International Business
Machines Corporation

East Fishkill Facility
Hopewell Junction, New York

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
6 NYCRR PART 373 PERMIT
RENEWAL APPLICATION

VOLUME 2
PERMIT RENEWAL APPLICATION

JUNE 2011

Prepared By

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ENVIRONMENTAL ENGINEERS AND SCIENTISTS

INTERNATIONAL BUSINESS MACHINES CORPORATION

EAST FISHKILL FACILITY

HOPEWELL JUNCTION, NEW YORK

6 NYCRR PART 373 PERMIT RENEWAL APPLICATION

VOLUME 2

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Prepared for:

INTERNATIONAL BUSINESS MACHINES CORPORATION

2070 ROUTE 52

HOPEWELL JUNCTION, NEW YORK

Prepared by:

WILLIAM F. COSULICH ASSOCIATES, P.C.

330 CROSSWAYS PARK DRIVE

WOODBURY, NEW YORK

JUNE 2011

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OMB# 2050-0024; Expires 11/30/2011

SEND COMPLETED FORM TO: The Appropriate State or Regional Office.

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal

MARK ALL BOX(ES) THAT APPLY

Reason for Submittal:

- ☐ To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location)
- ☐ To provide a Subsequent Notification (to update site identification information for this location)
- ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application
- ☒ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # 1)
- ☐ As a component of the Hazardous Waste Report (If marked, see sub-bullet below)
  - ☐ Site was a TSD facility and/or generator of ≥1,000 kg of hazardous waste, >1 kg of acute hazardous waste, or >100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)

2. Site EPA ID Number

EPA ID Number | N | Y | D | 0 | 0 | 0 | 7 | 0 | 7 | 9 | 0 | 1 |

3. Site Name

Name: IBM East Fishkill Facility

4. Site Location Information

Street Address: 2070 Route 52

City, Town, or Village: Hopewell Junction | County: Dutchess

State: NY | Country: U.S.A. | Zip Code: 12533

5. Site Land Type

☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☒ Other

6. NAICS Code(s) for the Site (at least 5-digit codes)

A. | 3 | 3 | 4 | 4 | 1 | 3 |

B. | 3 | 3 | 4 | 4 | 1 | 9 |

C. | | | | | | |

D. | | | | | | |

7. Site Mailing Address

Street or P.O. Box: 2070 Route 52

City, Town, or Village: Hopewell Junction

State: NY | Country: U.S.A. | Zip Code: 12533

8. Site Contact Person

First Name: Steven | MI: C | Last: Hawkins

Title: Manager, Environmental Engineering

Street or P.O. Box: 2070 Route 52

City, Town or Village: Hopewell Junction

State: NY | Country: U.S.A. | Zip Code: 12533

Email: hawkinss@us.ibm.com

Phone: (845) 894-1039 | Ext.: | Fax: (845) 892-4627

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner: New York State Urban Dvlpt. Corporation d/b/a Empire State Dvlpt. Corporation | Date Became Owner: 12/31/1998

Owner Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☒ Other

Street or P.O. Box: 633 Third Avenue

City, Town, or Village: New York | Phone: (212) 803-3100

State: NY | Country: U.S.A. | Zip Code: 10017

B. Name of Site's Operator: IBM Corporation | Date Became Operator: 7/11/1963

Operator Type: ☒ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

EPA ID Number N Y D 0 0 0 7 0 7 9 0 1

OMB#: 2050-0024; Expires 11/30/2011

10. Type of Regulated Waste Activity (at your site)
Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities; Complete all parts 1-7.

Y ☒ N ☐ **1. Generator of Hazardous Waste**
If "Yes", mark only one of the following – a, b, or c.

☒ a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs./mo.) or more of hazardous waste; **or** Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs./mo) of acute hazardous waste; **or** Generates, in any calendar month, **or** accumulates at any time, more than 100 kg/mo (220 lbs./mo) of acute hazardous spill cleanup material.

☐ b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs./mo) of non-acute hazardous waste.

☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities.

Y ☐ N ☒ d. Short-Term Generator (generate from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.

Y ☐ N ☒ e. United States Importer of Hazardous Waste

Y ☐ N ☒ f. Mixed Waste (hazardous and radioactive) Generator

Y ☐ N ☒ **2. Transporter of Hazardous Waste**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y ☒ N ☐ **3. Treater, Storer, or Disposer of Hazardous Waste** Note: A hazardous waste permit is required for these activities.

Y ☐ N ☒ **4. Recycler of Hazardous Waste**

Y ☐ N ☒ **5. Exempt Boiler and/or Industrial Furnace**
If "Yes", mark all that apply.

☐ a. Small Quantity On-site Burner Exemption

☐ b. Smelting, Melting, and Refining Furnace Exemption

Y ☐ N ☒ **6. Underground Injection Control**

Y ☐ N ☒ **7. Receives Hazardous Waste from Off-site**

B. Universal Waste Activities; Complete all parts 1-2.

Y ☒ N ☐ **1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes", mark all that apply.**

a. Batteries ☒
b. Pesticides ☐
c. Mercury containing equipment ☐
d. Lamps ☒
e. Other (specify) _____ ☐
f. Other (specify) _____ ☐
g. Other (specify) _____ ☐

Y ☐ N ☒ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities; Complete all parts 1-4.

Y ☐ N ☒ **1. Used Oil Transporter**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y ☐ N ☒ **2. Used Oil Processor and/or Re-refiner**
If "Yes", mark all that apply.

☐ a. Processor

☐ b. Re-refiner

Y ☐ N ☒ **3. Off-Specification Used Oil Burner**

Y ☐ N ☒ **4. Used Oil Fuel Marketer**
If "Yes", mark all that apply.

☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

D. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

- You must check with your State to determine if you are eligible to manage laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

☐ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories
See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:

☐ a. College or University

☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university

☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

☐ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories

11. Description of Hazardous Waste

A. **Waste Codes for Federally Regulated Hazardous Wastes.** Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

D001	D002	D003	D004	D005	D006	D007
D008	D009	D010	D011	D019	D022	D035
D039	D040	F003	F005	F006	F007	P003
P022	P030	P098	P105	P119	U002	U037
U044	U070	U117	U133	U134	U144	U154
U161	U162	U165	U188	U190	U196	U211
U213	U220	U226	U359	U404		

B. **Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes.** Please list the waste codes of the State-Regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

B002	B003	B004	B005	B006	B007	

EPA ID Number |N|Y|D|0|0|0|7|0|7|9|0|1| OMB#: 2050-0024; Expires 11/30/2011

12. Notification of Hazardous Secondary Material (HSM) Activity

Y ☐ N ☒ Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes", you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

13. Comments

14. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
	Henry DiMarco, Jr. Director MHV Packaging & Test, EF Senior Location Executive	6/20/11
Rachel Shatz	Rachel Shatz, VP Planning and Env. Review Empire State Development Corp.	6/21/11

EPA ID Number | N | Y | D | 0 | 0 | 0 | 7 | 0 | 7 | 9 | 0 | 1 |

OMB#: 2050-0034; Expires 7/31/2012

United States Environmental Protection Agency

HARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact	**First Name:** Steven	**MI:** C	**Last Name:** Hawkins
	Contact Title: Manager, Environmental Engineering		
	Phone: (845) 894-1039	**Ext.:**	**Email:** hawkinss@us.ibm.com
2. Facility Permit Contact Mailing Address	**Street or P.O. Box:** 2070 Route 52		
	City, Town, or Village: Hopewell Junction		
	State: NY		
	Country: U.S.A.	**Zip Code:** 12533	
3. Operator Mailing Address and Telephone Number	**Street or P.O. Box:** 2070 Route 52		
	City, Town, or Village: Hopewell Junction		
	State: NY	**Phone:** (845) 894-1039	
	Country: U.S.A.	**Zip Code:** 12533	
4. Facility Existence Date	**Facility Existence Date (mm/dd/yyyy):** 7/1/1963		

5. Other Environmental Permits

A. Facility Type *(Enter code)*	B. Permit Number	C. Description
N	NY000509 6	
E	3-1328-00025/01028	Title V Permit (IBM)
E	3-1328-00345/00001	State Facility Permit (SpectraWatt)
E	3-1328-00267	Registration (eMagin Corporation)
E	3-1328-00269/02000	Registration (Pentagon Technologies)

6. Nature of Business:

Semiconductor component development and manufacturing.

