRIPLATE 630-2
GREASE, MAGNALUB
GREASE, MOBIL TEMP
GREASE, MOLYKOTE 44 SILICONE
GREASE, MOLYKOTE SR2

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

GREASE, OPTILUBE PD-1-500-7031
GREASE, PENNZOIL 705 MULTI-PURPOSE WHITE
GREASE, PG 1 LIGHT
GREASE, PG 3 MEDIUM
GREASE, PG 32 MEDIUM BEARING
GREASE, PG 4 HEAVY
GREASE, PG 44 HEAVY BEARING
GREASE, TEFLON ALL PURPOSE #1243K11
HARDENER, BOAT ARMOUR #573-2
HARDENER, CASTOLITE
INDICATOR, MAGNAGLO 14A
INDICATOR, THYODENE DRY
INHIBITOR, RUST LICK B
INK, A & M CS-174 BLACK
INK, ACT I & ACT II PRINTER
INK, AERO #141 (VARIOUS COLORS)
INK, AERO #141 OPAQUE ORANGE
INK, BLACK FOR 6640 PRINTER
INK, BLACK STENCIL MODEL B
INK, DYKEM LAYOUT RED #DX 296
INK, HAND SOAP SOLVENT #30 PRINTERS
INK, HUNT BLACK #3450 & #3650
INK, HUNT WHITE #3455
INK, IMPRINTER DETACHER BLACK
INK, MARCO BLACK #S-1141
INK, MARCO WHITE #S-1141
INK, MARK TEX YELLOW
INK, MARKEM WHITE #7132
INK, MARKEM WHITE #7907
INK, PERMA BRAND WHITE CK-13
INK, RECORDER BLUE #RS0003
INK, RECORDER GREEN #RS0006
KLENZ GLIDE #10
KOADK, RAPID FIXER B #197-3221
KOCOUR SOLUTION R 64
KOCOUR SOLUTION R46
KOCOUR SOLUTION R47
KOCOUR SOLUTION R48
KOCOUR SOLUTION R50
KOCOUR SOLUTION R54
KOCOUR SOLUTION R56
KOCOUR SOLUTION R60
KOCOUR SOLUTION R61
KOCOUR SOLUTION R62
KOCOUR SOLUTION R70
KOCOUR SOLUTION R72

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

($<$ 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL
KOCOUR SOLUTION R73
KOCOUR SOLUTION R74
KODAK INDUSTREX DEVELOPER STARTER
KODAK, ACTIVATOR #S11
KODAK, ACTIVATOR G 180 B
KODAK, DEV. & REPL (190-0984) (GBX)
KODAK, DEVELOPER DEKTAL
KODAK, DEVELOPER SYSTEM CLEANER
KODAK, EKTAMATIC A-10 ACTIVATOR 1475953
KODAK, EKTAMATIC STABILIZER S 30
KODAK, FIXER WASH SYSTEM CLEANER
KODAK, IND. DEV. & REPL. (A, B, C)
KODAK, INDICATOR STOP BATH
KODAK, INDUSTREX FIXER & REPL. A & B
KODAK, ITEK CAMERA PROCESSOR DEVELOPER
KODAK, ITEK CAMERA PROCESSOR FIXER
KODAK, KODALITH LIQUID DEVEL PART A
KODAK, KODALITH LIQUID DEVEL PART B
KODAK, KODALITH MP 11 CONTRAST CONTROL
KODAK, KODALITH MP 11 DEVEL A & B #127-5734
KODAK, KODALITH MP 11 DEVEL. & REPL. A & B
KODAK, LIQUID RAPID FIXER
KODAK, LIQUID X-RAY DEVEL & REPL A & B
KODAK, MICRO POSITIVE RESIST #820
KODAK, PHOTO-FLO 200 SOLUTION
KODAK, RAPID FIXER A #197-3247
KODAK, RAPID FIXER A & B WITH HARDENER
KODAK, SUPERMATIC 22 FIXER
KODAK, SUPERMATIC 55 DEVELOPER
KODAK, SUPERMATIC STOP BATH
LIQUID CRYSTAL
LOCTITE, 1703 ADHESIVE
LOCTITE, 271 ADHESIVE
LOCTITE, 404 ADHESIVE
LOCTITE, ACTIVATOR 707
LOCTITE, ADHESIVE 242
LOCTITE, ADHESIVE 415
LOCTITE, ADHESIVE 422
LOCTITE, ADHESIVE 496
LOCTITE, BLACK MAX ADHESIVE
LOCTITE, FLUSHING SOLVENT
LOCTITE, HYDRAULIC SEALANT
LOCTITE, NMS SOLVENT 76820
LOCTITE, PRIMER T
LOCTITE, SUPER BONDER #416
LOCTITE, SUPER BONDER 414

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

LOCTITE, SUPER BONDER 430
LOCTITE, SUPER BONDER 495
LOCTITE, SUPER BONDER 498
LOCTITE, SUPERFLEX ADHESIVE #595
LOCTITE, SUPERFLEX ADHESIVE #596
LOCTITE, TAC PACK SYSTEM #00216
LOCTITE, TAC PAK ADHESIVE #12294
LOCTITE, TOUGH INSTANT ADHESIVE
LUBRICANT, ALMAPLEX INDUSTRIAL #1275
LUBRICANT, ALMASOL #607
LUBRICANT, ALMASOL #608
LUBRICANT, AMP MECH. 27011-1
LUBRICANT, EXTREME PRESSURE #3
LUBRICANT, GREASE #9102
LUBRICANT, MICROID EXTENDER
LUBRICANT, MOBIL DEXRON FLUID RED
LUBRICANT, MS-238 CONTACT RE-NU & LUBE
LUBRICANT, SILVER GOOP MST-TL-SGT
LUBRICANT, SPRAFLEX (AEROSOL)
LUBRICANT, STARRETT M1
LUBRICANT, TAP EASE
LUBRICANT, THROAT SEAL
LUBRICANT, TOM PAC TP-3587
LUBRICANT, WHITMORE ROPE SPRAY
M CRESOL HPLC GRADE
MICROSCOPE, OCULAR CLEANING KIT
MOLD RELEASE, HYSOL AC4-4367
MONDUR CB-60
NAACO, ZIP-FIX HARDENER
OAKITE 255 RUST INHIBITOR
OAKITE 32
OAKITE 33
OIL, 40 WT NON DETERGENT
OIL, ALUM TAP CUTTING
OIL, BUEHLER METADI FLUID
OIL, COBAR OPTI FLOW #803
OIL, COOL-TOOL CUTTING (TAP FREE)
OIL, COOLANT FLUID #24KI
OIL, CROWN PENETRATING #6030
OIL, DELICATE MACHINERY #117
OIL, DIESEL SF/CC
OIL, FUSER FOR CANON 270
OIL, FUSER FOR IBM 102 COPIER
OIL, GEAR OIL #150 AGMA #8 CPD
OIL, IBM #6
OIL, ISOCUT CUTTING FLUID #11-1195-032

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

($<$50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

OIL, LUBRI PLATE 130-AA
OIL, MARVEL PENETRATING
OIL, MINERAL
OIL, MOBIL ATF 220
OIL, MOBIL VACTRA #2
OIL, MOBIL VACTRA #4
OIL, MOBIL VELOCITE #6
OIL, MONOLEC GFS ENGINE SAE 30
OIL, MONOLEC PENETRATING #2059
OIL, MONOLEC TURBO #6404
OIL, NUJOL
OIL, NYETACT 174A WITH DYE
OIL, PRECISION VACUUM OIL
OIL, REFRIGERATE PP-66
OIL, SAE 20 HEAVY MEDIUM
OIL, SAE 30 W NON DETERGENT
OIL, SANTOVAC #5 FUSING PUMP
OIL, SOLUBLE #10-3330-032
OIL, SUNNEN HONING MB 30
OIL, TEXACO REGAL R & O #32
OIL, THERMO-SOLVE CONCENTRATE #1811
OIL, THREE IN ONE
OIL, TONNA 68
OIL, UNIVOLT 60
OIL, UNIVOLT N 61
OIL, VIRGINIA REFRIGERATION
OIL, WAY-LUB #80
OIL, WD-40
OIL,FOMBLIN Y-25
PAINT, CARBON SPI #5006
PAINT, CONDUCTIVE SILVER
PAINT, DUPONT BLACK 99L
PAINT, IBM BLACK #2225
PAINT, IBM BLACK #805
PAINT, IBM BROWN #659
PAINT, IBM CHARCOAL #645
PAINT, IBM CHARCOAL #812
PAINT, IBM DULL WHITE #815
PAINT, IBM GREEN #697
PAINT, IBM GREY #658
PAINT, IBM PEARL WHITE #634779
PAINT, IBM PEBBLE GRAY #645
PAINT, IBM SUNRISE YELLOW #699
PAINT, KRYLON CHARCOAL GRAY
PAINT, KRYLON CRYSTAL CLEAR #1303
PAINT, KRYLON FLAT BLACK #1602

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

PAINT, KRYLON RED ORANGE #1301
PAINT, KRYLON SUNSET ORANGE #2401
PAINT, LILLY SMOOTH - BLACK
PAINT, RANDOLPH FROST WHITE #767
PAINT, RANDOLPH GRAPHITE GRAY
PAINT, RANDOLPH SHADOW GRAY
PAINT, RANDOLPH SHALE GRAY
PAINT, RANDOLPH SHELL GRAY
PAINT, RELIANCE WILLOW GREEN
PASTE, UGL SPACKLING PASTE
PENETRANT, FAULT FINDER
PERMATEX, 6M FORM A GASKET
PHOTO, 3M PROCESS GUM R
PHOTO, AQUA AMMONIA
PHOTO, FUSER WEB #CHAWB
PHOTO, MULTIGRAPHICS FTN 83-2-104525
PHOTO, POS ONE RINSE ADDITIVE
PHOTO, REPELEX CONC. 200-722
PHOTO, SENSITIVE MARKING KIT
PLATE CHEM, CYANIDE CU STRIKE
PLATE CHEM, ELECTROLESS NI PLATING
PLATE CHEM, NI WATTS
POLISH, BUEHLER TECH-MET 40-3200
POLISH, MICROPOLISH A
POLISH, NOXON METAL
POLYAMIDE, VERSALON SR 2
POLYMER, FLOCCULANT #3005
POLYMER, FLOCCULANT #7610
PRIMER, SILICONE #4004
PRIMER, SYLGARD
PROCESS CHEMS, LEA RONAL PROCESS X2009
REAGENT, ACID FOR HIGH RANGE SILICA
REAGENT, CALCIUM CHLORIDE
REAGENT, CAPPING SOLUTION #61090
REAGENT, CITRIC ACID PILLOWS FOR SILICA
REAGENT, DIPHENYLCARBAZONE #836-99
REAGENT, FYRITE CO2 INDICATOR #10-5057
REAGENT, FYRITE CO2 INDICATOR #11-0169
REAGENT, GENERATOR SOLUTION #27-12201
REAGENT, HACH HARDNESS 3 TEST SOLUTION
REAGENT, MANGANESE SOLUTION
REAGENT, METHYL THYMOL BLUE
REAGENT, MOLYBDATE FOR HIGH SILICA
REAGENT, NEUTRALIZE SOLUTION
REAGENT, REAQUANT TITRANT
REAGENT, SPADNS FOR FLUORIDE

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(<50 gal or 400 lbs)

TRADE NAME OF CHEMICAL
REAGENT, TRIAZOLE
REAGENT, UNIVER 2 #850-99
REAGENT, VESSEL SOLUTION #271-220-B
RELEASE AGENT, MS-122 (FLUOROCARBON)
RESIN HARDENER, BOAT ARMOUR #573-2
RESIN, ANION A-641-SG
RESIN, CASTOLITE
RESIN, CATION C-267-SG
RESINS, ANION A-641-BZ
RESINS, ANION AFP 329
RESINS, CATION CFP 110
RESINS, CATION CFP 110 BZ
RESINS, INERT IBZ
RINSE, POS ONE RINSE (VGC)
RISTON, 1010
RISTON, 1015
RISTON, 215 R
RUSTOLEUM YELLOW #659
SAFE-T-STAIN
SALT BUTTONS
SALT CRYSTALS SOLAR
SEL-REX CU BATH M HY
SEL-REX, ANODE ACTIVATOR #1003
SEL-REX, AUROBOND MAKE-UP
SEL-REX, AUTRONEX CI
SEL-REX, AUTRONEX CI ACID SOLUTION
SEL-REX, AUTRONEX CI BASE SALT
SEL-REX, NICKEL SULFAMEX SOLUTION
SEL-REX, PLATANEX III CONDUCTING SALTS
SEL-REX, STRESS REDUCER
SEL-REX, SULFAMEX ANODE ACTIVATOR
SEL-REX, SULFAMEX WETTING AGENT
SHIPLEY, AZ 1350 J PHOTO RESIST
SHIPLEY, AZ 1375 PHOTO RESIST
SHIPLEY, AZ 2401 DEVELOPER
SHIPLEY, AZ 351 DEVELOPER
SHIPLEY, AZ DEVELOPER
SHIPLEY, REMOVER 1112 A
SHIPLEY, SJR 1825 PHOTO RESIST
SILICONE, 1038 CHO-BOND
SILICONE, BATH OIL
SILICONE, IMS S-512
SLURRY, I&M #801
SNOOP, LIQUID LEAK DETECTOR
SOLDER CREAM, LONCO WC 15-430 M
SOLDER, ALUMINUM

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

SOLDER, HARRIS SAFETY SILV 1200
SOLDER, KESTER 1 LB SPOOLS
SOLDER, KESTER 44
SOLVENT, BLACK BEAR PAR-AL-KETONE
SOLVENT, BLANKET WASH #4-4347
SOLVENT, BOSTIK #3351 ACTIVATOR
SOLVENT, DE-ICER FLUID
SOLVENT, DEBONDER CONCENTRATE
SOLVENT, JAPAN SPIRIT (DRIER #1000)
SOLVENT, LAWSON CHAIN LUBRICANT
SOLVENT, LIQUID WRENCH
SOLVENT, MERRIT-ONE #1
SOLVENT, MIRACLE WOOD
SOLVENT, PLASTIC WOOD
SOLVENT, PRIMER 1204
SOLVENT, SOLKETAL
SOLVENT, SOUND CRAFT MAGNA-SEE
SOLVENT-FREE CONCRETE SEAL
STABILIZER, RAPIDOPRINT G-380-B
STANDARD, CHLORIDE 2 INDICATOR
STANDARD, COPPER AA REFERENCE
STANDARD, IRON #88073
STANDARD, IRON AA REFERENCE
STANDARD, TIN #88112
STANDARD, TITANIUM ATOMIC ABSORPTION
STANDARDS, CALCIUM CHLORIDE SOLUTION
STANDARDS, FORMAZIN TURBIDITY
STANDARDS, SULFA VER 4
STANDARDS, VARIOUS
STILBENE 3
STRIPPER, DECAP II
STRIPPER, METEX SOLDER
STRIPPER, MS-111
STRIPPER, NOPHENOL #922
THINNER, BESTINE (EXXON HEXANE)
THINNER, HYSOL SL-4373
THINNER, RTV SILAST-IC
THINNER, SANDFORD RUBBER CEMENT
TONER, A & M 83-2-104-475
TONER, A & M 83-4-101-024
TONER, BENSON PRE-MIX #4
TONER, BIMODAL
TONER, BLACK #CNT 40
TONER, BLACK FOR CANON 270
TONER, IBM COPIER 102
TONER, IBM COPIER 3

ATTACHMENT 8

TRADES NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES

(< 50 gal or 400 lbs)

TRADE NAME OF CHEMICAL

TONER, OCE #2617200 FOR 7200
TONER, OCE #26901114
TONER, TEKTRONIX DRY COPY
TONER, VERSATEC CONC. & REPL.
TONER, VERSATEC CONC. TYPE H #4405-2
TONER, VERSATEC CONC. TYPE H #4405-8GR
TONER, VERSATEC PRE-MIX
TONER, VERSATEC PRE-MIX H #4405 1GR
TONER, VERSATEC PRE-MIX H #4405-16
WAX BARRIER TYPE II
WAX, PLEDGE SPRAY
WETTING AGENT, AERO-SOL #22
WETTING AGENT, TRITON X-100T21018806
XEROX, DEVELOPER #5R100
XEROX, DEVELOPER #5R149
XEROX, DEVELOPER #5R218 FOR 2080
XEROX, DEVELOPER #5R92
XEROX, DEVELOPER #5R98
XEROX, DEVELOPER 5R111 FOR 1045
XEROX, DEVELOPER 5R121 FOR 3100
XEROX, DEVELOPER 5R60 FOR 3100
XEROX, DRY IMAGER #6R189 FOR 3100
XEROX, DRY IMAGER #6R68 FOR 3400
XEROX, DRY INK 6R112 FOR 1045
XEROX, FUSER FLUID 8R840
XEROX, FUSER LUB 8R111
XEROX, FUSER LUB 8R983
XEROX, FUSER OIL 8R79
XEROX, TONER (VARIOUS)