7. Process Codes and Design Capacities – Enter information in the Section on Form Page 3

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in Item 8.

B. PROCESS DESIGN CAPACITY – For each code entered in Item 7.A; enter the capacity of the process.

1. **AMOUNT – Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.**
2. **UNIT OF MEASURE – For each amount entered in Item 7.B(1), enter the code in Item 7.B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.**

C. PROCESS TOTAL NUMBER OF UNITS – Enter the total number of units for each corresponding process code.

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
	Disposal	
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet; Hectares-meter; Acres; Cubic Meters; Hectares; Cubic Yards
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day or Liters Per Day
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
D99	Other Disposal	Any Unit of Measure Listed Below
	Storage	
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment	Gallons; Liters; Cubic Meters; or Cubic Yards
S05	Drip Pad	Gallons; Liters; Cubic Meters; Hectares; or Cubic Yards
S06	Containment Building Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
	Treatment	
T01	Tank Treatment	Gallons Per Day; Liters Per Day
T02	Surface Impoundment	Gallons Per Day; Liters Per Day
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Metric Tons Per Hour; or Million BTU Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Short Tons Per Day; BTUs Per Hour; Gallons Per Day; Liters Per Hour; or Million BTU Per Hour
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; or Million BTU Per Hour

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
	Treatment (Continued)	**(for T81 – T94)**
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; Liters Per Hour; Kilograms Per Hour; or Million BTU Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting, or Refining Furnace	
T88	Titanium Dioxide Chloride Oxidation Reactor	
T89	Methane Reforming Furnace	
T90	Pulping Liquor Recovery Furnace	
T91	Combustion Device Used in the Recovery of Sulfur Values from Spent Sulfuric Acid	
T92	Halogen Acid Furnaces	
T93	Other Industrial Furnaces Listed in 40 CFR 260.10	
T94	Containment Building Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTU Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million BTU Per Hour
	Miscellaneous (Subpart X)	
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per Hour; Liters Per Hour; or Gallons Per Day
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; or Million BTU Per Hour
X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
X99	Other Subpart X	Any Unit of Measure Listed Below

Unit of Measure	Unit of Measure Code
Gallons	G
Gallons Per Hour	E
Gallons Per Day	U
Liters	L
Liters Per Hour	H
Liters Per Day	V
Short Tons Per Hour	D
Short Tons Per Day	N
Metric Tons Per Hour	W
Metric Tons Per Day	S
Pounds Per Hour	J
Kilograms Per Hour	X
Million BTU Per Hour	X
Cubic Yards	Y
Cubic Meters	C
Acres	B
Acre-feet	A
Hectares	Q
Hectare-meter	F
BTU Per Hour	I

EPA ID Number | N | Y | D | 0 | 0 | 0 | 7 | 0 | 7 | 9 | 0 | 1 |

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7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY		C. Process Total Number of Units	For Official Use Only
					(1) Amount (Specify)	(2) Unit of Measure		
X	1	S	0	2	533.788	G	001	
	1	S	0	1	150,700.00	G	003	
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the line sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04, and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04, and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY		C. Process Total Number of Units	For Official Use Only
					(1) Amount (Specify)	(2) Unit of Measure		
X	2	T	0	4	100.00	U	001	

9. Description of Hazardous Wastes - Enter Information in the Sections on Form Page 5

A. EPA HAZARDOUS WASTE NUMBER – Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR Part 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in Item 9.A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in Item 9.A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in Item 9.B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all listed hazardous wastes.

For non-listed waste: For each characteristic or toxic contaminant entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. **Enter the first two as described above.**
2. **Enter "000" in the extreme right box of Item 9.D(1).**
3. **Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 9.E.**

2. PROCESS DESCRIPTION: If code is not listed for a process that will be used, describe the process in Item 9.D(2) or in Item 9.E(2).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. **Select one of the EPA Hazardous Waste Numbers and enter it in Item 9.A. On the same line complete Items 9.B, 9.C, and 9.D by estimating the total annual quantity of the waste and describing all the processes to be used to store, treat, and/or dispose of the waste.**
2. **In Item 9.A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In Item 9.D.2 on that line enter "included with above" and make no other entries on that line.**
3. **Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.**

EXAMPLE FOR COMPLETING Item 9 (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES									
								(1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Included With Above

EPA ID Number N Y D 0 0 0 7 0 7 9 0 1

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9. Description of Hazardous Wastes *(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)*

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
	1	D	0	0	1	150	T	S	0	1							Resist and Solvents
	2	F	0	0	3												Included with above
	3	F	0	0	5												Included with above
	4	D	0	0	1	140	T	S	0	1							MLC Waste Solvents
	5	F	0	0	3												Included with above
	6	D	0	0	1	5	T	S	0	1							Bulk Waste Solvents
	7	D	0	0	8												Included with above
	8	F	0	0	3												Included with above
	9	F	0	0	5												Included with above
1	0	F	0	0	3	70	T	S	0	1							Solvent Cont. Solids
1	1	D	0	0	3	1	T	S	0	1							Cyanide-Potassium F.
1	2	F	0	0	7												Included with above
1	3	D	0	0	3	1	T	S	0	1							Cyanide and Gold
1	4	F	0	0	7												Included with above
1	5	D	0	0	3	0.1	T	S	0	1							Cyanide Cont. Solids
1	6	F	0	0	7												Included with above
1	7	D	0	3	9	170	T	S	0	1							Activated Carbon
1	8	D	0	4	0												Included with above
1	9	D	0	0	8	10	T	S	0	1							Lead Cont. Solids
2	0	D	0	0	8	20	T	S	0	1							Discarded Wafers
2	1	D	0	0	8	9	T	S	0	1							Lead/Silver Cont. Solids
2	2	D	0	1	1												Included with above
2	3	D	0	0	4	10	T	S	0	1							Arsenic Cont. Waste
2	4	D	0	0	1	20	T	S	0	1							Lab Packs
2	5	D	0	0	2												Included with above
2	6	D	0	0	3												Included with above
2	7	D	0	0	4												Included with above
2	8	D	0	0	5												Included with above
2	9	D	0	0	6												Included with above
3	0	D	0	0	7												Included with above
3	1	D	0	0	8												Included with above
3	2	D	0	0	9												Included with above
3	3	D	0	1	0												Included with above
3	4	D	0	1	1												Included with above
3	5	D	0	1	9												Included with above
3	6	D	0	2	2												Included with above

EPA ID Number |N|Y|D|0|0|0|7|0|7|9|0|1| OMB#: 2050-0034; Expires 7/31/2012

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES									
								(1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
3	7	D	0	3	5												Included with above
3	8	D	0	3	9												Included with above
3	9	F	0	0	3												Included with above
4	0	F	0	0	5												Included with above
4	1	P	0	0	3												Included with above
4	2	P	0	2	2												Included with above
4	3	P	0	3	0												Included with above
4	4	P	0	9	8												Included with above
4	5	P	1	0	5												Included with above
4	6	P	1	1	9												Included with above
4	7	U	0	0	2												Included with above
4	8	U	0	3	7												Included with above
4	9	U	0	4	4												Included with above
5	0	U	0	7	0												Included with above
5	1	U	1	1	7												Included with above
5	2	U	1	3	3												Included with above
5	3	U	1	3	4												Included with above
5	4	U	1	4	4												Included with above
5	5	U	1	5	4												Included with above
5	6	U	1	6	1												Included with above
5	7	U	1	6	2												Included with above
5	8	U	1	6	5												Included with above
5	9	U	1	8	8												Included with above
6	0	U	1	9	0												Included with above
6	1	U	1	9	6												Included with above
6	2	U	2	1	1												Included with above
6	3	U	2	1	3												Included with above
6	4	U	2	2	0												Included with above
6	5	U	2	2	6												Included with above
6	6	U	3	5	9												Included with above
6	7	U	4	0	4												Included with above
6	8	F	0	0	6	3000	T	S	0	1							Fluoride/Heavy Metal Sludg
6	9	D	0	0	2	10	T	S	0	1							Nickel Plating Bath
7	0	D	0	0	2	20	T	S	0	1							Lead/Tin Plating Bath
7	1	D	0	0	8												Included with above
7	2	D	0	0	2	40	T	S	0	1							Chrome/Phos Acid Sol

EPA ID Number |N|Y|D|0|0|0|7|0|7|9|0|1| OMB#: 2050-0034; Expires 7/31/2012

9. Description of Hazardous Wastes ***(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)***

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES									
								(1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D.1)
7	3	D	0	0	7												Included with above
7	4	D	0	3	9	1	T	S	0	1							Central Utility WW
7	5	D	0	4	0												Included with above
7	6	D	0	0	8	10	T	S	0	1							Lead/Tin Solder Dros
7	7	F	0	0	6	1	T	S	0	1							Gold Resin
7	8	B	0	0	2	2	T	S	0	1							PCB Waste
7	9	B	0	0	3												Included with above
8	0	B	0	0	4												Included with above
8	1	B	0	0	5												Included with above
8	2	B	0	0	6												Included with above
8	3	B	0	0	7												Included with above

10. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

11. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

12. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas (see instructions for more detail).