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
1	EASTMAN-KODAK COMPANY 343 STATE STREET ROCHESTER, NY 14650
2	DOW CORNING CORPORATION MIDLAND, MI 48640
4	SHIPLEY COMPANY, INC. 2300 WASHINGTON STREET NEWTON, MA 02162
5	PENNWALT CORPORATION 900 FIRST AVENUE KING OF PRUSSIA, PA 19406
6	PENETONE CORPORATION 74 HUDSON AVENUE TENAFLY, NJ 07670
8	BETZ LABORATORIES, INC. SOMERTON ROAD TREVOSE, PA 19047
9	AMWAY CORPORATION 7575 EAST FULTON ROAD ADA, MI 49355
10	BOYLE-MIDWAY, INC. NEW YORK, NY 10017
12	MAC DERMID, INC. WATERBURY, CT 06720
14	ALPHA METALS, INC. 56 WATER STREET JERSEY CITY, NJ 07304

MANUFACTURERS AND ADDRESSES
OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
15	LONDON CHEMICAL CO., INC. 240 FOSTER AVENUE BENSENVILLE, IL 60106
20	NATIONAL RESEARCH & CHEMICAL CO. 12520 CERISE AVENUE HAWTHORNE, CA 90250
29	PURITAN CHEMICAL COMPANY 916 ASHBY STREET, N.W. ATLANTA, GA 30318
31	PHILIP A. HUNT CHEMICAL CORPORATION PALISADES PARK, NJ 07650
50	3M COMPANY 3M CENTER STREET ST. PAUL, MN 55101
52	GENERAL ELECTRIC COMPANY - SILICONE PRODUCTS DIVISION WATERFORD, NY 12188
61	ASHLAND CHEMICAL CO. - ENVIRONMENTAL & OCCUPATIONAL SAFETY DEPARTMENT BOX 2219 COLUMBUS, OH 43207
62	CERTIFIED LABORATORIES, DIVISION OF NCH CORPORATION 1300 EAST NORTHGATE IRVING, TX 75062
69	ALCONOX, INC. 215 PARK AVENUE SOUTH NEW YORK, NY 10003
75	MECHANICS CHOICE, DIVISION OF AVNET, INC. 1800 WEST INDIANA AVENUE PHILADELPHIA, PA 19118

ATTACHMENT IV

ADDITIONAL SUBSTANCES OF CONCERN USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

NAME OF SUBSTANCE
ALUMINUM
ALUMINUM OXIDE
ALUMINUM SULFATE
CHLOROFORM
CHROMIUM
CHROMIUM TRIOXIDE
COPPER (PELLETS)
COPPER NITRATE
COPPER SULFATE
CUPRIC CHLORIDE
CUPRIC NITRATE
CUPRIC NITRATE TRIHYDRATE
DIBUTYL PHTHALATE
DICHLOROETHANE
DIETHYL PHTHALATE
ETHYLBENZENE
FC-86
FERRIC AMMONIUM SULFATE
FERROUS AMMONIUM SULFATE
FICC (70% FREON, 30% IPA)
FREON MS-160
FREON MS-180
FREON QUICK FREEZE MS-240
FREON TA
FREON TMC
FREON TP-35
LEAD ACETATE
LEAD NITRATE
MAGNESIUM CHLORIDE
MANGANESE SULFATE
MERCURIC NITRATE
MERCURY
MONOCHLOROBENZENE
NAPHTHALENE
NICKEL CARBONATE
NICKEL SULFATE
NICKELOUS SULFATE
PERCHLOROETHYLENE

ATTACHMENT IV

ADDITIONAL SUBSTANCES OF CONCERN USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

NAME OF SUBSTANCE
PHENOL
PYRIDINE
TRICHLOROTRIFLUOROETHANE
ZINC SULFATE

ATTACHMENT V

ADDITIONAL CHEMICALS USED ON SITE

NAME OF CHEMICAL

ACETIC ACID
ACETIC. ANHYDRIDE
ACETONE
ACETONITRILE
AMMONIA. ANHYDROUS
AMMONIUM FLUORIDE
AMMONIUM HYDROXIDE
AMMONIUM PERSULFATE
ANTHRAQUINONE
ANTHRICITE
BARBITURIC ACID
BARIUM CARBONATE
BARIUM HYDROXIDE
BENZYL ALCOHOL
BORIC ACID
BROMINE
CALCIUM CHLORIDE DIHYDRATE
CARBON DIOXIDE
CERIC SULFATE
COPPER OXIDE
DEHYDROABIETIC ACID
DEHYDROACETIC ACID
DIMETHYL SULFOXIDE (DMSO)
DIPHENYLCARBAZIDE
EDTA (ETHYLENEDIAMINETETRAACETIC ACID)
ETHANE
ETHYL ACETATE
ETHYL ALCOHOL
ETHYL SILICATE
ETHYLENE GLYCOL
ETHYLENEDIAMINE
FORMIC ACID
GLYCERINE
HEPTANE
HEXAMETHYL DISILIZANE
HEXANE
HTH
HYDRAZINE HYDRATE
HYDROCHLORIC ACID
HYDROFLUORIC ACID

ATTACHMENT V

ADDITIONAL CHEMICALS USED ON SITE

NAME OF CHEMICAL

HYDROGEN PEROXIDE
IODINE
ISOAMYL ACETATE
ISOPROPAL ACETATE
ISOPROPYL ALCOHOL
LIMONENE
MANNITOL
METHANOL
METHYL ALCOHOL
METHYL BLUE
METHYL ETHYL KETONE
METHYL RED
MURIATIC ACID
N-METHYL-Z-PYRROLIDONE
N-PROPYL ALCOHOL
NITRIC ACID
NITRIC OXIDE
NITROGEN, LIQUID
PENTAERYTHRITOL TETRAACETATE
PHENOLPHTHALEIN
PHOSPHOMOLYBDIC ACID
PHOSPHORIC ACID
POTASSIUM CHLORIDE
POTASSIUM HYDROXIDE
POTASSIUM IODIDE
POTASSIUM NITRATE
POTASSIUM PERMANGANATE
POTASSIUM THIOCYANATE
PROPYLENE GLYCOL
PYROCATECHOL
SODIUM BICARBONATE
SODIUM CARBONATE
SODIUM CHLORIDE
SODIUM CHLORITE
SODIUM FLUORIDE
SODIUM HYDROXIDE
SODIUM HYPOCHLORITE
SODIUM META BISULFITE
SODIUM OXALATE
SODIUM PERSULFATE

ATTACHMENT V

ADDITIONAL CHEMICALS USED ON SITE

NAME OF CHEMICAL

SODIUM PHOSPHATE
SODIUM SULFATE
SODIUM SULFIDE
SODIUM SULFITE, ANHYDROUS
SODIUM TARTRATE DIHYDRATE
SODIUM THIOSULFATE
SODIUM TUNGSTATE DIHYDRATE
SULFAMIC ACID
SULFUR
SULFUR DIOXIDE
SULFUR HEXAFLUORIDE
SULFURIC ACID
TETRANHYDROFURAN
TETRAMETHYLGUANIDINE
THIOUREA
TRISODIUM PHOSPHATE

ATTACHMENT VI

GASES USED ON SITE

NAME OF GAS
ACETYLENE
AIR (COMPRESSED AIR)
ARGON
BERNZAMATIC (PROPANE)
BUTANE
FREON 11
FREON 114
FREON 115
FREON 13
FREON 14
FREON 22
FREON 23
FREON 500
FREON 503
HELIUM
HYDROGEN
METHANE
NEON
NITROGEN
NITROMETHANE
NITROUS OXIDE
OXYGEN
PROPANE

ATTACHMENT VII

TRADE NAMES AND MANUFACTURES OF CHEMICALS WITH UNKNOWN CONSTITUENTS
(>50 GALS OR 400 LBS USED PER YEAR)

MFG CODE *	TRADE NAME OF CHEMICAL	AVERAGE USAGE **	
1	ADHESIVE, PERMABOND (EASTMAN) 910	203 GALS	
16	ADHESIVE, RTV 102 SILICONE WHITE	60 GALS	
17	ANTI-FREEZE	567 GALS	
18	AQUA SOL	110 GALS	
6	– BETZ, BP-600	1,740 GALS	
6	BETZ, CORR-SHIELD 736	147 GALS	
6	BETZ, CORROGEN WATER TREAT	4,050 LBS	***
6	BETZ, FERROSPERSE	1,245 GALS	
6	BETZ, INHIBITOR #30K	1,723 LBS	
6	BETZ, INHIBITOR #752	20,853 LBS	***
6	– BETZ, INHIBITOR NEUTRAMINE NA-10	3,520 LBS	***
6	BETZ, LIQUI-TREAT AL-1543	453 LBS	
6	BETZ, LIQUI-TREAT AL-1935	460 LBS	
6	BETZ, NEUTRA FILM #463	16,280 LBS	
6	BETZ, POLYMER #1123L	3,815 LBS	
6	BETZ, SLIMCIDE #508	5,333 LBS	***
6	– BETZ, WATER TREAT CHEM AP-II	12,933 LBS	***
34	CARBON, ACTIVATED (4 X 6 MESH)	1,333 LBS	
34	CARBON, AQUA NUCHAR ACTIVATED	18,003 LBS	
21	CLEANER, 409	495 GALS	
5	– CLEANER, CITRIKLEEN RTU	53 GALS	
8	CLEANER, EASY OFF WINDOW	170 GALS	
54	– CLEANER, EZE 220	55 GALS	
19	CLEANER, LIQUI-NOX	71 GALS	
3	CLEANER, NEUTRA CLEAN #7	2,373 LBS	
4	CLEANER, PENNWALT K-2	642 LBS	
	CLEANER, PVC	59 GALS	
	CLEANER, SPRAYWAY GLASS	83 GALS	
20	CLEANER, SUPER GREASE - GONE NB	73 GALS	
2	COOLANT, DOW CORNING SUMMER-WINTER	73 GALS	
47	DISPERSANT, BENSON ELECTROSTATIC	257 GALS	
	ETCHANT, NEUTRA ETCH V-1	450 GALS	
14	ETCHANT, PF ETCH	642 GALS	
15	FC-43	2,383 LBS	
15	FC-72	13,165 LBS	
15	FC-84	28,093 LBS	
15	– FC-85	21,560 LBS	
10	FLUX, ALPHA 102-1500	493 GALS	
11	FLUX, LONCO 3355-11	257 GALS	
11	FLUX, LONCO CF 430	154 GALS	

* SEE CORRESPONDING LIST OF MANUFACTURER'S NAMES AND ADDRESSES

** WHERE ANNUAL USAGE WAS A "SMALLER VOLUME" FOR A PARTICULAR YEAR, 50 GALS OR 400 LBS WAS USED TO CALCULATE THE AVERAGE.

*** WATER TREATMENT CHEMICAL

NOTE: COSMO P-1050 INHIBITOR IS NOW ADDED TO CHILLED WATER NO ANNUAL USAGE DATA ARE AVAILABLE

ATTACHMENT VII

TRADE NAMES AND MANUFACTURES OF CHEMICALS WITH UNKNOWN CONSTITUENTS
(>50 GALS OR 400 LBS USED PER YEAR)

MFG CODE *	TRADE NAME OF CHEMICAL	AVERAGE USAGE **
11	FLUX, LONCO CF 430 M	91 GALS
	JET FUEL A1	2,000 GALS
1	— KODAK, FILM CLEANER #B359	71 GALS
12	NAACO, HI REZ DEVELOPER CONCENTRATE	6,747 GALS
12	NAACO, REVERSAL BLEACH CONCENTRATE	2,750 GALS
12	NAACO, REVERSAL CLEAR	1,815 GALS
12	NAACO, ZIP FIX (CONCENTRATE PART I)	3,117 GALS
51	OAKITE, DRYCID	220 GALS
51	OAKITE, LIQUALIN	165 GALS
	OIL, ARCO DURO AWS 150	73 GALS
29	OIL, DUO SEAL PUMP	277 GALS
30	OIL, HABCOOL 344 TAPPING	90 GALS
31	OIL, HEAT TRANSFER FLUID UC 500	1,165 GALS
32	OIL, HYDRAULIC #150 PREMIUM AW	147 GALS
34	OIL, MOBIL #600	53 GALS
34	OIL, MOBIL DTE #24	612 GALS
34	— OIL, MOBIL DTE #79797	73 GALS
34	OIL, MOBIL DTE HEAVY MEDIUM	242 GALS
34	— OIL, MOBIL JET II	55 GALS
34	OIL, MOBIL SHC 639	73 GALS
34	OIL, MOBIL VACUOLINE #1405	92 GALS
34	OIL, MOBIL VELOCITE #10	343 GALS
35	OIL, MOLUB ALLOY 20	1,107 GALS
27	OIL, MONOLEC AIR-COMP GRADE 6202	338 GALS
27	OIL, MONOLEC TURBINE LE #6402	92 GALS
27	OIL, MONOLEC TURBINE LE #6404	92 GALS
36	OIL, MONSANTO OS-124	83 GALS
26	OIL, NYETACT #517	104 GALS
24	OIL, SHELL TURBO #150-40 WT	73 GALS
24	OIL, SHELL TURBO #68	73 GALS
37	OIL, SUNVIS 951	165 GALS
	OIL, SUNWAY #90	54 GALS
52	OIL, TEXACO CAPELLA WF 68	90 GALS
38	OIL, UNITRAC FLUID (VALVOLINE)	143 GALS
39	OIL, YORK C	90 GALS
40	PAINT, IBM BLACK #825	417 GALS
40	PAINT, IBM CLASSIC BLUE #696	86 GALS
40	PAINT, IBM ROSE GARNET #698	67 GALS
40	PAINT, IBM SKY BLUE #720	81 GALS
40	PAINT, IBM VARIOUS COLORS	157 GALS

* SEE CORRESPONDING LIST OF MANUFACTURER'S NAMES AND ADDRESSES
** WHERE ANNUAL USAGE WAS A "SMALLER VOLUME" FOR A PARTICULAR YEAR, 50 GALS OR 400 LBS WAS USED TO CALCULATE THE AVERAGE.

ATTACHMENT VII

TRADE NAMES AND MANUFACTURES OF CHEMICALS WITH UNKNOWN CONSTITUENTS
(>50 GALS OR 400 LBS USED PER YEAR)

MFG CODE *	TRADE NAME OF CHEMICAL	AVERAGE USAGE **
40	PAINT, IBM WHITE #647	117 GALS
41	PAINT, KRYLON VARIOUS COLORS	167 GALS
	PAINT REMOVER, TURCO #6453	110 GALS
5	PENETONE, BUS WASH CLEANER	147 GALS
5	PENETONE, CLEANER CQ-832	800 GALS
5	PENETONE, NAVEE 42 SOLVENT	87 GALS
5	PENETONE, PEN-STRIP 5061	260 GALS
42	PHOTO, ELECTROSTIC SOLUTION #83-0-104055	97 GALS
	PRIMER, 548 LIGHT GRAY	133 GALS
13	SEALER, FLOOR (RAWHIDE)	1,887 GALS
43	SEL-REX CU BATH M MAKE-UP	73 GALS
3	SHIPLEY, AZ THINNER	55 GALS
3	SHIPLEY, AZ303 DEVELOPER	1.491 GALS
3	SHIPLEY, IMMERSION TIN LT-26	6.926 LBS
3	SHIPLEY, TIN POSIT LT-34	404 GALS
3	SNOOP LIQUID LEAK DETECTOR	421 GALS
10	SOLDER, TIN BISMUTH	4,967 LBS
10	SOLDER, TIN-LEAD	1,467 LBS
	SOLVENT, DEGREASER SOLUTION	347 GALS
33	SOLVENT, ISOPAR M	52 GALS
56	SOLVENT, MINERAL SPIRITS	160 GALS
22	SOLVENT, SAFETY SS-480	147 GALS
34	SOLVENT, SOVASOL #5	320 GALS
9	STRIPPER, MAC DERMID S-43	1,266 GALS
44	STRIPPER, URESOLVE PLUS/URESOLVE PLUS SG	60 GALS
46	THINNER, #1702	103 GALS
49	WATER TREAT CHEM, ENTEC #321	880 GALS
49	WATER TREAT CHEM, ENTEC #353	880 GALS
49	WATER TREAT CHEM, ENTEC #703	147 GALS
49	WATER TREAT CHEM, ENTEC #713	147 GALS
49	WATER TREAT CHEM, ENTEC #725	73 GALS
49	WATER TREAT CHEM, ENTEC #733	73 GALS
49	WATER TREAT CHEM, ENTEC #907	73 GALS
48	WATER TREAT CHEM, G-C FORMULAR 30 A	400 LBS

* SEE CORRESPONDING LIST OF MANUFACTURER'S NAMES AND ADDRESSES

** WHERE ANNUAL USAGE WAS A "SMALLER VOLUME" FOR A PARTICULAR YEAR, 50 GALS OR 400 LBS WAS USED TO CALCULATE THE AVERAGE.

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

1. 4 DIOXANE INHIBITED
ACTIVATED CARBON 12 X 40 MESH
ACTIVATOR, CC 292 B COLOR COPIER
ACTIVATOR, CP #290 B
ACTIVATOR, PD 28-0222
ADHESIVE, 3M PRONTO INSTANT CA-5
ADHESIVE, 3M SCOTCHGRIP #34
ADHESIVE, 3M SCOTCHGRIP #826
ADHESIVE, 3M SCOTCHGRIP #880
ADHESIVE, 3M SCOTCHWELD #1357
ADHESIVE, 3M SCOTCHWELD #1838 A&B
ADHESIVE, 3M SCOTCHWELD #2216 A&B
ADHESIVE, 3M SCOTCHWELD #3520
ADHESIVE, ABLEBOND #789-3
ADHESIVE, ACME E-SOLDER RESIN 3021 A
ADHESIVE, ALPHA ARON VIGOR 101
ADHESIVE, BEST-TEST PAPER CEMENT
ADHESIVE, BOAT ARMOUR
ADHESIVE, BOSTIK THERMOGRIP
ADHESIVE, CONAP CE-1157
ADHESIVE, CONTACT CEMENT
ADHESIVE, DUCO HOUSEHOLD CEMENT #6244P
ADHESIVE, E-Z MASS CAST S-40
ADHESIVE, ELMERS GLUE
ADHESIVE, KRAZY GLUE
ADHESIVE, LIGHT WELD 984
ADHESIVE, M-BOND 200
ADHESIVE, M-BOND A-12
ADHESIVE, M-BOND AE-10
ADHESIVE, M-COAT A
ADHESIVE, M-COAT C
ADHESIVE, M-COAT D
ADHESIVE, M-COAT Q
ADHESIVE, M-COAT-G
ADHESIVE, MULTI-CURE 911
ADHESIVE, PERMABOND QUICKBOND #610
ADHESIVE, PERMABOND SUPER GLUE #747
ADHESIVE, PVC CEMENT
ADHESIVE, RESISTER CEMENT #78
ADHESIVE, RTV 103 SILICONE BLACK

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
ADHESIVE, RTV 106 SILICONE RED
ADHESIVE, RTV 112 SILICONE WHITE
ADHESIVE, RTV 116 SILICONE
ADHESIVE, RTV 118 SILICONE (GE)
ADHESIVE, RTV 630 SILICONE A & B
ADHESIVE, RTV 732 SILICONE BLACK
ADHESIVE, SANFORD RUBBER CEMENT
ADHESIVE, SCOTCHGRIP #1099
ADHESIVE, SCOTCHGRIP #1357
ADHESIVE, SICOMET 2400
ADHESIVE, SICOMET 7900
ADHESIVE, SICOMET 85
ADHESIVE, SICOMET 99
ADHESIVE, SILASTIC 737
ADHESIVE, SILASTIC 739
ADHESIVE, SPEEDBONDER 324
ADHESIVE, SPEEDBONDER 325
ADHESIVE, SPEEDBONDER 409
ADHESIVE, THERMALLOY THERMALBOND
ADHESIVE, VASCOCEL SEAL
ADHESIVE, WELDWOOD CONTACT CEMENT
AEROSOL, DUST CHASER
AEROSOL, DUST-OFF
AEROSOL, EFFA DUSTER (MICRO DUSTER)
AEROSOL, MCC 1,1,1 TRICHLOROETHANE
AEROSOL, PHFFT DUSTER (FREON 12)
AEROSOL, TECH DUSTER
ALPHA NEUTRALIZER #2443
ALUMINA ABRASIVE .05 MICRON POLISH
ALUMINA ABRASIVE .3 MICRON POLISH
ALUMINA NEUTRAL A-950
ALUMINUM POWDER, 200 MESH
ALUMINUM BRAZING KIT
ANSTAC 2M
BESTINE
BESTINE (EXXON HEXANE) THINNER
BETZ, 439
BETZ, BROMTHYMOL BLUE IND. #417B
BETZ, CALCIUM INDICATOR #293
BETZ, CHELANT BUFFER SOLUTION CODE #954

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

BETZ, CHELANT DYE SOLUTION CODE #953
BETZ, CHELANT REAGANT CODE 504
BETZ, CHELANT REAGANT CODE 505
BETZ, CHELANT REAGANT CODE 506
BETZ, CHELANT REAGANT CODE 507
BETZ, GALLIC ACID #276
BETZ, HARDNESS BUFFER #291
BETZ, HARDNESS INDICATOR #290
BETZ, HARDNESS TITRATION #292
BETZ, LIQUI-TREAT AL-1935
BETZ, LIQUI-TREAT CL-1543
BETZ, MOLYBDATE #236
BETZ, PHENOL RED INDICATOR #418 B
BETZ, PHENOLPHTHALEIN INDICATOR #212
BETZ, PHOSPHATE STANDARD #264
BETZ, POTASSIUM CHROMATE INDICATOR #213
BETZ, POTASSIUM IODIDE IODATE #237
BETZ, SILVER NITRATE #207
BETZ, SODIUM HYDROXIDE #255
BETZ, STANNOUS REAGENT #239
BETZ, SULFITE INDICATOR #219
BETZ, SULFURIC ACID #283
BETZ, SULFURIC ACID .5% #256
BETZ, SULFURIC ACID CODE #202
BETZ, WATER SOLUBLE POLYMER #1120
BETZ, WATER TREAT CHEM AP-II
BORON NITRIDE POWDERHCP
BUFFER SOLUTION 10 PH
BUFFER SOLUTION 7 PH
BUFFER SOLUTIONS - VARIOUS
CARBON 6. 14 MESH
CARBON, ACTIVATED CHARCOAL S-51
CARBON, BPL FOR STANDARD VENTSORB
CARBON, G-60 (POWDERED)
CHILLER, SPRAY-ON CIRCUIT
CLEANER, ACID DICHROMATE
CLEANER, ALCONOX
CLEANER, AMWAY INDUSTRO CLEAN
CLEANER, B & B 3100
CLEANER, CALCLEAN

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
CLEANER, CEILING TILE
CLEANER, CHEM ACTION
CLEANER, CHEM-CREST 14
CLEANER, CIRCUIT SCRUB H
CLEANER, CITRIKLEEN
CLEANER, CONTACTEEN 210-12
CLEANER, DO-ALL KLEEN SURF
CLEANER, ENCOMPASS
CLEANER, FANTASTIK SPRAY
CLEANER, FAULT FINDER
CLEANER, GLASS AND PLASTIC (TEXWIPE)
CLEANER, IBM TAPE TRANSPORT
CLEANER, IBM TAPE UNIT
CLEANER, JIFF ACTION CONTACT 10-636
CLEANER, KRENGEL STAMP #216
CLEANER, LIME-A-WAY
CLEANER, MARKEM 204
CLEANER, MARKEM 320
CLEANER, MARKEM 500
CLEANER, MARKERBOARD
CLEANER, MOGUL C-64
CLEANER, M-PREP CONDITIONER A
CLEANER, M-PREP NEUTRALIZER
CLEANER, N-L CONCENTRATE
CLEANER, NORCOL INDUSTRIAL SYSTEM CLEANER
CLEANER, PERMA BRAND STAMP CLEANER #30
CLEANER, PORTO BLAST PENTRATE
CLEANER, RINSE DRY
CLEANER, SOLID INSURE
CLEANER, SOLID SILVER POWER
CLEANER, SPRA-LUBE #GC8888
CLEANER, SPRAY NINE
CLEANER, SPRAYWAY ANTI-STATIC #955
CLEANER, SUPER-COTE LENS & MIRROR
CLEANER, TECHNI-ELECTRO B/N
CLEANER, THERMO FAX BELT
CLEANER, WINDEX GLASS
CLEANER, WINDSHIELD WASHER FLUID
CLOROX
COATING, CONAP CE-1157

ATTACHMENT VIII

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TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES (<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

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COATING, COSMOLINE #1102
COATING, DIAMOND POWDER .1 MICRON
COATING, DOW CORNING 1-2577
COATING, ECCOCOAT CC-2 SILVER
COATING, ECCOCOAT GSB
COATING, ECCOSPRAY TFE-20
COATING, HERCULES KLUCEL G
COATING, HERCULES KLUCEL M
COATING, HERCULES MHR
COATING, HERCULES NATROSOL 250MR
COATING, HUMISEAL #1A33
COATING, MR-5002 (CONAP)
COATING, PDS PLASTIC
COATING, POLYURETHANE/URALANE 5750 A&B
COATING, ROBLACK CU
COATING, SILICONE ECCOSIL 5877 PART A
COLLODION VITAL
DE-ICING FLUID, AIRCRAFT C
DEVELOPER, 3M TYPE "R"
DEVELOPER, A & M MIX 83-1-104476
DEVELOPER, CP #296 B
DEVELOPER, CP #298 B
DEVELOPER, FAULT FINDER #1013
DEVELOPER, POS ONE
DEVELOPER, RISTON 2000
DEVELOPER, VGC
DIAMOND PASTE 1 MICRON
DIAMOND PASTE 6 MICRON
DISINFECTANT SANAMINE
DISPERSANT, BENSON ELECTROSTATIC
DISPERSANT, VERSATEC CLEAR
DOW CORNING #1-2577 ADHESIVE
DOW CORNING #200 FLUID
DOW CORNING #340 SILICONE GREASE
DOW CORNING #4 COMPOUND
DOW CORNING HIGH VACUUM GREASE
DOW CORNING PRIMER #1200
DOW CORNING VALVE SEAL
DRIERITE 6 MESH (BLUE)
DRIERITE 8 MESH (BLUE)

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
DYE, ADDITIVE C206
DYE, FLUORESCEIN
DYE, MORDANT BLUE 69
EMULSIFIER, ZE-48
EMULSITONE SOLUTION 163
EPOXY, 3M SCOTCHWELD #1838 A&B
EPOXY, 3M SCOTCHWELD #2216 A&B
EPOXY, ACME CONDUCTIVE #3021
EPOXY, ABLEBOND 163-4
EPOXY, ABLEBOND 26-2
EPOXY, ABLEBOND 380-5
EPOXY, ALLIDE SOLDER
EPOXY, BOND FAST SET #530321
EPOXY, BUTANE, 1, 2
EPOXY, CG-4226
EPOXY, CONAP K-230 A/B
EPOXY, CONATHANE EN-2521 (CONAP)
EPOXY, CONATHANE EN-2531 (CONAP)
EPOXY, CORVEL TOUCHUP #LC 1368
EPOXY, DELTA BOND
EPOXY, DEVCON #353 (EPO-TEX)
EPOXY, DEVCON 5 MINUTE
EPOXY, ECCOBOND 104 A&B
EPOXY, ECCOBOND #285 WITH CATALYST #11
EPOXY, EPO-TECH 302
EPOXY, EPO-TECH 353 ND
EPOXY, EPO-TECH H20E
EPOXY, EPO-TECH H70E
EPOXY, EPO-TECH 930
EPOXY, EPOKWICK HARDENER #301
EPOXY, EPON CURING AGENT D
EPOXY, EPON CURING AGENT Z
EPOXY, EXTRA FAST #8778
EPOXY, FAST CURE KIT
EPOXY, FENWAL ADHESIVE #900-000-000-315
EPOXY, FENWAL RESIN PACK #80055-208
EPOXY, HARDMAN EPOWELD 8173
EPOXY HARDENER, ARALDITE #951
EPOXY HARDENER, BUEHLER 20-8132/8133
EPOXY HARDENER, KOLDMOUNT #3342

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

EPOXY HARDENER, KOLDMOUNT #3346
EPOXY HARDENER, TETA
EPOXY, HYSOL CLEAR SET #0151
EPOXY, HYSOL FROZEN KIT #0151
EPOXY, HYSOL HARDENER TH2-3520
EPOXY, HYSOL PATCH KIT #608-A & B
EPOXY, HYSOL PC-15 PART A & B
EPOXY, LECOSET 7007 (LECO)
EPOXY, MASTER BOND UV10FR
EPOXY, MASTER BOND UV10LV
EPOXY, MASTER BOND UV15FL
EPOXY, NOVALAC (WHITE)
EPOXY, OMEGA #OB-101-1/2
EPOXY, OMEGA #OB-101-16
EPOXY, OMEGA BOND 200
EPOXY, NOVALAC (WHITE)
EPOXY, OMEGA #OB-101-1/2
EPOXY, OMEGA #OB-101-16
EPOXY, OMEGA BOND 200
EPOXY RESIN, ARALDITE 502
EPOXY RESIN, BEUHLER 20-8130/8133
EPOXY RESIN, EPON 1031
EPOXY RESIN, EPON 828
EPOXY, RESWELD A/B
EPOXY, STRIPPER, CT #325
EPOXY, TACK FILM TK7759
EPOXY, TRA BOND BA-F120
EPOXY, TRA BOND F-230 RESIN/HARDENER
EPOXY, UNISET A-312
ETCHANT, FERRIC CHLORIDE 36-40 DEGREES
ETCHANT, KTI CHROME ETCH
FC-77
FIXER, VCG
FLUX REMOVER, MS-165
FLUX REMOVER, MS-170
FLUX REMOVER, MS-180
FLUX, ALPHA 100-40
FLUX, ALPHA 200 L
FLUX, ALPHA 201 B
FLUX, ALPHA 709

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

FLUX, ALPHA 830
FLUX, ALPHA 941
FLUX, ALPHA VARIOUS
FLUX, ALUMINUM SOLDERING
FLUX, FLOTECTIC 1100
FLUX, KESTER 197
FLUX, KESTER SOLDER 1571
FLUX, LONCO CF 430
FLUX, MULTICORE X32
FLUX, STAY CLEAN
FLUX, STAY SILV
FORMING GAS
FREON MS-160 COBRA BRUSH KIT
FREON TP-15
GAS MIXTURE, LASER
GAS, ARGON LIQUID
GAS, CALIBRATION IN HELIUM
GAS, DE-100
GAS, HC-105 (HCL, NEON, XENON)
GAS, MAPP
GAS, NITROGEN MIXTURES
GAS, P-10
GAS, PDE-100
GAS, STD 150 PPM ISOPROPANOL/NITROGEN
GAS, STD 150 PPM XYLENE/NITROGEN
GLAZE REMOVER, RAPID ONE STEP CONCENTRATE
GLYCERINE (FISHER G-33)
GREASE, ALVANIA #1
GREASE, ALVANIA #2
GREASE, APIEZON TYPE T
GREASE, CLOVER LAPPING COMPOUND
GREASE, CHEVRON SRI 2
GREASE, DARINA #1 (SHELL) (IBM #23)
GREASE, DIE MAKER
GREASE, GULFSTREAM P-L-C
GREASE, INGERSOL #28
GREASE, LITHIUM SOAP #2
GREASE, LUBRIKO M-6
GREASE, LUBRIPLATE 630-2
GREASE, MAGNALUB

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

GREASE, MOBIL TEMP
GREASE, MOBILPLEX #46
GREASE, MOBILUX EP2
GREASE, MOLYKOTE 44 SILICONE
GREASE, MOLYKOTE SR2
GREASE, OPTILUBE PD-1-500-7031
GREASE, PENNZOIL 705 MULTI-PURPOSE WHITE
GREASE, PG 1 LIGHT
GREASE, PG 3 MEDIUM
GREASE, PG 32 MEDIUM BEARING
GREASE, PG 4 HEAVY
GREASE, PG 44 HEAVY BEARING
GREASE, TEFLON ALL PURPOSE #1243K11
HARDENER, BOAT ARMOUR #573-2
HARDENER, CASTOLITE
INDICATOR, MAGNAGLO 14A
INDICATOR, THYODENE DRY
INHIBITOR, COBRATEC 99
INHIBITOR, RUST LICK B
INK, A & M CS-174 BLACK
INK, ACT I & ACT II PRINTER
INK, AERO #141 (VARIOUS COLORS)
INK, AERO #141 OPAQUE ORANGE
INK, BLACK FOR 6640 PRINTER
INK, BLACK STENCIL MODEL B
INK, CS-174 BLACK (MULTIGRAPHICS)
INK, DYKEM LAYOUT RED #DX 296
INK, HAND SOAP SOLVENT #30 PRINTERS
INK, HUNT BLACK #3450 & #3650
INK, HUNT WHITE #3453
INK, IMPRINTER DETACHER BLACK
INK, MARCO BLACK #S-1141
INK, MARCO WHITE #S-1141
INK, MARK TEX YELLOW
INK, MARKEM WHITE #7132
INK, MARKEM WHITE #7907
INK, PERMA BRAND WHITE CK-13
INK, RECORDER BLUE #RS0003
INK, RECORDER GREEN #RS0006
INK, TEKTRONIX BLACK