13. Comments

Item 9, line 24 on page 5 to line 67 on page 5a - waste codes are for "Lab Pack" waste. Additional waste codes may be utilized due to the nature of lab pack waste operations.

Detailed information on facility layout is provided in the 6 NYCRR Part 373 Permit Renewal Application.

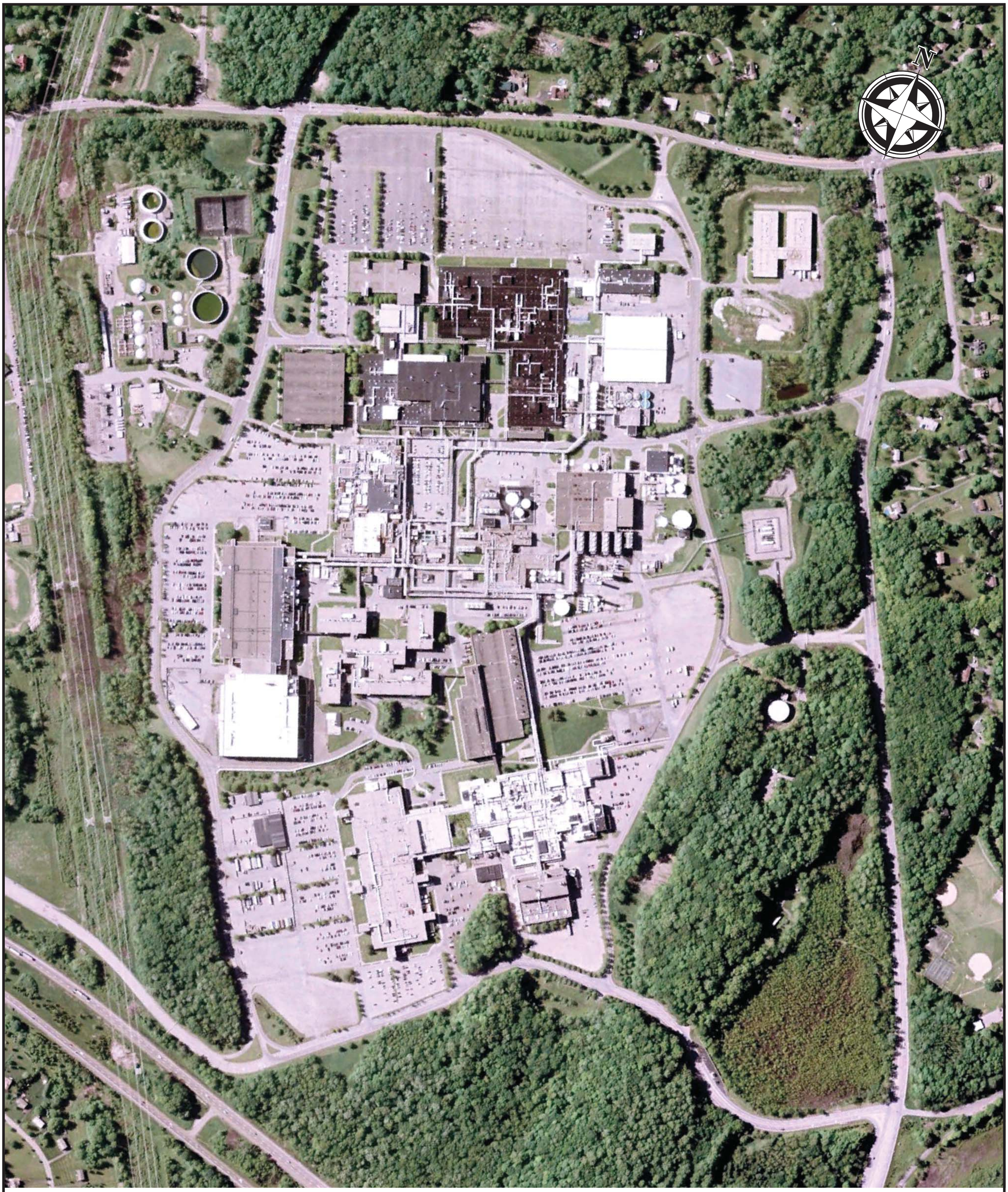


Image Source: Google Earth Professional
Image Date: May 4, 2009

Approximate Scale
0’ 300’ 600’

IBM East Fishkill

Hudson Valley Research Park
Hopewell Junction, New York

3114/Aerial Photo.indd

1.0 INTRODUCTION

This Part 373 Permit Renewal Application for the International Business Machines Corporation (IBM) East Fishkill Facility has been prepared pursuant to the requirements of the New York State Department of Environmental Conservation (NYSDEC) Part 373 regulations addressing the operation of a hazardous waste storage facility. The NYSDEC, under the authority of Article 27 of the Environmental Conservation Law, and consistent with the New York State regulations promulgated pursuant to the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984, has established an authorized program requiring permits to operate hazardous waste treatment, storage and disposal facilities. These regulations are published under 6 NYCRR Parts 370, 371, 372, 373-1, 373-2, 373-3, 374, 376 and 378.

This Part 373 Permit Renewal Application reflects current operations conducted at the facility with regard to the management, storage and off-site disposal of hazardous waste. Some of the descriptions and procedures presented in this document have been updated since the original renewal application was submitted in order to accurately reflect the operations and procedures conducted at the East Fishkill Facility.

This Part 373 Permit Renewal Application consists of two volumes. Volume No. 1 contains the updated modules for the 6 NYCRR Part 373 Permit, as listed in the Table of Contents. Volume No. 2 contains the text of the permit application comprising the 11 sections listed in the Table of Contents, including Exhibits containing additional information.

2.0 FACILITY DESCRIPTION

2.1 General Description

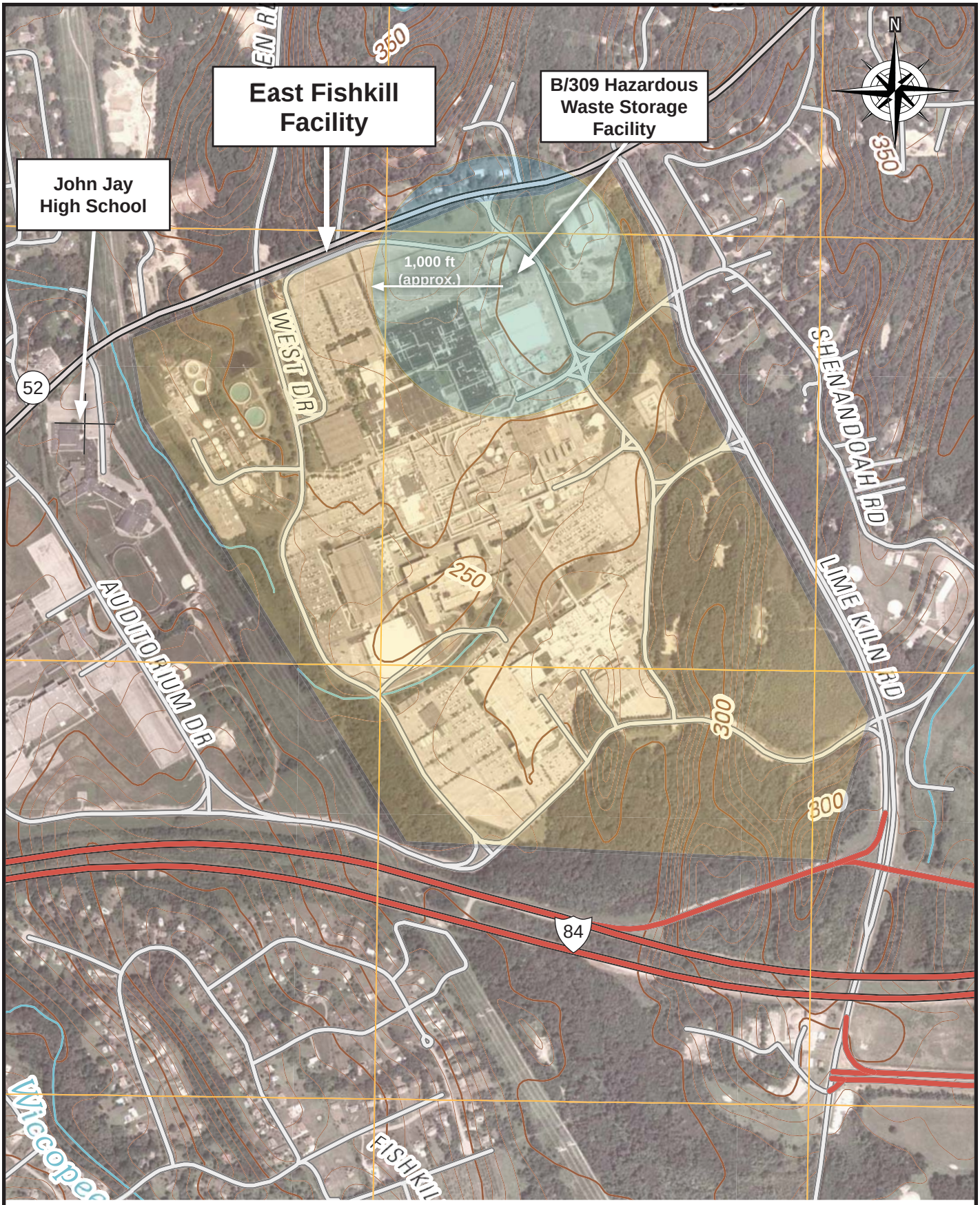
The IBM East Fishkill Facility is located on N.Y. State Route 52, bordered on the east by Lime Kiln Road and to the south by U.S. Route 84. The facility is located approximately 10 miles east of the Hudson River and is depicted on the United States Geological Survey topographic map (Hopewell Junction quadrangle) presented as Figure 2-1. A site plan for the IBM East Fishkill Facility is provided as Figure 2-2.

The facility includes various research and development operations as well as facilities and operations involved in the manufacturing of semiconductor and electronic computing equipment. Applicable North American Industry Classification System (NAICS) Codes for the facility include the following:

334413: Semiconductor and Related Device Manufacturing
334419: Other Electronic Component Manufacturing

Manufacturing operations were initiated at the facility in 1963. Subsequent to the Resource Conservation and Recovery Act (RCRA) of 1976, and regulations promulgated by the United States Environmental Protection Agency (USEPA), the site was issued a RCRA Part B Permit effective December 31, 1983, by the USEPA. The RCRA Part B Permit expired December 31, 1993. Since the issuance of the RCRA Part B Permit, the New York State Department of Environmental Conservation (NYSDEC) has been authorized to administer the hazardous waste management program within New York State.

In September 1995, the NYSDEC issued a 6 NYCRR Part 373 Permit to IBM for the hazardous waste storage facility located in Building 309 (B/309). B/309 is the only unit located at the East Fishkill Facility that is permitted for the treatment or storage of hazardous waste. The permitted storage capacity of B/309 is 150,700 gallons in containers.



Source: USGS Hopewell Junction, New York Quadrangle - 2010

Not To Scale

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY

William F. Cosulich Associates, P.C.
Environmental Engineers and Scientists

Site Location Map

FIGURE 2-1

Site Location Map.indd (10/27/10 - 10:30 AM)

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: MRH	DRAWN BY: PSM
DESIGNED BY: MRH	CHECKED BY: BMV

William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS

INTERNATION BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
DUTCHESS COUNTY NEW YORK

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PART 373 PERMIT RENEWAL APPLICATION

IBM EAST FISHKILL FACILITY
SITE PLAN

PROJECT NO. 2297
DATE: MAY 2006
SCALE: AS NOTED
DRAWING NO. 2-2

F:\3363\DWG\3363-BASE.dwg, FIG2-2, 12/12/2010 2:31:36 PM, ASheuss

In addition, the United States Environmental Protection Agency issued a Hazardous and Solid Waste Amendments of 1984 (HSWA) permit to IBM in September 1995. The HSWA permit was required since the New York State Department of Environmental Conservation was not authorized to implement all elements of the RCRA program at that time. Since the issuance of the HSWA permit, the NYSDEC received full authorization from the USEPA. Since the HSWA permit was no longer required, the HSWA permit was allowed to expire on November 3, 2000.

In 1995, a portion of the IBM East Fishkill Facility was identified as the Hudson Valley Research Park and is leased to various "non-IBM" manufacturing and non-manufacturing entities.

In December 1998, there was a nominal title transfer of the facility from IBM to the Empire State Development Corporation. IBM continues to operate the facility and is responsible for ensuring that waste generated by IBM and the tenants of the Hudson Valley Research Park is properly characterized, managed and disposed.

All waste material generated as part of the manufacturing operations undertaken at the site is stored in tanks, containers, lab-packs or dumpsters. Wastewater generated at the facility is treated on-site and discharged to Gildersleeve Brook under NYSDEC State Pollutant Discharge Elimination System (SPDES) Permit No. NY0005096.

All waste material is properly disposed of off-site; on-site waste disposal activities are not performed at the East Fishkill Facility. On-site wastewater treatment is performed on waste hydrofluoric acid/heavy metals and dilute acids. All waste is properly disposed at permitted off-site facilities in accordance with NYSDEC and USEPA standards and regulations. All waste solvent materials are transported off-site for incineration, fuel blending or reclamation.

The following permit exempt units are located at the East Fishkill Facility. Since these units are permit exempt, further description of these units and the operations undertaken are not included in this document.

Fluoride/Heavy Metal (F/HM) Treatment Facility

Waste containing dissolved heavy metals and/or fluoride compounds are produced by various technological procedures in different buildings throughout the facility. Pump stations located within various buildings transfer the F/HM waste to a series of influent storage tanks which serve the F/HM Waste Treatment Facility located in B/386.

Subpart 373-1.1(d)(1)(xii) exempts both elementary neutralization units and wastewater treatment units, as defined at 370-2(b)(48) and (180), respectively, from certain permit requirements. The units (tanks and tank systems) associated with the storage of influent waste, received directly from industrial process and manufacturing operations prior to discharge to the F/HM treatment facility, meet the three criteria defined at 370.2(b)(180) for a wastewater treatment unit. The three criteria include:

1. it is part of a wastewater treatment facility, which is a surface water point source discharge subject to regulation under ECL Article 17 or Section 307(b) of the Clean Water Act;
2. receives and treats or (emphasis added) stores an influent which is a hazardous waste, generates and accumulates a wastewater treatment sludge which is a hazardous waste, or treats or stores a wastewater treatment sludge which is a hazardous waste; and
3. meets the definition of a tank.

With regard to criteria number 1, these wastewater treatment units discharge flow directly to the on-site industrial wastewater and sanitary wastewater pollution control facilities regulated under a New York State Pollutant Discharge Elimination System (SPDES) Permit No. NY 0005096. Regarding criteria number 2, the units treat and store influent process wastes that are hazardous, directly from manufacturing operations. Lastly, these units are tanks and/or tank systems by definition.

Supernatant from the clarifiers and thickeners and filtrate from the ultrafiltration system and from sludge dewatering operations in the B/386 F/HM waste treatment facility are conveyed

to the industrial waste treatment plant (IWTP) at B/312 for additional treatment. Sludge generated from the B/386 F/HM filter presses No. 2 and 3 are managed as a F006 hazardous waste since a portion of the water treated through that system is related to electroplating operations. Sludge from filter press No. 1 is generated as a result of the treatment of wastewater associated with various utility operations and nonelectroplating manufacturing operations. It is not related to, or commingled with, wastewater from electroplating operations. The sludge from filter press No. 1 is therefore managed as a nonhazardous waste.