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES (<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

INK, TEKTRONIX CYAN
INK, TEKTRONIX MAGENTA
INK, TEKTRONIX YELLOW
KLENZ GLIDE #10
KOCOUR SOLUTION R 64
KOCOUR SOLUTION R46
KOCOUR SOLUTION R47
KOCOUR SOLUTION R48
KOCOUR SOLUTION R50
KOCOUR SOLUTION R54
KOCOUR SOLUTION R56
KOCOUR SOLUTION R60
KOCOUR SOLUTION R61
KOCOUR SOLUTION R62
KOCOUR SOLUTION R70
KOCOUR SOLUTION R72
KOCOUR SOLUTION R73
KOCOUR SOLUTION R74
KODAK INDUSTREX DEVELOPER STARTER
KODAK, ACTIVATOR #S11
KODAK, ACTIVATOR G 180 B
KODAK, DEV. & REPL (190-0984) (GBX)
KODAK, DEVELOPER D-8 PART A&B
KODAK, DEVELOPER DEKTAL
KODAK, DEVELOPER SYSTEM CLEANER
KODAK, EKTAMATIC A-10 ACTIVATOR 1475953
KODAK, EKTAMATIC STABILIZER S 30
KODAK, FILM CLEANER #8359
KODAK, FIXER WASH SYSTEM CLEANER
KODAK, IND. DEV. & REPL. (A, B, C)
KODAK, INDICATOR STOP BATH
KODAK, INDUSTREX FIXER & REPL. A & B
KODAK, ITEK CAMERA PROCESSOR DEVELOPER
KODAK, ITEK CAMERA PROCESSOR FIXER
KODAK, KODALITH LIQUID DEVEL PART A
KODAK, KODALITH LIQUID DEVEL PART B
KODAK, KODALITH MP 11 CONTRAST CONTROL
KODAK, KODALITH MP 11 DEVEL A & B #127-5734
KODAK, KODALITH MP 11 DEVEL. & REPL. A & B
KODAK, LIQUID RAPID FIXER

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

KODAK, LIQUID X-RAY DEVEL & REPL A & B
KODAK, MICRO POSITIVE RESIST #820
KODAK, PHOTO-FLO 200 SOLUTION
KODAK, PMT ACTIVATOR #197-8022
KODAK, PMT ACTIVATOR II #141-2541
KODAK, RAPID FIXER A #197-3247
KODAK, RAPID FIXER B #197-3221
KODAK, RAPID FIXER A & B WITH HARDENER
KODAK, SUPER RAPID ACCESS DEVELOPER
KODAK, SUPERMATIC 22 FIXER
KODAK, SUPERMATIC 55 DEVELOPER
KODAK, SUPERMATIC STOP BATH
LIQUID CRYSTAL
LOCTITE, ACTIVATOR 707
LOCTITE, 1703 ADHESIVE
LOCTITE, 271 ADHESIVE
LOCTITE, 404 ADHESIVE
LOCTITE, ADHESIVE 349 OPTICALLY CLEAR UV
LOCTITE, ADHESIVE 242
LOCTITE, ADHESIVE 409
LOCTITE, ADHESIVE 415
LOCTITE, ADHESIVE 422
LOCTITE, ADHESIVE 496
LOCTITE, BLACK MAX ADHESIVE
LOCTITE, FLUSHING SOLVENT
LOCTITE, HYDRAULIC SEALANT
LOCTITE, NMS SOLVENT 76820
LOCTITE, PRIMER T
LOCTITE, SUPER BONDER #416
LOCTITE, SUPER BONDER 414
LOCTITE, SUPER BONDER 430
LOCTITE, SUPER BONDER 495
LOCTITE, SUPER BONDER 498
LOCTITE, SUPERFLEX ADHESIVE #595
LOCTITE, SUPERFLEX ADHESIVE #596
LOCTITE, TAC PACK SYSTEM #00216
LOCTITE, TAC PACK ACCELERATOR
LOCTITE, TAC PACK ADHESIVE #12294
LOCTITE, TOUGH INSTANT ADHESIVE
LUBRICANT, ALMAPLEX INDUSTRIAL #1275

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
LUBRICANT, ALMASOL #607
LUBRICANT, ALMASOL #608
LUBRICANT, AMP MECH. 27011-1
LUBRICANT, EP NLGI GRADE 2
LUBRICANT, EXTREME PRESSURE #3
LUBRICANT, GREASE #9102
LUBRICANT, MICROID EXTENDER
LUBRICANT, MOBIL DEXRON FLUID RED
LUBRICANT, MS-136 MOLD RELEASE
LUBRICANT, MS-238 CONTACT RE-NU & LUBE
LUBRICANT, SILVER GOOP MST-TL-SGT
LUBRICANT, SPRAFLEX (AEROSOL)
LUBRICANT, STARRETT M1
LUBRICANT, TAP EASE
LUBRICANT, THROAT SEAL
LUBRICANT, TOM PAC TP-3587
LUBRICANT, WHITMORE ROPE SPRAY
M CRESOL HPLC GRADE
MICROSCOPE, OCULAR CLEANING KIT
MOLD RELEASE, HYSOL AC4-4367
MOLD RELEASE, MS-122
MONDUR CB-60
MULTIGRAPHICS, 2500 LIQUID DEVELOPER
MULTIGRAPHICS, CLEAR TACK REDUCER
MULTIGRAPHICS, DEVELOPER/FINISHER
MULTIGRAPHICS, DISPERSANT
MULTIGRAPHICS, FIN/PRESERVER/CLEANER
MULTIGRAPHICS, INK MULTICOLOR RUBBER
MUREXIDE (FISHER 274)
NAACO, ZIP-FIX HARDENER
OAKITE 255 RUST INHIBITOR
OAKITE 32
OAKITE 33
OIL, 40 WT NON DETERGENT
OIL, ALUM TAP CUTTING
OIL, ANDEROL 500
OIL, BLASOCUT 2000 UNIVERSAL
OIL, BLASOCUT 7804
OIL, BUEHLER METADI FLUID
OIL, COBAR OPTI FLOW #803

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

OIL, COOL-TOOL CUTTING (TAP FREE)
OIL, COOLANT FLUID #24KI
OIL, CROWN PENETRATING #6030
OIL, DELICATE MACHINERY #117
OIL, DIESEL SF/CC
OIL, DUO SEAL PUMP
OIL, FOMBLIN Y-25
OIL, FUSER FOR CANON 270
OIL, FUSER FOR IBM 102 COPIER
OIL. GEAR OIL #150 AGMA #B CPD
OIL, HABCOOL 344 TAPPING
OIL, HOUGHTO QUENCHING
OIL, IBM #6
OIL, IMMERSION (CARGILLE TYPE A)
OIL, ISOCUT CUTTING FLUID #11-1193-032
OIL, LUBRI PLATE 130-AA
OIL, MARVEL PENETRATING
OIL, MINERAL
OIL, MOBIL ATF 220
OIL, MOBIL DTE EXTRA HEAVY
OIL, MOBIL DTE HEAVY
OIL, MOBIL DTE HH
OIL, MOBIL DTE LIGHT
OIL, MOBIL DTE MEDIUM
OIL, MOBIL DTE 25
OIL, MOBIL DTE 797
OIL, MOBIL VACTRA #1
OIL, MOBIL VACTRA #2
OIL, MOBIL VACTRA #3
OIL, MOBIL VACTRA #4
OIL, MOBIL VELOCITE #6
OIL, MOBILFLUID 350
OIL, MOBILGEAR 632
OIL, MONOLEC GFS ENGINE SAE 30
OIL, MONOLEC PENETRATING #2059
OIL, MONOLEC TURBO #6404
OIL, NUJOL
OIL, NYETACT 174A WITH DYE
OIL, PRECISION VACUUM OIL
OIL, REFRIGERATE PP-66

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
OIL, SAE 20 HEAVY MEDIUM
OIL, SAE 30 W NON DETERGENT
OIL, SANTOVAC #5 FUSING PUMP
OIL, SHELL DIALA (R) AX
OIL, SHELL OMALA H
OIL, SHELL TELLUS #46
OIL, SOLUBLE #10-3330-032
OIL, SUNNEN HONING M8 30
OIL, SYN-FLO 80 XP
OIL, TEXACO CAPELLA WF 68
OIL, TEXACO REGAL R & O #32
OIL, TEXACO TRANSFORMER
OIL, THERMO-SOLVE CONCENTRATE #1811
OIL, THREE IN ONE
OIL, TONNA 68
OIL, UCON H8280X
OIL, UNIVOLT 60
OIL, UNIVOLT N 61
OIL, VIRGINIA REFRIGERATION
OIL, WAY-LUB #80
OIL, WD-40
OIL, YORK C
PADDING COMPOUND
PAINT, CARBON SPI #5006
PAINT, CONDUCTIVE SILVER
PAINT, DUPONT BLACK 99L
PAINT, IBM BLACK #2225
PAINT, IBM BLACK #805
PAINT, IBM BLACK #825
PAINT, IBM BROWN #659
PAINT, IBM CHARCOAL #645
PAINT, IBM CHARCOAL #812
PAINT, IBM CLASSIC BLUE
PAINT, IBM DULL WHITE #815
PAINT, IBM FLAME RED
PAINT, IBM GREEN #697
PAINT, IBM GREY #658
PAINT, IBM PEARL WHITE #634779
PAINT, IBM PEBBLE GRAY #645
PAINT, IBM SKY BLUE

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES (<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
PAINT, IBM SUNRISE YELLOW #699
PAINT, IBM VARIOUS COLORS
PAINT, IBM WHITE
PAINT, KRYLON CHARCOAL GRAY
PAINT, KRYLON CRYSTAL CLEAR #1303
PAINT, KRYLON FLAT BLACK #1602
PAINT, KRYLON RED ORANGE #1301
PAINT, KRYLON SUNSET ORANGE #2401
PAINT, LILLY SMOOTH - BLACK
PAINT, PPG BLAZE ORANGE
PAINT, PPG FLAT BLACK
PAINT, PPG GLOSSY BLACK
PAINT, PPG GLOSSY WHITE
PAINT, PPG ZINC CHROMATE
PAINT, RANDOLPH FROST WHITE #767
PAINT, RANDOLPH GRAPHITE GRAY
PAINT, RANDOLPH SHADOW GRAY
PAINT, RANDOLPH SHALE GRAY
PAINT, RANDOLPH SHELL GRAY
PAINT, RELIANCE WILLOW GREEN
PAINT, SKY BLUE WM-04672 TOUCH UP
PAINT, SILVER 1481
PASTE, UGL SPACKLING PASTE
PENETONE, PENESOLVE #5 CLEANER
PENETRANT, FAULT FINDER
PENETRANT, ZL-22C
PERMATEX, 6M FORM A GASKET
PERMEATION TUBE (ISOPROPYL ALCOHOL)
PERMEATION TUBE (XYLENE)
PHOTO, 3M PROCESS GUM R
PHOTO, 3M TYPE R DEVELOPER
PHOTO, AQUA AMMONIA
PHOTO, ELECTROSTIC SOLUTION #83-0-104055
PHOTO, FR AUTO POS COM PAK 33-810
PHOTO, FR AUTO POS DEV/REP 33-811
PHOTO, FUSER WEB #CNAWB
PHOTO, ITEK CAMERA PROCESSOR DEV.
PHOTO, ITEK CAMERA PROCESSOR FIXER
PHOTO, MULTIGRAPHICS FTN 83-2-104525
PHOTO, POS ONE RINSE ADDITIVE

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
PHOTO, REPELEX CONC. 200-722
PHOTO, SENSITIVE MARKING KIT
PLATE CHEM, CYANIDE CU STRIKE
PLATE CHEM, ELECTROLESS NI PLATING
PLATE CHEM, NI WATTS
POLISH, BUEHLER TECH-MET 48-3200
POLISH, METALLPUTZ
POLISH, MICROPOLISH A
POLISH, NOXON METAL
POLYAMIDE, VERSALON SR 2
POLYMER, FLOCCULANT #3005
POLYMER, FLOCCULANT #7610
PRESTOLITE (ACETYLENE)
PRESTOLITE B
PRIMER, SILICONE #4004
PRIMER, SYLGARD
PROCESS CHEMS, LEA RONAL PROCESS X2009
REAGENT, ACID FOR HIGH RANGE SILICA
REAGENT, CALCIUM CHLORIDE
REAGENT, CAPPING SOLUTION #61090
REAGENT, CITRIC ACID PILLOWS FOR SILICA
REAGENT, DIPHENYLCARBAZONE #836-99
REAGENT, FYRITE CO2 INDICATOR #10-5057
REAGENT, FYRITE CO2 INDICATOR #11-0169
REAGENT, GENERATOR SOLUTION #27-12201
REAGENT, GLYCERINE
REAGENT, HACH HARDNESS 3 TEST SOLUTION
REAGENT, MANGANESE SOLUTION
REAGENT, METHYL THYMOL BLUE
REAGENT, MOLYBDATE FOR HIGH SILICA
REAGENT, NEUTRALIZE SOLUTION
REAGENT, REAQUANT TITRANT
REAGENT, SPADNS FOR FLUORIDE
REAGENT, TRIAZOLE
REAGENT, UNIVER 2 #850-99
REAGENT, UNIVER 2 HARDNESS
REAGENT, VESSEL SOLUTION #271-220-B
REAGENT, VESSEL SOLUTION A
REAGENT, VESSEL SOLUTION B
REAGENT, YTTRIUM OXIDE

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES (<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

REAGENT, BUFFER SOLUTION PH 4
REAGENT, BUFFER SOLUTION PH 7
RELEASE AGENT, MS-122 (FLUOROCARBON)
RESIN HARDENER, BOAT ARMOUR #573-2
RESIN, ANION A-641-SG
RESIN, CASTOLITE
RESIN, CATION C-267-SG
RESINS, ANION A-641-BZ
RESINS, ANION AFP 329
RESINS, CATION CFP 110
RESINS, CATION CFP 110 BZ
RESINS, INERT IBZ
RINSE, POS ONE RINSE (VGC)
RISTON, 1010
RISTON, 1015
RISTON, 215 R
RISTON, VARIOUS
RUSTOLEUM YELLOW #659
SAFE-T-STAIN
SALT BUTTONS
SALT CRYSTALS SOLAR
SEL-REX CU BATH M HY
SEL-REX, ANODE ACTIVATOR #1003
SEL-REX, AUROBOND MAKE-UP
SEL-REX, AUTRONEX CI
SEL-REX, AUTRONEX CI ACID SOLUTION
SEL-REX, AUTRONEX CI BASE SALT
SEL-REX, NICKEL SULFAMEX SOLUTION
SEL-REX, PLATANEX III CONDUCTING SALTS
SEL-REX, STRESS REDUCER
SEL-REX, SULFAMEX ANODE ACTIVATOR
SEL-REX, SULFAMEX WETTING AGENT
SHIPLEY, AZ 111 PHOTO RESIST
SHIPLEY, AZ 1350 J PHOTO RESIST
SHIPLEY, AZ 1375 PHOTO RESIST
SHIPLEY, AZ 2401 DEVELOPER
SHIPLEY, AZ 351 DEVELOPER
SHIPLEY, AZ DEVELOPER
SHIPLEY, MICROPOSIT AZ THINNER
SHIPLEY, MICROPOSIT AZ 111 PHOTO RESIST

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES (<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
SHIPLEY, REMOVER 1112 A
SHIPLEY, SJR 1825 PHOTO RESIST
SILICONE, 1038 CHO-BOND
SILICONE, BATH OIL
SILICONE, IMS S-512
SLURRY, IBM #801
SNOOP, LIQUID LEAK DETECTOR
SOLDER CREAM, LONCO WC 15-430 M
SOLDER, ALUMINUM
SOLDER, HARRIS SAFETY SILV 1200
SOLDER, KESTER 1 LB SPOOLS
SOLDER, KESTER 44
SOLDER, NOKORODE PASTE
SOLDER, STAY BRITE #8 (HARRIS)
SOLDER, TIN LEAD
SOLDER, TIN LEAD 50/50 1/8 DIA.
SOLVENT, BLACK BEAR PAR-AL-KETONE
SOLVENT, BLANKET WASH #4-4347
SOLVENT, BOSTIK #3351 ACTIVATOR
SOLVENT, DE-ICER FLUID
SOLVENT, DEBONDER CONCENTRATE
SOLVENT, INHIBISOL SPRAY (PENETONE)
SOLVENT, ISOPAR M
SOLVENT. JAPAN SPIRIT (DRIER #1000)
SOLVENT, LAWSON CHAIN LUBRICANT
SOLVENT, LIQUID WRENCH
SOLVENT, M-LINE RSK-1
SOLVENT, MERRIT-ONE #1
SOLVENT, MIRACLE WOOD
SOLVENT, PLASTIC WOOD
SOLVENT, PRIMER 1204
SOLVENT, SOLKETAL
SOLVENT, SOUND CRAFT MAGNA-SEE
SOLVENT-FREE CONCRETE SEAL
STABILIZER, RAPIDOPRINT G-380-B
STANDARD, 245 CONDUCTIVITY (BETZ)
STANDARD, 281 CONDUCTIVITY (BETZ)
STANDARD, 347 CONDUCTIVITY (BETZ)
STANDARD, 905 CONDUCTIVITY (BETZ)
STANDARD, BERYLLIUM AAS