Slurry Treatment System

The Slurry Treatment System at B/316 treats acid and base slurry wastewater from chemical mechanical polishing manufacturing operations at B/320 and B/323, and domestic water softening slurry from the Central Utility Plant (CUP). The plant runs continuously and uses precipitation and clarification to react and settle out the slurry solids. Supernatent from the slurry clarifiers are conveyed to the IWTP at B/312 for additional treatment. Underflow sludge from the clarifiers is transferred to the B/386 F/HM Waste Treatment Facility where it is thickened and dewatered as a non-hazardous waste through filter press No. 1.

TMAH Treatment Facility

The TMAH Treatment Facility at B/338 receives tetramethylammonium hydroxide (TMAH) wastewater from packaging manufacturing operations in B/330. It uses physical and chemical treatment to remove metallic paste constituents, organics and TMAH from the wastewater. Effluent wastewater from the treatment system is transferred to the IWTP at B/312 for additional treatment. Calcium molybdate solids are thickened, filter pressed, then disposed of as a non-hazardous waste. Metallic solids are thickened, filter pressed, then transported off-site for reuse.

Recycle Treatment Facility

The Recycle Treatment Facility at B/317 receives dilute acid wastewater from the IWTP at B/312 for reclamation and reuse. The facility provides pH adjustment, chemical treatment, and filtration of recycle wastewater which is then transferred to the CUP for use as cooling tower makeup water and side stream filter backwash water.

Ammonia Treatment Facility

The Ammonia Treatment Facility at B/317 receives ammonia/hydrogen peroxide wastewater from B/323. It uses chemical treatment to remove hydrogen peroxide from the wastewater, and distillation to remove ammonia. Effluent wastewater from the treatment system is transferred to the IWTP at B/312 for additional treatment. Concentrated ammonia product is shipped off-site for reuse or disposal.

Industrial Wastewater Treatment Plant

The Industrial Wastewater Treatment Plant (IWTP) located in B/312 treats effluent from the cooling tower blowdown, wastewater from manufacturing operations, backwash water from the domestic water filters, deionized water system regeneration chemicals and effluent from the F/HM and other waste treatment facilities. Typically, sludge generated from the B/312 IWTP is conveyed back to the B/386 waste treatment facility and managed as an F006 hazardous waste.

Effluent from the B/312 IWTP is discharged to an equalization tank at B/325 Water Pollution Control Facility. After the equalization tank, it is combined with the facility's sanitary wastewater for further treatment. It should be noted, however, that since the effluent from the B/386 waste treatment facility meets the numerical Clean Water Act pretreatment standards, wastewater treatment sludge generated downstream is not required to be classified as F006 sludge.[*]

[*]S. Hammond, New York State Department of Environmental Conservation to S. Tranchina, IBM, October 19, 2004.

B/325 Water Pollution Control Facility

The Water Pollution Control Facility (WPCF) at B/325 is a biological wastewater treatment system which removes biochemical oxygen demand (BOD), total suspended solids (TSS) and ammonia through nitrification treatment. Effluent from the treatment system is discharged into Gildersleeve Brook as previously described. Sludge that is generated as a result of the biological treatment process is transferred off-site for disposal. Sludge that is periodically removed from the equalization tanks is also transferred off-site for disposal.

The plant design is intended to satisfy the current SPDES discharge permit. The sanitary waste treatment plant is not subject to 6 NYCRR Part 373 permit requirements.

Less-Than-90-Day Areas

Numerous less-than-90-day hazardous waste storage areas and tanks are located at the East Fishkill Facility. These less-than-90-day hazardous waste storage areas and tanks are exempt from permitting in accordance with 6 NYCRR 373-1.1(d)(iii). However, as required by the regulations, a description of personnel training (Section 8.0), preparedness and prevention (Section 6.0), and contingency plans and emergency procedures (Section 7.0) associated with these areas is presented in this document in the specified sections.

The locations of the permit exempt units located at the East Fishkill Facility are provided in Figure 7-4.

2.2 Topographic Map: General Requirements

A topographic map indicating the IBM East Fishkill Facility boundary line is provided as Figure 2-1. A 1,000-foot radius from B/309 (permitted unit) is also provided in Figure 2-1. In addition, provided in Exhibit 2A is a topographic map of the IBM East Fishkill Facility at a scale of 1 inch equals 250 feet. Contour lines on the map indicate that surface drainage in the area is

generally to the west. Storm sewers located throughout the facility collect, contain and convey storm water runoff in a manner which prevents local flooding.

Building and structures at the IBM East Fishkill Facility are illustrated on the site plan provided in Figure 2-2. The Hazardous Waste Contingency Plan provided as Section 7.0 of this document provides figures that illustrate the storm water drainage and conveyance systems, which serve the East Fishkill Facility, as well as the locations of the less-than-90-day storage units.

2.3 Location Information: Flood Plain Standard

In accordance with Part 373-1.5(a)(2)(xi)(b), owners and operators of hazardous waste treatment, storage and disposal facilities located within the 100-year floodplain must provide specific information pertaining to the proper protection and handling of waste in the event of flooding. These requirements pertain to those facilities located within Zone A (100-year floodplain) as indicated on the appropriate National Flood Insurance Program maps produced by the Federal Insurance Administration of the Federal Emergency Management Agency.

Based on a review of the Federal Emergency Management Agency's Flood Insurance Rate Maps for the area encompassing the facility (provided in Exhibit 2B), the facility is located within an area of "minimal or no flooding." Specifically, no portion of the facility is located within the 100-year floodplain (Zone A), the 100-year to 500-year floodplain (Zone B), or any coastal flood area with velocity or wave action (Zone V). In addition to not being located in the 100- or 500-year floodplain, and as is mentioned above, the site is equipped with such structural features as catch basins, storm water drains and approximately 20 separate storm water drainage conveyance systems to facilitate proper drainage during precipitation events. Since the facility is not located with the 100-year, 500-year or coastal (wave action) floodplains, there is no requirement for the development of a flood plan for the facility under 6 NYCRR Part 373.

2.4 Demonstration of Compliance

A Demonstration of Compliance is not required for the East Fishkill Facility since it is not located within the 100-year floodplain, as described in the previous section.

2.5 Traffic Information

All traffic involved in the transportation of hazardous waste from the site exits from the east gates and turns right on Lime Kiln Road, proceeding to U.S. Route 84. Vehicles heading east enter the eastbound lanes of Route 84. All other traffic enters the westbound lanes and proceeds toward the Beacon-Newburgh Bridge. Alternative access gates are located on Route 52. A traffic information map showing the off-site movement of hazardous waste is provided in Exhibit 2C.

There are four primary methods by which hazardous waste at the site is collected and transported on-site in preparation for proper off-site transportation and disposal. These include:

1. The collection of drums and small containers from various satellite accumulation areas located in manufacturing buildings with transport to B/309 via truck. Containers are stored within B/309 for off-site shipment.
2. The direct off-site shipment of wastewater treatment sludge in roll-off containers from the less-than-90-day storage area in B/386.
3. Waste solvents from various less-than-90-day storage tanks located throughout the site are emptied and consolidated based on their contents and fill rates and their contents are transferred to tanker tucks for direct off-site shipment.
4. The transfer of waste solvents from less-than-90-day tanks at various buildings to centrally located less-than-90-day storage tanks at B/303 and B/309 via trestle piping and tanker trucks. The contents of the central less-than-90-day storage tanks are shipped directly off-site.

On-site transportation to B/309 of drums and small containers of waste collected from satellite accumulation areas utilizes most of the facility roadways.

EXHIBIT 2A

TOPOGRAPHIC MAP

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: MRH	DRAWN BY: PSM
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EAST FISHKILL FACILITY
DUTCHESS COUNTY NEW YORK

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PART 373 PERMIT RENEWAL APPLICATION

IBM EAST FISHKILL FACILITY
SITE PLAN

PROJECT NO. 2297
DATE: MAY 2006
SCALE: AS NOTED
DRAWING NO. 2A

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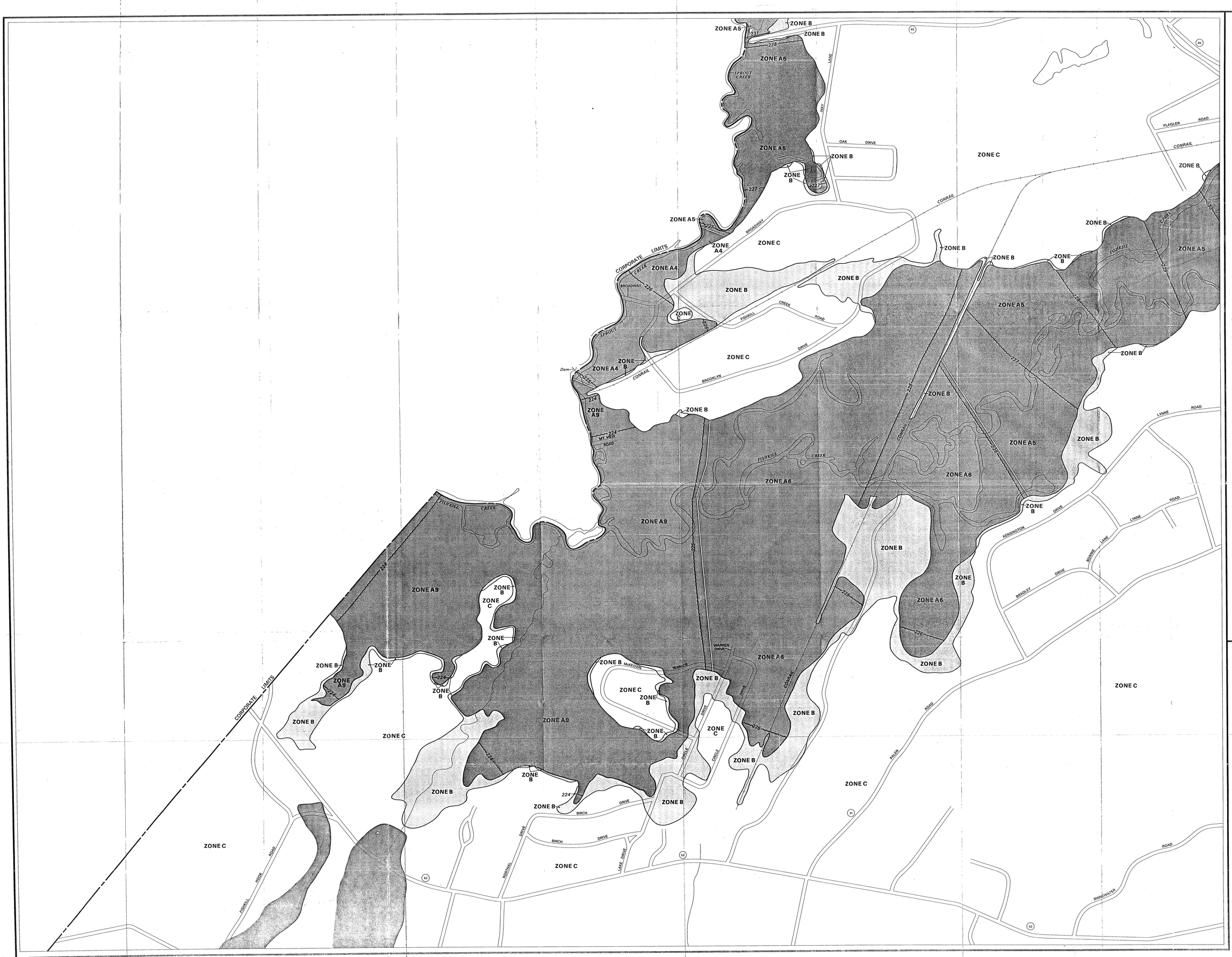
EXHIBIT 2B

FLOOD INSURANCE RATE MAPS



KEY TO MAP

500-Year Flood Boundary	
100-Year Flood Boundary	ZONE B
Zone Designations*	ZONE A1 / ZONE A5
100-Year Flood Boundary	
500-Year Flood Boundary	ZONE B
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation In Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
NOVEMBER 1, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
JULY 9, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
JUNE 15, 1984

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

APPROXIMATE SCALE
400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

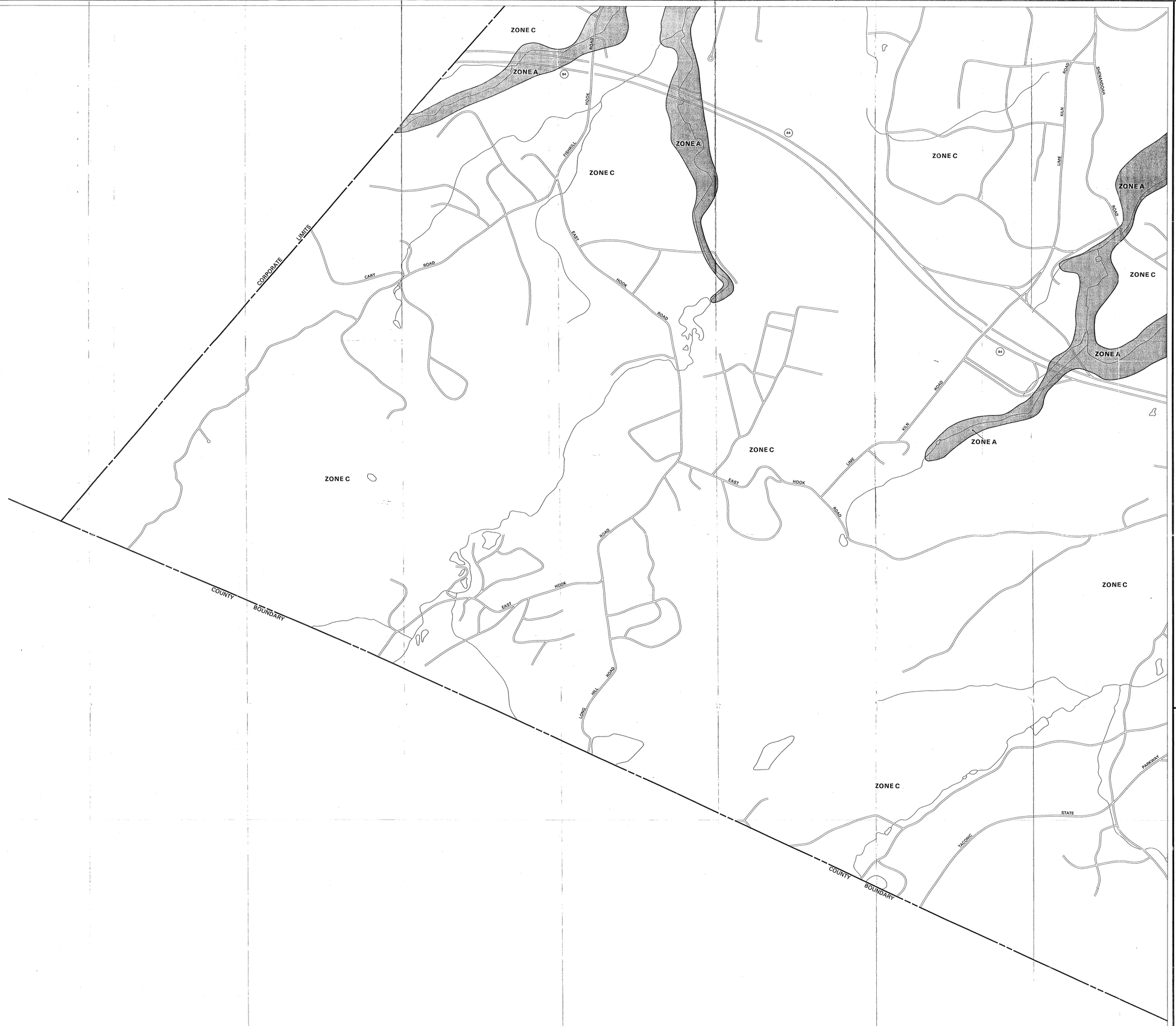
TOWN OF
EAST FISHKILL,
NEW YORK
DUTCHESS COUNTY

PANEL 9 OF 30
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
361336 0009 B