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

STANDARD, CHLORIDE 2 INDICATOR
STANDARD, CHROMIUM AA REFERENCE
STANDARD, COLOR NO. 500 HAZEN
STANDARD, COPPER AA REFERENCE
STANDARD, IRON #88073
STANDARD, IRON AA REFERENCE
STANDARD, KARL FISHER REAGENT
STANDARD, MANGANESE AA REFERENCE
STANDARD, NICKEL AA REFERENCE
STANDARD, SODIUM AA REF.
STANDARD, TIN #88112
STANDARD, TITANIUM ATOMIC ABSORPTION
STANDARDS, TITRA VER HARDNESS
STANDARDS, CALCIUM CHLORIDE SOLUTION
STANDARDS, FORMAZIN TURBIDITY
STANDARDS, SULFA VER 4
STANDARDS, VARIOUS
STILBENE 3
STRIPPER, DECAP II
STRIPPER, MAGNUS 152 DX
STRIPPER, METEX SOLDER
STRIPPER, MS-111
STRIPPER, MS-115
STRIPPER, NOPHENOL #922
STRIPPER, PATCLIN #115P
STRIPPER, URALANE 5750 BASE
STRIPPER, URALANE 5750 CATALYST
SWAK THREAD SEALER
TEKTRONIX MAINTENANCE KIT
THINNER, BESTINE (EXXON HEXANE)
THINNER, FURANE URALANE 5750
THINNER, HYSOL SL-4373
THINNER, RTV SILAST-IC
THINNER, SANDFORD RUBBER CEMENT
TONER, A & M 83-2-104-475
TONER, A & M 83-4-101-024
TONER, BENSON PRE-MIX #4
TONER. BIMODAL
TONER, BLACK #CNT 40
TONER, BLACK FOR CANON 270

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL

TONER, IBM COPIER 102
TONER, IBM COPIER 3
TONER, NP-4000 BLACK (CANNON)
TONER, OCE #2617200 FOR 7200
TONER, OCE #26901114
TONER, TEKTRONIX DRY COPY
TONER, VERSATEC BLACK 4861-1-1 (STARTER)
TONER, VERSATEC BLACK 4861-16-6
TONER, VERSATEC CYAN 4864-1-1 (STARTER)
TONER, VERSATEC CYAN 4864-16-6
TONER, VERSATEC MAGENTA 4863-1-1 (STARTER)
TONER, VERSATEC MAGENTA 4863-16-6
TONER, VERSATEC YELLOW 4862-1-1 (STARTER)
TONER, VERSATEC YELLOW 4862-16-6
TONER, VERSATEC CONC. & REPL.
TONER, VERSATEC CONC. TYPE H #4405-2
TONER, VERSATEC CONC. TYPE H #4405-8GR
TONER, VERSATEC PRE-MIX
TONER, VERSATEC PRE-MIX H #4405 1GR
TONER, VERSATEC PRE-MIX H #4405-16
WATER TREAT CHEM, G-C FORMULAR #245
WATER TREAT CHEM, G-C FORMULAR #291
WATER TREAT CHEM, G-C FORMULAR 20 LZ
WAX BARRIER TYPE II
WAX, APIEZON BLACK
WAX, PLEDGE SPRAY
WETTING AGENT, AERO-SOL #22
WETTING AGENT, TRITON X-100T21018806
XEROX, DEVELOPER #5R100
XEROX, DEVELOPER #5R139
XEROX, DEVELOPER #5R147
XEROX, DEVELOPER #5R149
XEROX, DEVELOPER #5R218 FOR 2080
XEROX, DEVELOPER #5R92
XEROX, DEVELOPER #5R98
XEROX, DEVELOPER 5R111 FOR 1045
XEROX, DEVELOPER 5R121 FOR 3100
XEROX, DEVELOPER 5R60 FOR 3100
XEROX, DRY IMAGER #6R189 FOR 3100
XEROX, DRY IMAGER #6R68 FOR 3400

ATTACHMENT VIII

TRADE NAMES OF CHEMICALS WITH UNKNOWN CONSTITUENTS USED IN SMALLER VOLUMES
(<50 GALS OR 400 LBS USED PER YEAR)

TRADE NAME OF CHEMICAL
XEROX, DRY INK 6R112 FOR 1045
XEROX, DRY INK 6R127
XEROX, DRY INK 6R84
XEROX, FUSER AGENT #8R882
XEROX, FUSER FLUID 8R840
XEROX, FUSER LUB 8R111
XEROX, FUSER LUB 8R983
XEROX, FUSER OIL 8R79
XEROX, TONER (VARIOUS)
XEROX, TONER MAGENTA 6500 (6R198)
XEROX, TONER YELLOW 6500 (6R194)
ZINC OXIDE

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
1	EASTMAN-KODAK COMPANY 343 STATE STREET ROCHESTER, NY 14650
2	DOW CORNING CORPORATION MIDLAND, MI 48640
3	SHIPLEY COMPANY, INC. 2300 WASHINGTON STREET NEWTON, MA 02162
4	PENNWALT CORPORATION 900 FIRST AVENUE KING OF PRUSSIA, PA 19406
5	PENETONE CORPORATION 74 HUDSON AVENUE TENAFLY, NJ 07670
6	BETZ LABORATORIES, INC. SOMERTON ROAD TREVOSE, PA 19047
7	AMWAY CORPORATION 7575 EAST FULTON ROAD ADA, MI 49355
8	BOYLE-MIDWAY, INC. NEW YORK, NY 10017
9	MAC DERMID, INC. WATERBURY, CT 06720
10	ALPHA METALS, INC. 56 WATER STREET JERSEY CITY, NJ 07304

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
11	LONDON CHEMICAL CO., INC. 240 FOSTER AVENUE BENSENVILLE, IL 60106
12	NATIONAL RESEARCH & CHEMICAL CO. 12520 CERISE AVENUE HAWTHORNE, CA 90250
13	PURITAN CHEMICAL COMPANY 916 ASHBY STREET, N.W. ATLANTA, GA 30318
14	PHILIP A. HUNT CHEMICAL CORPORATION PALISADES PARK, NJ 07650
15	3M COMPANY 3M CENTER STREET ST. PAUL, MN 55101
16	GENERAL ELECTRIC COMPANY, SILICONE PRODUCTS DIVISION WATERFORD, NY 12188
17	ASHLAND CHEMICAL CO., ENVIRONMENTAL & OCCUPATIONAL SAFETY DEPARTMENT BOX 2219 COLUMBUS, OH 43207
18	CERTIFIED LABORATORIES, DIVISION OF NCH CORPORATION 1300 EAST NORTHGATE IRVING, TX 75062
19	ALCONOX, INC. 215 PARK AVENUE SOUTH NEW YORK, NY 10003
20	MECHANICS CHOICE, DIVISION OF AVNET, INC. 1800 WEST INDIANA AVENUE PHILADELPHIA, PA 19118

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
21	THE CLOROX COMPANY 1221 BROADWAY OAKLAND, CA 94623
22	ROCHESTER GERMICIDE COMPANY 333 HOLLENBECK STREET ROCHESTER, NY 14621
23	MAGNAFLUX CORPORATION 7300 WEST LAWRENCE AVENUE CHICAGO, IL 60656
24	SHELL OIL COMPANY, PRODUCT SAFETY AND COMPLIANCE P.O. BOX 4320 HOUSTON, TX 77210
25	UNION CARBIDE, LINDE DIVISION 270 PARK AVENUE NEW YORK, NY 10017
26	WILLIAM F. NYE, INC. 12 HOWLAND ROAD FAIRHAVEN, MA 02719
27	LUBRICATION ENGINEERS, INC. 1919 E. TULSA P.O. BOX 16447 WICHITA, KS 67216
28	BLASER SWISSLUBE, INC. 11 VIRGINIA ROAD WHITE PLAINS, NY 10603
29	SARGENT-WELCH
30	H & B PETROLEUM COMPANY 791 E. 25TH STREET PATTERSON, NJ 07405

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
31	UNION CARBIDE CORPORATION, ETHYLENE OXIDE DERIVATIVES DIVISION OLD RIDGEBURY ROAD DANBURY, CT 06817
32	CLARKSON AND FORD COMPANY 30 INDUS-TRIAL WEST CLIFTON. NJ 07012
33	EXXON COMPANY, USA P.O. BOX 2180 HOUSTON. TX 77001
34	MOBIL OIL CORPORATION, ENVIRONMENTAL AFFAIRS & TOXICOLOGY DEPARTMENT 150 EAST 42ND STREET NEW YORK, NY 10017
35	IMPERIAL OIL & GREASE COMPANY 10960 WILSHIRE BLVD LOS ANGELES, CA 90024
36	MONSANTO COMPANY 800 NORTH LINDBERGH BLVD ST. LOUIS, MO 63166
37	SUN PETROLEUM PRODUCTS COMPANY 1600 WALNUT STREET PHILADELPHIA. PA 19103
38	ASHLAND OIL. INC. P.O. BOX 391 ASHLAND. KY 41101
39	SUMMIT MANUFACTURING COMPANY 7649 CANTON CENTER DRIVE BALTIMORE. MD 21224
40	RANDOLPH PRODUCTS COMPANY PARK PLACE EAST CARLSTADT, NJ 07072

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
41	KRYLON DEPARTMENT, DIVISION OF BORDEN CHEMICAL FORD & WASHINGTON STREETS NORRISTOWN, PA 19404
42	MULTIGRAPHICS 1800 WEST CENTRAL ROAD MOUNT PROSPECT, IL 60056
43	OMI INTERNATIONAL CORPORATION. SEL-REX 21441 HOOVER ROAD WARREN, MI 48089
44	DYNALOY. INC. 7 GREAT MEADOW LANE HANOVER. NJ 07936
45	MAGNUS, DIVISION OF ECONOMICS LABORATORY, INC. ST. PAUL, MN 55102
46	JOHN L. ARMITAGE & COMPANY 245 THOMAS STREET NEWARK, NJ 07114
47	BENSON 8300 PROFESSIONAL PLACE LANDOVER, MD 20785
48	GARRATT-CALLAHAN COMPANY 111 ROLLINS ROAD MILLBRAE, CA 94030
49	BETZ ENTEC INC. 508 PRUDENTIAL ROAD HORSHAM, PA 19044
50	CONTRACTORS

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
51	OAKITE PRODUCTS, INC. 50 VALLEY ROAD BERKELEY HEIGHTS, NJ 07922
52	TEXACO, INC. P.O. BOX 509 BEACON, NY 12508
53	B & B CHEMICAL CO., INC. 875 WEST 20TH STREET HIALEAH, FL 33010
54	EZE PRODUCTS, INC. P.O. BOX 5744 GREENVILLE, SC 29606
55	KOCOUR COMPANY 4800 S. ST. LOUIS AVE. CHICAGO, IL 60632
56	MOBIL OIL CORPORATION 3225 GALLOWS RD. FAIRFAX, VA 22037

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
79	THE CLOROX COMPANY 1221 BROADWAY OAKLAND, CA 94623
84	ROCHESTER GERMICIDE COMPANY 333 HOLLENBECK STREET ROCHESTER, NY 14621
88	MAGNAFLUX CORPORATION 7300 WEST LAWRENCE AVENUE CHICAGO, IL 60656
98	SHELL OIL COMPANY - PRODUCT SAFETY AND COMPLIANCE P.O. BOX 4320 HOUSTON, TX 77210
109	UNION CARBIDE LINDE DIVISION 270 PARK AVENUE NEW YORK, NY 10017
116	WILLIAM F. NYE, INC. 12 HOWLAND ROAD FAIRHAVEN, MA 02719
126	LUBRICATION ENGINEERS, INC. 1919 E TULSA PO BOX 16447 WICHITA, KS 67216
129	BLASER SWISSLUBE, INC. 11 VIRGINIA ROAD WHITE PLAINS, NY 10603
131	SARGENT-WELCH
133	H & B PETROLEUM COMPANY 791 E. 25TH STREET PATTERSON, NJ 07405

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
134	UNION CARBIDE CORPORATION , ETHYLENE OXIDE DERIVATIVES DIVISION OLD RIDGEBURY ROAD DANBURY, CT 06817
135	CLARKSON AND FORD COMPANY 30 INDUS-TRIAL WEST CLIFTON, NJ 07012
136	EXXON COMPANY, USA PO BOX 2180 HOUSTON, TX 77001
137	MOBIL OIL CORPORATION, ENVIRONMENTAL AFFAIRS & TOXICOLOGY DEPARTMENT 150 EAST 42ND STREET NEW YORK, NY 10017
138	IMPERIAL OIL & GREASE COMPANY 10960 WILSHIRE BLVD LOS ANGELES, CA 90024
139	MONSANTO COMPANY 800 NORTH LINDBERGH BLVD ST. LOUIS, MO 63166
140	SUN PETROLEUM PRODUCTS COMPANY 1600 WALNUT STREET PHILADELPHIA, PA 19103
142	ASHLAND OIL, INC. P.O. BOX 391 ASHLAND, KY 41101
145	SUMMIT MANUFACTURING COMPANY 7649 CANTON CENTER DRIVE BALTIMORE, MD 21224
147	RANDOLPH PRODUCTS COMPANY PARK PLACE EAST CARLSTADT, NJ 07072

MANUFACTURERS AND ADDRESSES OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
148	KRYLON DEPARTMENT, DIVISION OF BORDEN CHEMICAL FORD & WASHINGTON STREETS NORRISTOWN, PA 19404
150	MULTIGRAPHICS 1800 WEST CENTRAL ROAD MOUNT PROSPECT, IL 60056
159	OMI INTERNATIONAL CORPORATION - SEL-REX 21441 HOOVER ROAD WARREN, MI 48089
167	DYNALOY, INC. 7 GREAT MEADOW LANE HANOVER, NJ 07936
168	MAGNUS, DIVISION OF ECONOMICS LABORATORY, INC. ST. PAUL, MN 55102
171	JOHN L. ARMITAGE & COMPANY 245 THOMAS STREET NEWARK, NJ 07114
173	BENSON 8300 PROFESSIONAL PLACE LANDOVER, MD 20785
175	GARRATT-CALLAHAN COMPANY 111 ROLLINS ROAD MILLBRAE, CA 94030
176	BETZ ENTEC INC. 508 PRUDENTIAL ROAD HORSHAM, PA 19044
179	CONTRACTORS

MANUFACTURERS AND ADDRESSES
OF TRADE NAME CHEMICALS

MFG CODE	MANUFACTURER
180	OAKITE PRODUCTS, INC. 50 VALLEY ROAD BERKELEY HEIGHTS, NJ 07922
181	TEXACO, INC. P.O. BOX 509 BEACON, NY 12508

1 15-5 (10/79)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233

INDUSTRIAL CHEMICAL SURVEY

PART I:

Please refer to
attached table I

ANY NAME International Business Machines Corporation	SIC CODE (If known) 3573	OFFICE USE ONLY 3178756

PANY MAILING ADDRESS P.O. Box 950, South Road	CITY Poughkeepsie	STATE New York	ZIP CODE 12602

NT NAME (If different) Poughkeepsie Plant	CONTACT NAME R. Newhard	TELEPHONE Area 914-433-9195

NT ADDRESS (If different) Street Same as above	CITY --	STATE --	ZIP CODE --

NCIPAL BUSINESS OF PLANT
Computer manufacturing

TE: (If parent company, give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.)

received 5/24 [illegible]

PART II
Discharge Information

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☒ Yes ☐ No
   Name of System Town of Poughkeepsie Arlington Sewer District
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number 0 0 0 5 5 4 1 ☒ Yes ☐ No
3. Do you discharge liquid wastes in any other manner? ☐ Yes ☒ No
   Explain

If any of the above are "Yes":

a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☒ Yes ☐ No ☒ Yes ☐ No
b. Do you discharge non-contact cooling water? ☒ Yes ☐ No
c. Do you discharge collected storm drainage only? ☐ Yes ☒ No
d. Do you discharge sanitary wastes only?

AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☒ Yes ☐ No
2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) ☐☐☐☐☐☐☐☐☐☐ (See Attachment 1)

LIQUID WASTES

1. List Name and Address of Firm (Including yourself) removing wastes other than office and cafeteria refuse.

Name			
Address	City	State	Zip Code
Name			
Address	City	State	Zip Code

(See attachment II)

2. List Location(s) of Landfill(s) owned and used by your facility.

		Active	Inactive
1	C&D Landfill Permit No. 4418 FAC No. 14-D-05	☐	☐
2		☐	☐

PEST DES

1. Does this facility:
   Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ No
   Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☒ No
   Formulate Pesticides? ☐ Yes ☒ No
   Repackage Pesticides? ☐ Yes ☒ No
2. EPA Establishment Number ☐☐☐☐☐☐ – ☐☐ – ☐☐☐

PART III

SUBSTANCES OF CONCERN
(Refer to attached TABLE I)

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A – F which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
See Attachment III		"Substances	of Concern"			
See Attachment IV		"Additional	Substances of Concern"			
See Attachment V		"Additional	Chemicals Used on Site"			
See Attachment VI		"Gases Used	on Site"			

you use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

NAME OF SUBSTANCE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	SUPPLIER	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
See Attachment VII		"Trade Names with Unknown Constituents"				
See Attachment VIII		"Additional Trade Names with Unknown Constituents"				

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

GNATURE (Owner, Partner, or Officer)

DATE 11/21/89

AME (Printed or Typed) G.D. Granito

TITLE DSD Vice President and Site General Manager

ATTACHMENT I

Locations and Facility Codes as shown on Air Pollution Control Application for permits

1. South Road
   134600 0096

2. Airport Bldg. 953
   135600 0399

3. Country Club
   134600 0001

4. Boardman Road
   134600 0402

5. Neptune Road
   134600 0422

6. Route 55 Bldg. 930
   133400 0004

7. Manchester Road
   134600 0412

8. Noxon Road
   133400 0018

ATTACHMENT II

Names and Addresses of firms removing wastes other than office and cafeteria refuse (cont'd)

1. BFI Medical Waste Systems
   612 Corporate Way, Valley Cottage, New York, 10989

2. Calgon
   Po Box 6768, 1120 Route 22, East Bridgewater, New York, 08807

3. Cecos
   56 St. & Pine Ave., Niagara Falls, New York, 14303
   – Broderick Rd., Bristol, Connecticut, 06010

4. Chemical Waste Management Inc.
   Po Box 200, Model City, New York, 14107
   Alabama Highway 17, Emelle, Alabama, 36459

5. CyanoKEM
   12381 schaefer Highway, Detroyt, Michigan, 48227

6. - Ensco Inc.
   1015 Louisiana St., Little Rock, Arkansas, 72202

7. GSX
   Rt 1 Box 255, Pinewood, South Carolina, 29125

8. Rollins Environmental Services Inc.
   Po Box 221, Bridgeport, New Jersey, 08014
   Po Box 609, Deer Park, Texas, 77536

9. Safetykleen
   Po Box 406, New Castle, Kentucky, 40050
   9 Walnut Place, Thornwood, New York, 10594

ATTACHMENT III

SUBSTANCES OF CONCERN
(>50 GALS OR 400 LBS USED PER YEAR)

NAME OF SUBSTANCE	CODE	AVERAGE USAGE**
ALUMINUM SULFATE	M99	3.640 LBS
CHROMIUM NITRATE	M05	147 GALS
CUPRIC SULFATE	M06	1,718 LBS
DICHLORODIFLUOROMETHANE	A05	4.177 LBS
FERRIC CHLORIDE	M99	100,000 LBS
FERRIC SULFATE	M99	4.667 LBS
FERROUS SULFATE	M99	4.801 LBS
FREON 12	A05	3.925 LBS
FREON 502	A05	1,017 LBS
FREON TDF	A05	28,340 LBS
FREON TDFC	A05	13.653 LBS
FREON TE	A05	7.192 LBS
FREON TE-35	A05	4,493 LBS
FREON TF	A05	128,617 LBS
FREON TMS (93% FREON, 7% METHANOL)	A05	15,710 LBS
MCM (92% METHYLENE CHLORIDE, 8% METHANOL)	A02	450 GALS
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)	A07	115.235 LBS
METHYLENE CHLORIDE	A02	425 GALS
NICKEL SULFAMATE	M89	92 GALS
POTASSIUM FERRICYANIDE	G99	49,205 LBS
POTASSIUM FERROCYANIDE	G99	8.973 LBS
PR-491 (60% METHYLENE CHLORIDE, 15% METHANOL, 20% PROPYLENE CHLORIDE)	A02	1.864 GALS
TETRANHYDROFURAN	G99	67 GALS
XYLENE (% ETHYLBENZENE AS CONTAMINANT)	D03	60.027 GALS
XYLENE (% ETHYLBENZENE AS CONTAMINANT)	D03	3,705 LBS

** WHERE ANNUAL USAGE WAS A "SMALLER VOLUME" FOR A PARTICULAR YEAR, 50 GALS OR 400 LBS WAS USED TO CALCULATE THE AVERAGE.

APPENDIX H

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) DISCHARGE PERMIT

Effective November 1, 1991

IBM CORPORATION
Main Plant, Poughkeepsie
Dutchess County, New York

91-20-2 (1/89)

NEW YO. TATE DEPARTMENT OF ENVIRONMENTAL CONS ATION

State Pollutant Discharge Elimination System (SPDES)
DISCHARGE PERMIT
Special Conditions (Part I)

Industrial Code: 3471
Discharge Class (CL): 03
Toxic Class (TX): T
Major Drainage Basin: 13
Sub Drainage Basin: 01
Water Index Number: H
Compact Area: N/A

SPDES Number: NY-0005541
DEC Number: 3-1346-35/76-0
Effective Date (EDP): November 1, 1991
Expiration Date (ExDP): November 1, 1996
Modification Date(s):
Attachment(s): General Conditions (Part II) Date: 11/90

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act as amended, (33 U.S.C. Section 1251 et. seq.)(hereafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS Attention: DSD V.P. & Site General Mgr.

Name: International Business Machines Corporation
Street: P.O. Box 950
City: Poughkeepsie State: NY Zip Code: 12602

is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name: IBM Corporation
Location (C,T,V): Poughkeepsie (T) County: Dutchess
Facility Address: P.O. Box 950
City: Poughkeepsie State: NY Zip Code: 12602
NYTM - E: . NYTM - N: 4 .
From Outfall No.: 003 at Latitude: 41° 39′ 00″ & Longitude: 73° 56′ 30″
into receiving waters known as: Lower Hudson River Class: A

and; (list other Outfalls, Receiving Waters & Water Classifications)

Outfalls 001,002,020,023 & 024: Hudson River, Class A; (H)
Outfalls 009,013,018: into Spring Brook, Class D; (H-107)
Outfalls 004 & 017: into Caspar Creek, Class D; (H-105)

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in Special Conditions (Part I) and General Conditions (Part II) of this permit.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name: IBM Corporation
Street: P.O. Box 950
City: Poughkeepsie State: NY Zip Code: 12602
Responsible Official or Agent: L.C. Farish, Manager F.S. Phone: (914)433-9372

This permit and the authorization to discharge shall expire on midnight of the expiration date shown and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for a permit renewal no less than 180 days prior to the expiration date shown above.

Permit Administrator: Michael D. Merriman
Deputy
Address: 21 South Putt Corners Road
New Paltz, NY 12561
Signature: Michael D. Merriman
Date: 11/13/91

DISTRIBUTION:
S. Mitchell
J. Marcogliese/E. Zicca
J. Sansalone
R. Hannaford - BWFD
L. Livingston - EPA, NY
R. Spears - EPA, NJ
Dutchess County DOH

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 001 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	105	°F	Daily	Grab
Outfall 002 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	100	°F	Daily	Grab
Outfall 023 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	105	°F	Daily	Grab
Outfall 024 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	105	°F	Daily	Grab

Outfall 020 - Steam Condensate (Screenhouse):

No Monitoring Required

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfalls 001, 002, 023 and 024. If the use of water treatment chemicals is contemplated application must be made to the Department.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations			Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.	Units	Measurement Frequency	Sample Type
Outfall 003 - Process Wastewater[1], Cooling Tower Blowdown and Boiler Blowdown:					
Flow	Monitor	Monitor	GPD	Daily	Calculated
pH (Range)	(6.0 - 9.0)		SU	Daily	Grab
Temperature	Monitor	90	°F	Daily	Grab
BOD_5	Monitor	160	lbs/day	Weekly	Grab[2]
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	Weekly	Grab
Solids, Suspended	Monitor	Monitor	mg/l	Weekly	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	Weekly	Grab
Solids, Settleable	Monitor	0.3	ml/l	Daily	Grab
Ammonia (as N)	Monitor	48	lbs/day	Weekly	Grab[2]
Oil & Grease	Monitor	15	mg/l	Weekly	Grab
Cadmium, Total	Monitor	0.8	lbs/day	Weekly	Grab[2]
Chromium, Total	Monitor	2.0	lbs/day	Weekly	Grab[2]
Chromium, Hexavalent	Monitor	0.2	lbs/day	Weekly	Grab[2]
Copper, Total	Monitor	1.36	lbs/day	Weekly	Grab[2]
Cyanide, Total	Monitor	0.68	lbs/day	Weekly	Grab[2]
Iron, Total	Monitor	2.0	lbs/day	Weekly	Grab[2]
Manganese, Total	Monitor	5.0	lbs/day	Weekly	Grab[2]
Nickel, Total	Monitor	5.0	lbs/day	Weekly	Grab[2]
Silver, Total	Monitor	1.3	lbs/day	Weekly	Grab[2]
Zinc, Total	Monitor	1.5	lbs/day	Weekly	Grab[2]
Phenolics, Total	Monitor	Monitor	lbs/day	Weekly	Grab[2]
1,2-Dichloroethane	0.2	Monitor	lbs/day	Weekly	Grab
Sum of EPA 601[3]	Monitor	2.0	lbs/day	Weekly	Grab[2]
Bis(2-ethylhexyl)Phthalate	Monitor	0.07	lbs/day	Weekly	Grab[2]

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Notes:

[1] For the purposes of this permit, specifically outfall 003, process wastewater shall mean wastewater resulting from the sources noted on page 5 of 23.

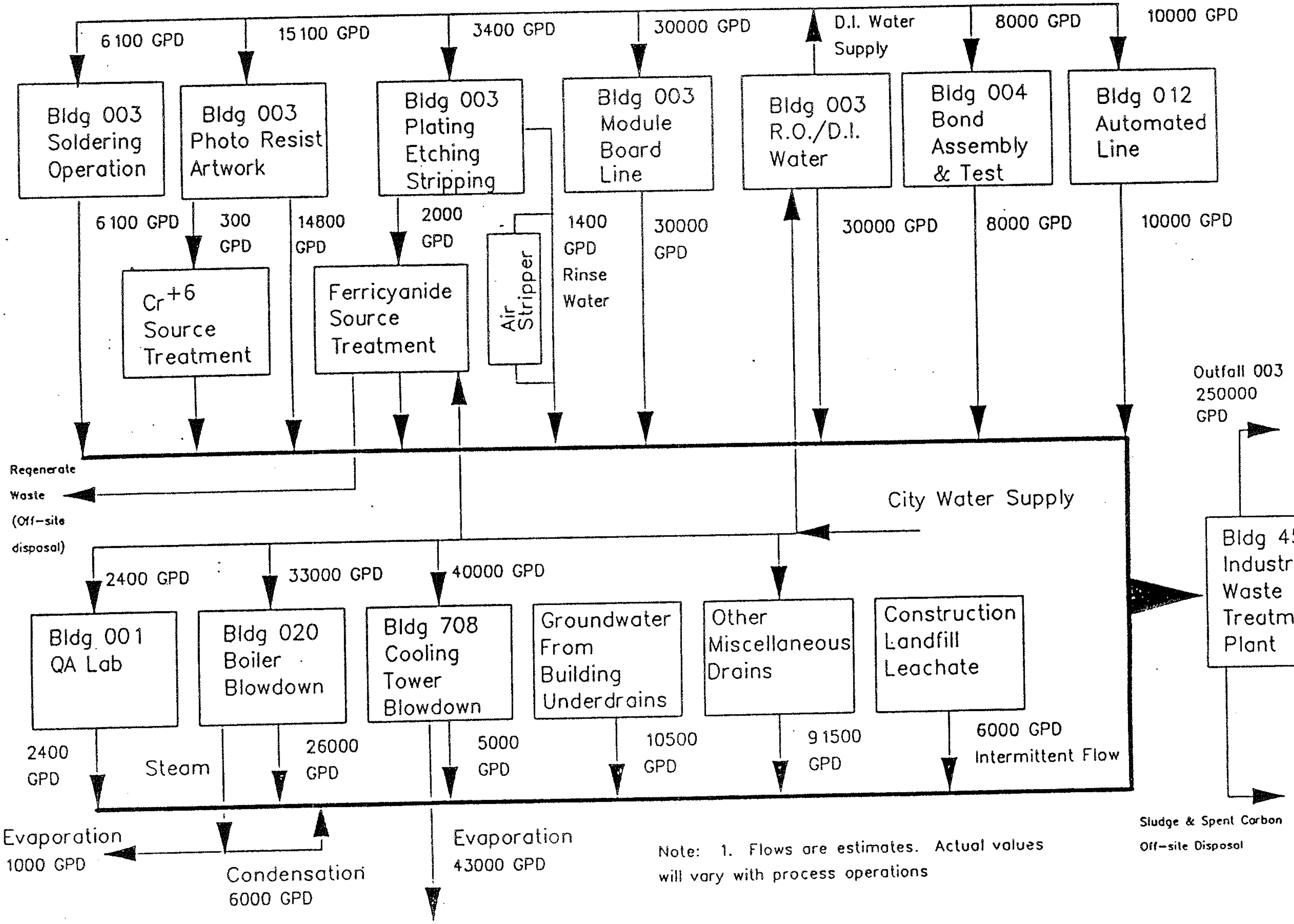
[2] The individual mass loadings of each batch discharge shall be added together for each calendar day, to arrive at a "calculated" daily mass loading. Flow measurement shall be by means of a totalizing flow meter or by measurements of the volume of each batch.

[3] The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the mass loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10, 12, 14, 15, 16 17 and 18 of 23 for additional monitoring requirements for outfall 003.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfall 003 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

IBM POUGHKEEPSIE
FLOW$^{(1)}$ SCHEMATIC FOR OUTFALL 003



Note: 1. Flows are estimates. Actual values will vary with process operations

NTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until May 1, 1993

he discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Gross Discharge Limitations Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Minimum Monitoring Requirements Sample Type
Outfall 009A - Building 012 Foundation Drainage:					
Flow	Monitor	Monitor	GPD	Daily	Totalizing Meter
Sum of EPA 601[3]	Monitor	Monitor	ug/l	Monthly	Grab
Outfall 009 - Noncontact Cooling Water, Buildings 003/002/012 Foundation Drainage, Steam Condensate Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Phenolics, Total	Monitor	Monitor	ug/l	2/Month	Grab
Chloroform	Monitor	Monitor	ug/l	2/Month	Grab

Note: [3] The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10, 13, and 14 of 23 for additional monitoring requirements for outfall 009, and to page 8 of 23 for a prohibition.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1993

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations			Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.	Units	Measurement Frequency	Sample Type
Outfall 009A - Building 012 Foundation Drainage:					
Flow	Monitor	Monitor	GPD	Daily	Totalizing Meter
Sum of EPA 601[3]	Monitor	Monitor	ug/l	Monthly	Grab
Outfall 009 - Noncontact Cooling Water, Buildings 003/002/012 Foundation Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Phenolics, Total	Monitor	20	ug/l	2/Month	Grab
Methyl Chloride	Monitor	20	ug/l	2/Month	Grab
Methylene Chloride	Monitor	20	ug/l	2/Month	Grab
Dichlorodifluoromethane	Monitor	20	ug/l	2/Month	Grab
Trichlorofluoromethane	Monitor	20	ug/l	2/Month	Grab
1,1,1-Trichloroethane	Monitor	20	ug/l	2/Month	Grab
Trans-1,2-Dichloroethylene	Monitor	20	ug/l	2/Month	Grab
Trichloroethylene	11	20	ug/l	2/Month	Grab
Tetrachloroethylene	1	20	ug/l	2/Month	Grab
Chloroform	Monitor	20	ug/l	2/Month	Grab
Dichlorobromomethane	Monitor	20	ug/l	2/Month	Grab
1,1-Dichloroethane	Monitor	20	ug/l	2/Month	Grab
1,1,2-Trichloroethane	Monitor	20	ug/l	2/Month	Grab
Vinyl Chloride	Monitor	20	ug/l	2/Month	Grab
N-nitrosodiphenylamine	Monitor	10	ug/l	2/Month	Grab

Note: [3] The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10, 14, 15, 16 and 18 of 23 for additional monitoring requirements for outfall 009, and to page 8 of 23 for a prohibition.

NTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until May 1, 1993

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 013 - Noncontact Cooling Water, Building 004 Foundation Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Ammonia (as N)	Monitor	2.0	mg/l	2/Month	Grab
Iron, Total	2.0	4.0	mg/l	2/Month	Grab
Sum of EPA 601[3]	Monitor	Monitor	lbs/day	2/Month	Grab
Outfall 018 - Stormwater Runoff from Spill Containment for Oil Storage Tanks, Steam Condensate:					
Flow	Monitor	Monitor	GPD	Monthly	Estimate
pH (Range)	(6.0 - 9.0)		SU	Once per disc. event	Grab
Oil & Grease	Monitor	15	mg/l	Once per disc. event	Grab

Note: [3]The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10 and 13 of 23 for additional monitoring requirements for outfall 013.

Chilled Water System: The permittee may discharge minor amounts of chiller water drained from the system, as outlined in the February 1987 report prepared by Wehran Engineering. Each discharge shall be limited such that the temperature does not exceed 90°F, pH shall be within the range of (6.0-9.0) SU. The permittee shall perform representative sampling of the system weekly for temperature and pH to demonstrate compliance with these requirements. The permittee shall report at the time the monthly DMR is submitted, weekly sampling results and data concerning the nature, duration, estimated amount, location and affected outfalls of each discharge.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfalls 009, 013 and 018 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1993

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations			Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.	Units	Measurement Frequency	Sample Type
Outfall 013 - Noncontact Cooling Water, Building 004 Foundation Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor(min)	Monitor(avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Ammonia (as N)	Monitor	2.0	mg/l	2/Month	Grab
Iron, Total	2.0	4.0	mg/l	2/Month	Grab
Trans-1,2-Dichloroethylene	Monitor	20	ug/l	2/Month	Grab
1,1,1-Trichloroethane	Monitor	20	ug/l	2/Month	Grab
Trichloroethylene	11	20	ug/l	2/Month	Grab
Outfall 018 - Stormwater Runoff from Spill Containment for Oil Storage Tanks, Steam Condensate:					
Flow	Monitor	Monitor	GPD	Monthly	Estimate
pH (Range)	(6.0 - 9.0)		SU	Once per disc. event	Grab
Oil & Grease	Monitor	15	mg/l	Once per disc. event	Grab

Please refer to pages 10, 14, 15, 16 and 18 of 23 for additional monitoring requirements for outfall 013.

Chilled Water System: The permittee may discharge minor amounts of chiller water drained from the system, as outlined in the February 1897 report prepared by Wheran Engineering. Each discharge shall be limited such that the temperature does not exceed 90°, pH shall be within the range of (6.0 - 9.0) SU. The permittee shall perform representative sampling of the system weekly for temperature and pH to demonstrate compliance with these requirements. The permittee shall report at the time the monthly DMR is submitted, weekly sampling results and data concerning the nature, furation, estimated amount, location and affected outfall(s) of each such discharge.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfalls 009, 013 and 018 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

INAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

uring the period beginning November 1, 1991

nd lasting until November 1, 1996

he discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

utfall Number & ffluent Parameter	Gross Discharge Limitations		Units	Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.		Measurement Frequency	Sample Type
Sum of Outfalls 003 and 009:					
Chloroform	0.38	Monitor	lbs/day	Weekly	Calculated[4]
Phenolics, Total	Monitor	0.36	lbs/day	Weekly	Calculated[4]
Outfalls 009 and 013:					
Zinc, Total	Monitor	0.3	mg/l	2/Month	Calculated[5]

Notes:

[4]. The "Sum of Outfalls" loading for this parmater shall be calculated as the arithmetic sum of the individual mass loadings at outfalls 003 and 009 respectively. For the purposes of this monitoring requirement, effluent samples shall be taken at outfalls 003 and 009 simultaneously (on the same sampling day) by the permittee. For the purposes of determining compliance with this effluent limitation, if samples and analysis are only conducted at one outfall on a given sampling day, then the result from that sample shall be considered to be the mass loading for that day.

[5]. The concentration for this parameter shall be calculated based on the following formula:

$$C_z = \frac{C_9 \times F_9 + C_{13} \times F_{13}}{F_9 + F_{13}} \quad \text{where}$$

C_z = Pro Rated Average Concentration of Zinc to be Reported

C_9 = Concentration of Zinc at Outfall 009

C_{13} = Concentration of Zinc at Outfall 013

F_9 = Measured Daily Flow at Outfall 009

F_{13} = Measured Daily Flow at Outfall 013

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 004 - Swimming Pool Drainage					
Flow	Monitor	Monitor	gal/batch	Once per Batch	Calculated
pH (Range)	(6.0 - 9.0)		SU	Once per Batch	Grab
Solids, Suspended	Monitor	50	mg/l	Once per Batch	Grab
Solids, Settleable	Monitor	0.1	ml/l	Once per Batch	Grab
Chlorine, Total Residual	Monitor	2.0	mg/l	Once per Batch	Grab
Outfall 017 - Cooling Tower Blowdown, Chilled Water, Foundation Drainage, Reflecting Pool Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Chlorine, Total Residual	Monitor	0.4	mg/l	2/Month	Grab
Sulfite	Monitor	2.0	mg/l	2/Month	Grab
Iron, Total	Monitor	0.82	lbs/day	2/Month	Grab
2,2-dibromo-3-nitrile propionamide	Monitor	1.0	mg/l	2/Month	Grab

Note: Please refer to pages 13 and 14 of 23 for additional monitoring requirements for outfall 017.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfall 017 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

TERIM ACTION LEVEL REQUIREMENTS (TYPE I) EFFECTIVE UNTIL EDP + 18 MONTHS

The parameters listed below have been reported present in the discharge but at levels that currently do not equire water quality or technology based limits. Action levels have been established which, if exceeded, will result in econsideration or water quality or technology based limits.

Routine action level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall e appended to the DMR for the period during which the sampling was conducted. If submission of DMR's is not equired by this permit, the results shall be maintained in accordance with instructions on the RECORDING, REPORTING ND MONITORING page of this permit.

If any of the action levels is exceeded, the permittee shall undertake a short-term, high-intensity monitoring rogram for this parameter. Samples identical to those required for routine monitoring purposes shall be taken on each f at least three operating days and analyzed. Results shall be expressed in terms of both concentration and mass, and hall be submitted no later than the end of the third month following the month when the action level was first exceeded. esults may be appended to the DMR or transmitted under separate cover to the addresses listed on the RECORDING, EPORTING AND MONITORING page of this permit. If levels higher than the actions levels are confirmed the permit nay be reopened by the Department for consideration of revised action levels or effluent limits.

The permittee is not authorized to discharge any of listed parameters at levels which may cause or contribute to a violation of water quality standards.

Outfall Number & Effluent Parameter	Gross Action Level	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 003				
Antimony, Total	1.0	lbs/day	Monthly	Grab
Mercury, Total	1.0	ug/l	Monthly	Grab
Benzene	0.015	lbs/day	Semi-Annual	Grab
Toluene	0.11	lbs/day	Semi-Annual	Grab
Xylenes, Total	0.38	lbs/day	Semi-Annual	Grab
Ethylbenzene	0.38	lbs/day	Semi-Annual	Grab
Bromochloromethane	0.38	lbs/day	Semi-Annual	Grab
Chlorodibromomethane	0.38	lbs/day	Semi-Annual	Grab
Bromodichloromethane	0.38	lbs/day	Semi-Annual	Grab
Dichlorofluoromethane	0.38	lbs/day	Semi-Annual	Grab
Methyl Chloride	0.38	lbs/day	Semi-Annual	Grab
Carbon Tetrachloride	0.38	lbs/day	Semi-Annual	Grab
1,1-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
Trans-1,2-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
1,1,2-Trichloroethane	0.38	lbs/day	Semi-Annual	Grab
1,4-Dichlorobutane	0.38	lbs/day	Semi-Annual	Grab
Tetrahydrofuran	0.38	lbs/day	Semi-Annual	Grab
Butylbenzyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Diethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Dimethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
D-n-butyl Phthalate	0.38	lbs/day	Semi-Annual	Grab

INTERIM ACTION LEVEL REQUIREMENTS (TYPE I) EFFECTIVE UNTIL EDP + 18 MONTHS

Outfall Number & Effluent Parameter	Gross Action Level	Units	Minimum Monitoring Requirements	
			Measurement Frequency	Sample Type
Outfall 009				
Lead, Total	0.5	lbs/day	Monthly	Grab
Methyl Chloride	0.5	lbs/day	Monthly	Grab
Methylene Chloride	0.5	lbs/day	Monthly	Grab
Dichlorodifluoromethane	0.5	lbs/day	Monthly	Grab
Trichlorofluoromethane	0.5	lbs/day	Monthly	Grab
1,1,1-Trichloroethane	0.5	lbs/day	Monthly	Grab
Trans-1,2-Dichloroethylene	0.5	lbs/day	Monthly	Grab
Trichloroethylene	0.5	lbs/day	Monthly	Grab
Tetrachloroethylene	0.1	lbs/day	Monthly	Grab
Dichlorobromomethane	0.1	lbs/day	Monthly	Grab
1,1-Dichloroethane	0.1	lbs/day	Monthly	Grab
1,1,2-Trichloroethane	0.1	lbs/day	Monthly	Grab
Vinyl Chloride	0.1	lbs/day	Monthly	Grab
N-nitrosodiphenylamine	0.1	lbs/day	Monthly	Grab
Outfall 013				
Chromium, Total	0.5	lbs/day	Monthly	Grab
Nickel, Total	0.5	lbs/day	Monthly	Grab
Trans-1,2-dichloroethylene	0.1	lbs/day	Monthly	Grab
1,1,1-Trichloroethane	0.1	lbs/day	Monthly	Grab
Trichloroethylene	0.5	lbs/day	Monthly	Grab
Outfall 017				
Zinc, Total	0.82	lbs/day	Monthly	Grab
Outfall 009, 013 and 017 each				
Solids, Suspended	50	mg/l	Monthly	Grab
Solids, Settleable	0.1	ml/l	Monthly	Grab
Oil & Grease	15	mg/l	Monthly	Grab
Copper, Total	0.1	mg/l	Monthly	Grab

FINAL ACTION LEVEL REQUIREMENTS (TYPE I) EFFECTIVE BEGINNING EDP + 18 MONTHS

Outfall Number & Effluent Parameter	Gross Action Level	Units	Minimum Monitoring Requirements	
			Measurement Frequency	Sample Type
Outfall 003				
Antimony, Total	1.0	lbs/day	Monthly	Grab
Mercury, Total	1.0	ug/l	Monthly	Grab
Benzene	0.015	lbs/day	Semi-Annual	Grab
Toluene	0.11	lbs/day	Semi-Annual	Grab
Xylenes, Total	0.38	lbs/day	Semi-Annual	Grab
Ethylbenzene	0.38	lbs/day	Semi-Annual	Grab
Bromochloromethane	0.38	lbs/day	Semi-Annual	Grab
Chlorodibromomethane	0.38	lbs/day	Semi-Annual	Grab
Bromodichloromethane	0.38	lbs/day	Semi-Annual	Grab
Dichlorofluoromethane	0.38	lbs/day	Semi-Annual	Grab
Methyl Chloride	0.38	lbs/day	Semi-Annual	Grab
Carbon Tetrachloride	0.38	lbs/day	Semi-Annual	Grab
1,1-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
Trans-1,2-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
1,1,2-Trichloroethane	0.38	lbs/day	Semi-Annual	Grab
1,4-Dichlorobutane	0.38	lbs/day	Semi-Annual	Grab
Tetrahydrofuran	0.38	lbs/day	Semi-Annual	Grab
Butylbenzyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Diethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Dimethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
D-n-butyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Outfall 009				
Copper, Total	100	ug/l	Monthly	Grab
Lead, Total	0.5	lbs/day	Monthly	Grab
Outfall 013				
Copper, Total	100	ug/l	Monthly	Grab
Chromium, Total	0.5	lbs/day	Monthly	Grab
Nickel, Total	0.5	lbs/day	Monthly	Grab
Outfall 017				
Copper, Total	100	ug/l	Monthly	Grab
Zinc, Total	0.82	lbs/day	Monthly	Grab
Outfalls 009, 013 and 017 each				
Solids, Suspended	50	mg/l	Monthly	Grab
Solids, Settleable	0.1	ml/l	Monthly	Grab
Oil & Grease	15	mg/l	Monthly	Grab
Copper, Total	0.1	mg/l	Monthly	Grab

Toxicity Testing Program
Tier 1 - Acute Test

The permittee shall implement an effluent toxicity monitoring program beginning on the effective date of this permit and lasting for a period of one year. A final determination regarding additional monitoring and/or implementation of a toxicity reduction evaluation will be made by the Department following the completion of this program and given to the permittee in writing by the Regional Water Engineer. The effluent toxicity monitoring program shall be as follows:

Outfall No(s)	Effluent Parameter	Units	Monitoring Requirements Measurement Frequency	Sample Type
003[g]	Flow	GPD	c	d
	Effluent Toxicity[a]	% Effluent[b]	c	d
009 & 013[f]	Flow	GPD	c	d
	Effluent Toxicity[a]	% Effluent[b]	c	d

(a) Effluent Toxicity shall mean the toxicity of the effluent in acute static renewal tests specified as Tier 1 testing in New York State Manual for Toxicity Testing of Industrial and Municipal Effluents, NYSDEC, February 1985. Both a vertebrate and invertebrate species shall be used for the tests. Dilution water shall be collected according to the Manual. Receiving water shall be used as dilution water unless the Department approves a different source.[e] Effluent sampling and holding shall be done as outlined in Sections III-6 to III-8 of the Manual.

(b) The 48-hour EC_{50} in and 48-hour LC_{50} in % Effluent for both a vertebrate and an invertebrate species shall be determined and reported in accordance with the specified frequency. The 48-hour EC_{50} and 48-hour LC_{50} in % Effluent shall be compared to the calculated Instream Waste Concentration (IWC) of the effluent. If evaluation of multiple toxicity test results indicates likely toxicity, the Department may require the permittee to conduct chronic (Tier 2) testing or submit a Toxicity Reduction Evaluation (TRE) study proposal.

(c) Discharge monitoring requirements for effluent toxicity shall be monthly during the one year period beginning on the effective date of this permit. The results of each toxicity test shall be submitted no later than 28 days following the end of each test period. These reports shall be submitted to the Regional Water Engineer at NYSDEC, 21 South Putt Corners Rd., New Paltz, New York 12561 and the Chief, Compliance Section, Bureau of Wastewater Facilities Operations, 50 Wolf Road, Albany, NY 12233-3506.

(d) Monitoring of chemical and physical parameters limited in this permit shall be coordinated so that the resulting analyses are also representative of the sample used for toxicity testing.

Toxicity Testing Program (con't)

Tier 1 - Acute Test

(e) If any 100% receiving water sample is toxic it must be replaced with an alternate dilution water.

(f) Implementation of an effluent toxicity monitoring program for outfalls 009 & 013 shall begin within 30 days of construction completion or 18 months from the effective date of this permit whichever comes first. A pro-rated composite sample shall be collected from outfalls 009 and 013 for the purposes of this program.

(g) Implementation of an effluent toxicity monitoring program shall begin 3 years from the effective date of this permit.

Toxicity Testing Program
Tier 2 - Chronic Test

The permittee shall implement an effluent toxicity monitoring program beginning within 15 days after letter notification from the Regional Water Engineer, or within 45 days following issuance of this permit if Tier 1 (acute) testing is not required. This monitoring program shall continue for a period of one year. A final determination regarding additional monitoring and/or implementation of a toxicity reduction evaluation will be made by the Department following the completion of this program and given to the permittee in writing by the Regional Water Engineer. The effluent toxicity monitoring program is as follows:

Outfall No(s)	Effluent Parameter	Units	Monitoring Requirements Measurement Frequency	Sample Type
003	Effluent Toxicity[a]	% Effluent[b]	c	d

(a) Effluent toxicity shall mean the toxicity of the effluent in chronic tests as specified in New York State Manual for Toxicity Testing of Industrial and Municipal Effluents, NYSDEC, February 1985. Both a vertebrate and invertebrate species shall be used for the tests. Dilution water shall be collected according to the Manual. Receiving water shall be used as dilution water unless the Department approves a different source.[e] Effluent sampling and holding shall be done as outlined in Sections III-6 to III-8 of the Manual.

(b) The Maximum Allowable Waste Concentration (MAWC) in % Effluent for both a vertebrate and an invertebrate species shall be determined and reported. The MAWC in % Effluent shall be compared to the calculated Instream waste Concentration (IWC) of the effluent. The IWC in % Effluent shall be determined using the daily average effluent flow at the time of sampling and a critical receiving water flow of 3000 cfs.