EFFECTIVE DATE:
JUNE 15, 1984

Federal Emergency Management Agency



KEY TO MAP

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100-Year Flood Boundary	ZONE A1
Zone Designations*	ZONE A5
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500-Year Flood Boundary	
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APPROXIMATE SCALE
800 0 800 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
EAST FISHKILL,
NEW YORK
DUTCHESS COUNTY

PANEL 20 OF 30
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
361336 0020 B

EFFECTIVE DATE:
JUNE 15, 1984

Federal Emergency Management Agency

EXHIBIT 2C

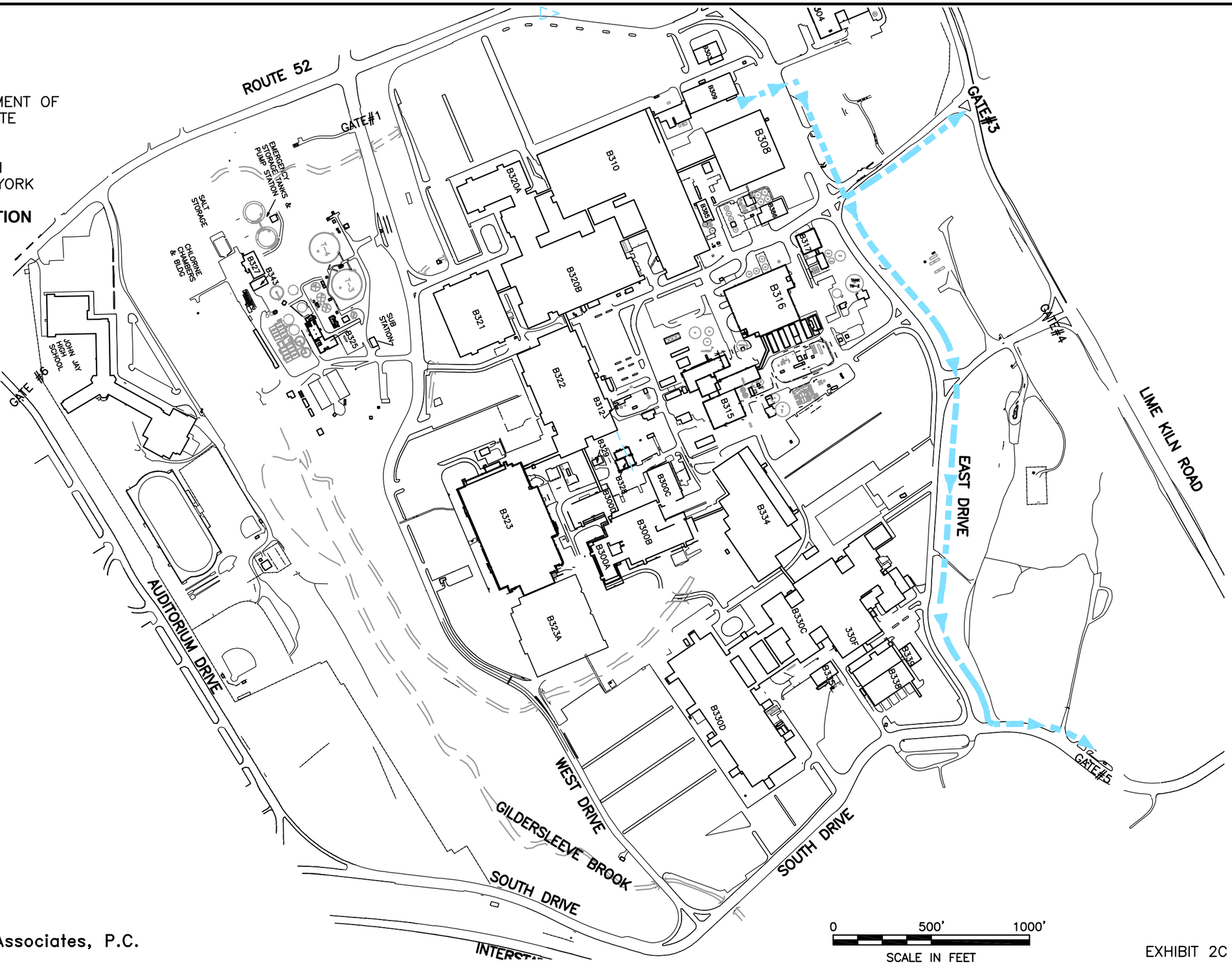
TRAFFIC INFORMATION MAP

LEGEND:

OFF-SITE MOVEMENT OF HAZARDOUS WASTE

IBM CORPORATION
EAST FISHKILL, NEW YORK

TRAFFIC INFORMATION MAP



William F. Cosulich Associates, P.C.
Environmental Engineers

EXHIBIT 2C

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3.0 WASTE CHARACTERISTICS

This section provides the following information associated with the hazardous waste streams generated at the IBM East Fishkill Facility:

- General description of the waste that includes each waste stream or waste stream type, major components, contaminants, other relevant components and factors.
- EPA hazardous waste codes, agreeing with 6 NYCRR Part 371.
- Process generating each waste stream.
- Location of the waste stream at the facility.
- Type and location of storage, treatment and/or disposal of each waste stream.
- Hazardous characteristics.
- Basis for hazard designation.
- Laboratory report on analyses results signed and dated.

The information presented above is included in the Waste Analysis Plan provided in Exhibit 3A of this document.

3.1 Chemical and Physical Analyses

3.1.1 Containers

All containers utilized for transporting hazardous waste generated at the IBM East Fishkill Facility meet the applicable United States Department of Transportation (USDOT) requirements. All containers utilized to store hazardous waste are located within secondary containment. As a result, IBM is not required to determine if free liquids are present in these containers.

3.1.2 Tanks

There are no permitted hazardous waste storage tanks located at the IBM East Fishkill Facility that are utilized to manage hazardous waste. All storage tanks containing hazardous waste are regulated as less-than-90-day tanks and are exempt from Part 373 Permit requirements.

3.1.3 Miscellaneous Units

There are no miscellaneous units located within the permitted facility that are utilized to manage hazardous waste.

3.1.4 Air Emissions from Process Vents

There are no process vents located within the permitted facility associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous waste with volatile organic compound concentrations of at least 10 parts per million by weight.

3.1.5 Air Emissions from Equipment

There is no equipment located within the permitted facility that manages hazardous waste with volatile organic compound concentrations of at least 10 percent by weight.

3.1.6 Containment Buildings

There are no containment buildings located at the IBM East Fishkill Facility that are utilized to manage hazardous waste.

3.2 Waste Analysis Plan

The IBM East Fishkill Facility Waste Analysis Plan is presented as Exhibit 3A of this document. The Waste Analysis Plan includes a general description of the hazardous waste generated at the facility and addresses parameters to be analyzed (with rationale), test methods, sampling methods, frequency of analysis, analytical methods, quality assurance/quality control, recording of results and additional information such as spill/runoff sampling, testing of unknown wastes and contract laboratory oversight.

Laboratory analyses conducted in support of the Part 373 Permit will be undertaken by a contracted laboratory that has been approved pursuant to the New York State Department of Health Environmental Laboratory Approval Program (ELAP). Any such contracted laboratory that IBM uses in support of the Part 373 Permit would be required to provide IBM with an up-to-date Quality Assurance/Quality Control (QA/QC) Manual that addresses the requirements of EPA's SW-846. Copies of the QA/QC Manuals would be available upon request.

EXHIBIT 3A

WASTE ANALYSIS PLAN

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
HOPEWELL JUNCTION, NEW YORK

WASTE ANALYSIS PLAN

Prepared for:

INTERNATIONAL BUSINESS MACHINES CORPORATION
2070 ROUTE 52
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Prepared by:

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JUNE 2011

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
HOPEWELL JUNCTION, NEW YORK

WASTE ANALYSIS PLAN

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Example Chain of Custody Form 2

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1.0 WASTE ANALYSIS PLAN

1.1 Introduction

This Waste Analysis Plan is designed to facilitate the management of hazardous waste generated at the IBM East Fishkill Facility in compliance with appropriate federal and state regulations. Included in this document are descriptions of each hazardous waste stream generated at the facility including detailed waste characterizations, descriptions of the processes that generate the waste and the waste analysis plan for each waste stream. Elements of the Waste Analysis Plan include the parameters to be analyzed for, the method for analyzing each parameter, the preservation method and the holding time.