(c) Discharge monitoring requirements for effluent toxicity shall be monthly during the one year period beginning on the effective date of this permit. The results of each toxicity test shall be submitted no later than 28 days following the end of each test period. These reports shall be submitted to the Regional Water Engineer at NYSDEC, 21 South Putt Corners Rd., New Paltz, New York 12561 and the Chief, Compliance Section, Bureau of Wastewater Facilities Operations, 50 Wolf Road, Albany, NY 12233-3506.

(d) Monitoring of chemical and physical parameters limited in this permit shall be coordinated so that the resulting analysis is also representative of the sample used for toxicity testing.

(e) If any 100% receiving water sample is toxic it must be replaced with an alternate dilution water.

OXICITY REDUCTION EVALUATION COMPLIANCE SCHEDULE

(a) Permittee shall perform a TRE as specified in this permit for the permit ischarge(s) in accordance with the following schedule:

utfall umber(s)	Compliance Action	Due Date
003	Submission of a proposal for a Toxicity Reduction Evaluation (TRE)* study to the Department of Environmental Conservation, Bureau of Wastewater Facilities Design, 50 Wolf Road, Albany, New York 12233-3503.	45 days after letter notification from Regional Water Engineer
009 & 013	Submission of a proposal for a Toxicity Reduction Evaluation (TRE)* study to the Department of Environmental Conservation, Bureau of Wastewater Facilities Design, 50 Wolf Road, Albany, New York 12233-3505	45 days after letter notification from Regional Water Engineer

* The proposed TRE shall be directed towards identifying the source of the toxicity, describing procedures to reduce the toxicity to an acceptable level, identifying monitoring parameters suitable for insuring control of the toxicity, and proposing a schedule of compliance.

The TRE, including data findings and recommendations for corrective action, permit limits, and proposed self-monitoring requirements shall be submitted in a form similar to a wastewater facility engineering report. The Department will review the TRE and may redraft the permit to incorporate toxicity limits, monitoring requirements, and a schedule of compliance that will ensure acceptable toxicity levels of the effluent.

(b) The permittee shall submit to the Department of Environmental Conservation the document(s) required in (a) above by the given date(s), and a written notice of compliance or noncompliance with the above schedule date(s) postmarked no later than 14 days following that date. Each notice of the non-compliance shall include the following information:

1. A short description of the noncompliance;
2. A description of any action actions taken or proposed by the permittee to comply with the elapsed schedule requirement without further delay;
3. A description of any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date permittee will comply with the elapsed schedule requirement and an assessment of the probability that permittee will meet the next schedule requirement on time.

SCHEDULE OF COMPLIANCE

a) The permittee shall comply with the following schedule.

	Outfall Number(s)	Compliance Action	Due Date
	009 & 013	Submit an approvable engineering report and plans necessary for achievement of final effluent limitations for VOC's. Complete construction and comply with final effluent limitations for VOC's	EDP + 18 mos.

b) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice under terms of the General Conditions (Part II), Section 5. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of <u>non-compliance</u> shall include the following information:

1. A short description of the non-compliance;
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
3. A description or any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.

c) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer at the location listed under the section of this permit entitled <u>RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS</u>, unless otherwise specified in this permit or in writing by the Department.

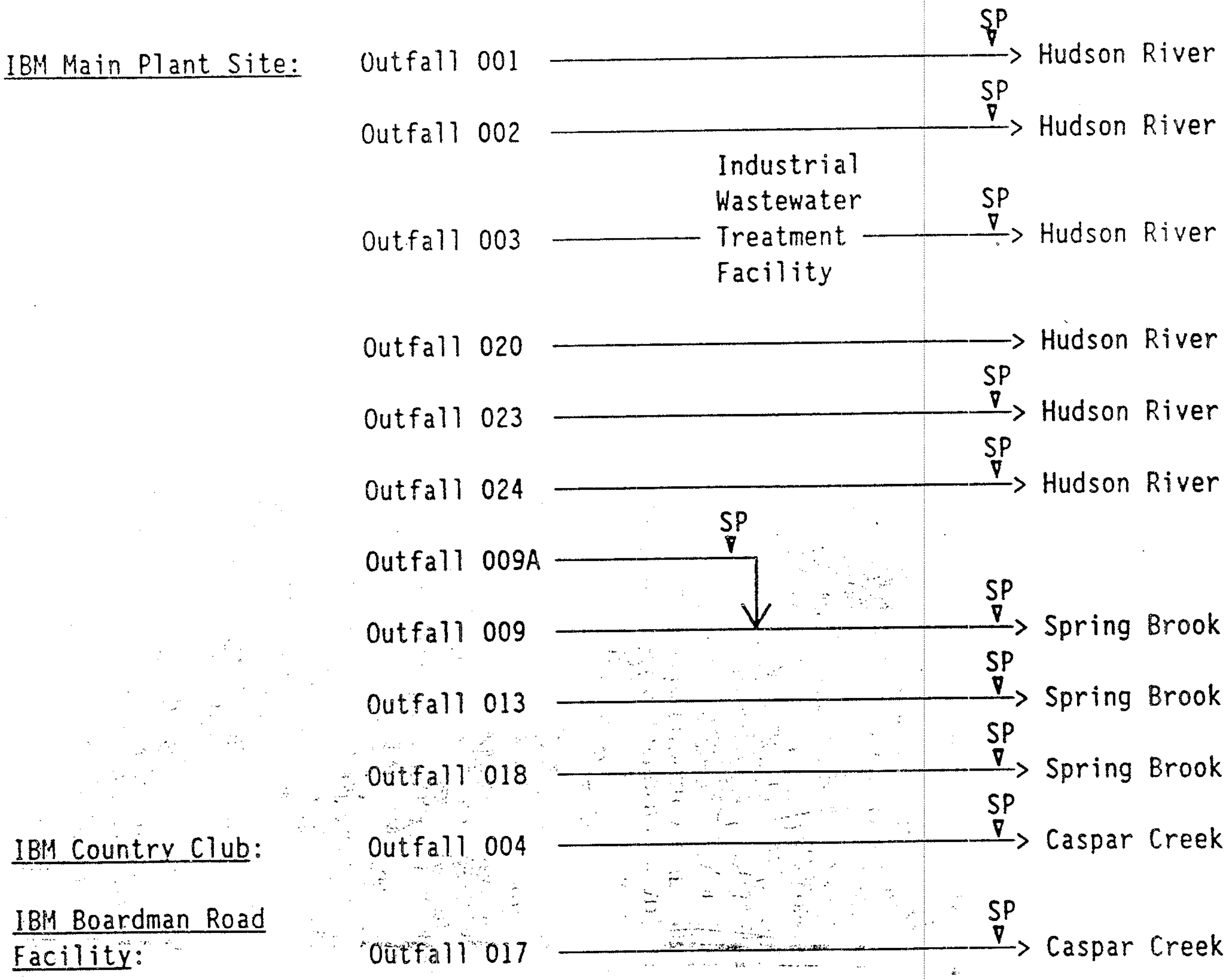
DEFINITIONS OF DAILY AVERAGE AND DAILY MAXIMUM

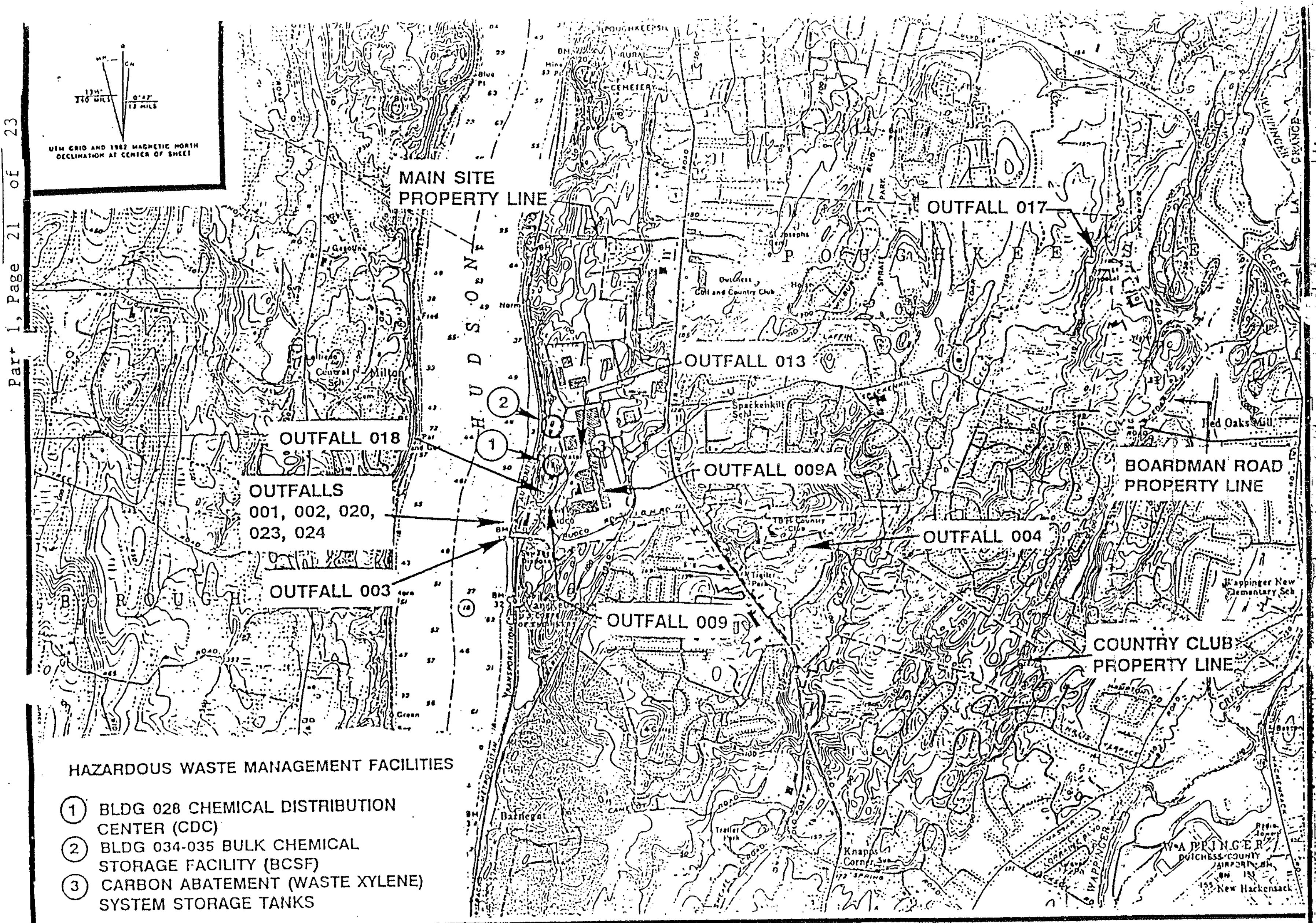
The daily average discharge is the total discharge by weight or in other appropriate units as specified herein, during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges in appropriate units as specified herein divided by the number of days during the calendar month when measurements were made.

The daily maximum discharge means the total discharge by weight or in other appropriate units as specified herein, during any calendar day.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the location(s) indicated below: (Show sampling locations and outfalls with sketch or flow diagram as appropriate). ("SP" identifies the sampling points).





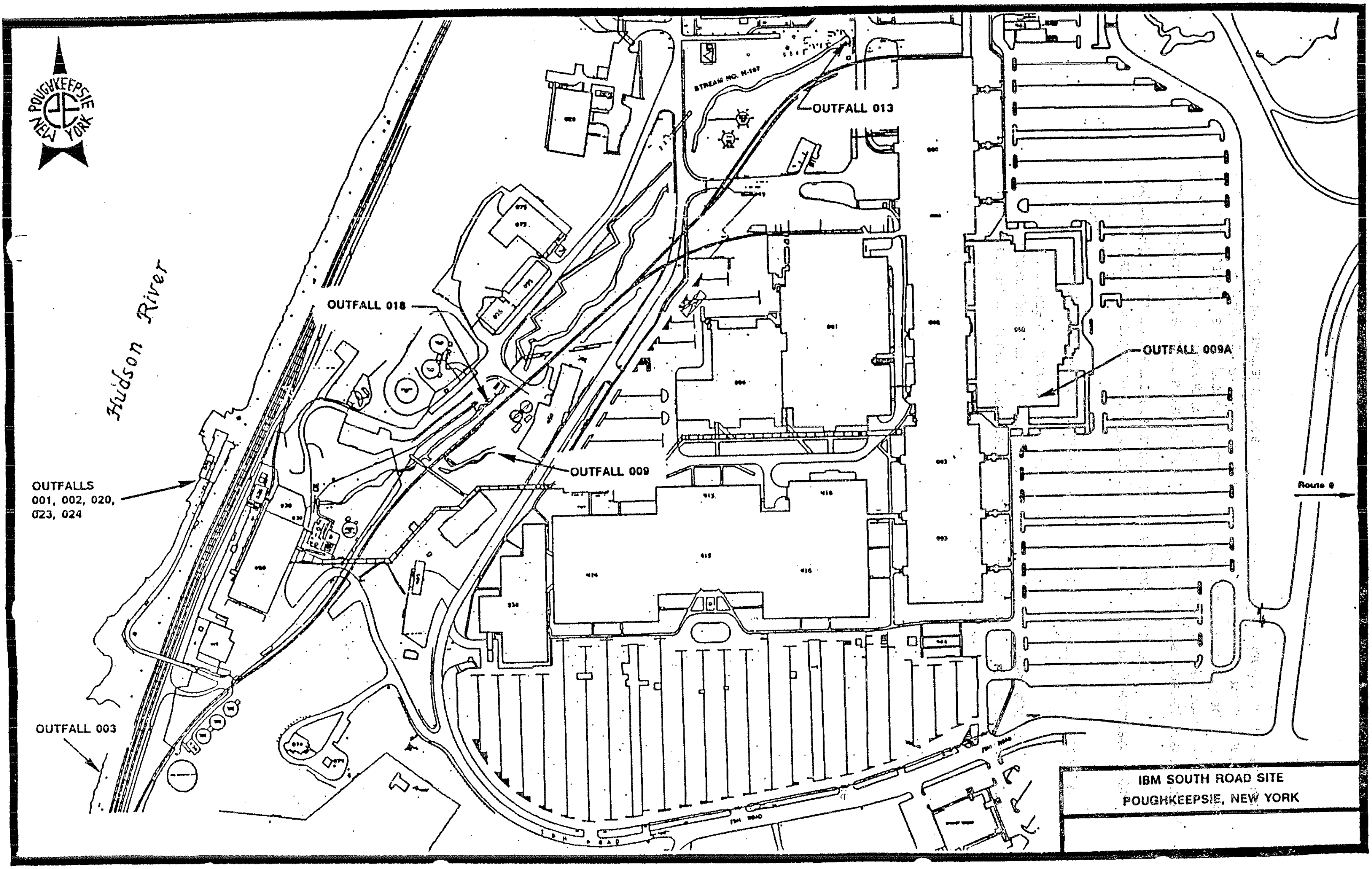
(TAKEN FROM USGS POUGHKEEPSIE, N.Y. QUADRANGLE - 1982)

SCALE 1:24000

LOCATION MAP

IBM CORPORATION

POUGHKEEPSIE, NEW YORK



IBM SOUTH ROAD SITE
POUGHKEEPSIE, NEW YORK

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

a) The permittee shall also refer to the General Conditions (Part II) of this permit for additional information concerning monitoring and reporting requirements and conditions.

b) The monitoring information required by this permit shall be summarized, signed and retained for a period of three years from the date of the sampling for subsequent inspection by the Department or its designated agent. **Also;**

[x] (if box is checked) monitoring information required by this permit shall be summarized and reported by submitting completed and signed Discharge Monitoring Report (DMR) forms for each one month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

Send the original (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water
Bureau of Wastewater Facilities Operations
50 Wolf Road
Albany, New York 12233-3506
Phone: (518) 457-3790

Dutchess Co. Health Department
22 Market Street
Poughkeepsie, New York 12601

Send the **first** copy (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer - Region 3
21 South Putt Corners Rd.
New Paltz, New York 12561

c) A monthly "Wastewater Facility Operation Report..." (form 92-15-7) shall be submitted (if box is checked) to the [ ] Regional Water Engineer and/or [ ] County Health Department or Environmental Control Agency listed above.

d) **Noncompliance** with the provisions of this permit shall be reported to the Department as prescribed in the attached General Conditions (Part II)

e) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

f) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculations and recording of the data on the Discharge Monitoring Reports.

g) Calculation for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

h) Unless otherwise specified, all information recorded on the Discharge Monitoring Report shall be based upon measurements and sampling carried out during the most recently completed reporting period.

i) Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section five hundred two of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be sent to the Environmental Laboratory Accreditation Program, New York State Health Department Center for Laboratories and Research, Division of Environmental Sciences , The Nelson A. Rockerfeller Empire State Plaza, Albany, New York 12201.