Unless otherwise noted, the methods for analyzing each parameter are derived from the document entitled, "Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency (SW-846), Third Edition, First Update 1990" or latest approved revisions. The rationale for choosing the parameters to be analyzed is based on past laboratory analyses of the waste stream, knowledge of the constituents of the waste stream and the processes that generate the waste stream. It should be noted that in the absence of EPA or NYSDEC approved methods listed in this Waste Analysis Plan, alternate analytical methods may be utilized.

Analysis of each waste stream is conducted annually, or when there is reason to believe that the characteristics of the waste have changed. If IBM has sufficient knowledge to accurately characterize the waste, analysis may not be conducted (i.e., PCB light ballasts, unused laboratory chemicals, etc.). In the event that the identity of a waste cannot be determined, the waste will be analyzed for the characteristics of ignitability and corrosivity, as well as toxicity according to the Toxicity Characteristic Leaching Procedure (TCLP). For non-liquid samples, as an alternate to analysis utilizing the TCLP, total analysis for toxicity characteristics constituents may be conducted. If the concentration of the toxicity constituents exceeds 20 times the TCLP regulatory limit (non-liquid samples only), analysis may be repeated utilizing the TCLP procedure. In addition, analysis for appropriate organic constituents and metals may be conducted. IBM will

utilize its knowledge of the process generating the waste and the regulatory definition to determine if a waste generated has the characteristic of reactivity.

The collection of samples is accomplished by facility personnel and/or environmental contractors in accordance with the sample collection procedures presented in this Waste Analysis Plan. Laboratory analyses conducted in support of the Part 373 Permit will be undertaken by a contracted laboratory that has been approved pursuant to the New York State Department of Health Environmental Laboratory Approval Program (ELAP). Any such contracted laboratory that IBM uses in support of the Part 373 Permit would be required to provide IBM with an up-to-date Quality Assurance/Quality Control (QA/QC) Manual that addresses the requirements of EPA's SW-846. Copies of the QA/QC Manuals would be available upon request. An example laboratory reporting form is provided in Attachment 1 of this Waste Analysis Plan.

With regard to waste oil generated on-site, the operations which generate waste oil consist of general facility maintenance operations and general manufacturing support operations. These operations do not generate hazardous waste oil.

While analytical testing is undertaken periodically to confirm the nonhazardous nature of waste oil, assurances are also provided based on familiarity and general knowledge with the operations generating the waste. As such, there is no reason to believe that the waste oil at the facility would exhibit any of the traits of a characteristic waste. It should also be noted that the facility does not receive hazardous waste oil from sources outside the IBM East Fishkill Facility.

The facility maintains written procedures for identifying, segregating and packaging containerized hazardous waste that is generated on-site. Each department that generates hazardous waste is responsible for labeling each container in a manner that identifies the contents of the container. Once the containers are transferred to Building 309, the waste is placed in the appropriate Container Storage Area (CSA), dated, palletized and banded together as necessary and labeled with the appropriate DOT labels prior to shipment. In the event that a container arrives at Building 309 unlabeled, the department personnel sending the waste will be notified in an attempt to identify the contents of the container. If the contents of a waste container are not

known or the contents of the containerized waste have not been adequately characterized by the generating area, the container will be sampled and analyzed to define the contents of the container in accordance with the provisions of this Waste Analysis Plan.

1.2 Photo Waste - Resist and Solvents (D001, F003, F005)

Photoresist is utilized in the wafer photolithographic process to prevent the photographic development of particular areas on a wafer. Residual photoresist is generated from the application process of the photoresist material. Photoresist stripper and/or solvents are utilized to remove the photoresist from the wafer, as well as for tool and equipment cleaning.

Photo waste is accumulated in containers, transported to the appropriate storage room in Building 309 and maintained at this facility prior to shipment off-site for proper disposal. These containers are sampled and analyzed annually. Sampling is generally conducted by facility personnel utilizing a COLIWASA or thief in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available to sample the waste, outside environmental contractors are utilized. Based on 2010 operating records, approximately 22 tons of photo waste is generated annually at the facility. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-1 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-2
Test Methods:	See Table 1-2
Sampling Method:	Samples are collected using a COLIWASA or thief in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-1

WASTE PROFILE
PHOTO WASTE – RESIST AND SOLVENTS
(D001, F003, F005)

Composition	**Percent Composition**
n-Butyl Acetate (NBA)	<40
Isobutyl Alcohol	<50
N-Methyl-2-pyrrolidone (NMP)	<50
Photoresist	<10
Acetone	<3
Flash Point	<140ºF

Table 1-2

WASTE ANALYSIS PLAN
PHOTO WASTE - RESIST AND SOLVENTS

Test Parameter	**Method of Analysis***	**Method of Preservation***	**Holding Time**
Nonhalogenated Solvents	Nonhalogenated Volatile Organics Method 8015C or 8260B, SW-846	SW-846, Chapter 4, Table 4-1 Cool to <6°C	14 days
Aromatic Volatile Organics	Aromatic Volatile Organics Method 8021B or 8260B, SW-846	SW-846, Chapter 4, Table 4-1 Cool to <6°C	14 days
Ignitability	Setaflash Closed-Cup Method for Determining Ignitability Method 1020B, SW-846	Not Applicable	Not Applicable

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.3 Solvent Waste

Principal processes generating solvent waste include cleaning and rinsing operations associated with the manufacturing of semiconductor and other electronic components. Generally, the resultant waste stream is a mixture of various nonhalogenated solvents.

The majority of the solvent waste is generated in semiconductor clean room facilities where chip and electronic component manufacturing occurs. Solvent waste is typically collected and transferred to less-than-90-day tanks. Solvent waste is also collected in containers, transported to Building 309, and stored in the appropriate container storage area rooms prior to off-site disposal.

1.3.1 MLC Waste Solvents (D001, F003)

This waste is generated as a result of the cleaning operations associated with the manufacture of ceramic and glass ceramic substrates for semiconductor devices.

This waste stream is accumulated in containers and transported to the appropriate storage rooms in Building 309. Samples of this waste stream are collected by facility personnel utilizing collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available, outside environmental contractors are utilized for sample collection. Based on 2010 operating records, approximately 43 tons of this waste stream are generated annually. The quantity of this waste stream is subject to change each year, and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

1.3.2 Bulk Waste Solvents (D001, D008, F003, F005)

Various solvents are utilized in the chip and electronic component manufacturing areas for degreasing, cleaning and/or rinsing. The spent solvents are piped from the manufacturing tools to the appropriate hazardous waste storage tanks. Due to the nature of the processes

utilizing these solvents and available facilities, segregation is not possible. The result is the mixing of these solvents in the storage tanks.

A complete analysis of this waste stream (solvent waste) is conducted annually. Samples are collected by facility personnel utilizing a COLIWASA or thief, and all sampling techniques are in accordance with sample collection procedures presented in this Waste Analysis Plan. In the event facility personnel are unavailable, outside environmental contractors are utilized for sample collection. Based on 2010 operating records, approximately 653 tons of waste solvent is generated annually at the facility. The quantities of these waste streams is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generation reports.

Table 1-3 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-4
Test Methods:	See Table 1-4
Sampling Method:	Samples are collected using a COLIWASA or thief in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-3

WASTE PROFILE
SOLVENT WASTE

Parameter	**Percent Composition**
MLC Waste Solvents (D001, F003)	
Methanol	>75
Methyl Isobutyl Ketone	<25
Flash Point	<140ºF
Bulk Waste Solvents (D001, D008, F003, F005)	
n-Butyl Acetate	
Butyrolactone	
Dipropylene Glycol Dibenzoate	
Dipropylene Glycol Monobenzoate	
2-(2-Aminoethoxy) Ethanol	
Ethyl Lactate	
Ethylene Glycol	
Isopropanol	
Lead	
Methanol	
N-Methyl-2-pyrrolidone	
Methyl Isobutyl Ketone	
PGMEA	
Propanoic Acid	
Propylene Glycol	
Propylene Glycol Monomethyl Ether	
Water	
Flash Point	<140°F

Note: The percent composition of this waste stream is variable and, as such, the percent composition of the specific parameter listed is subject to change. The variability of the waste stream is due to changes in production volume, as well as specific manufacturing operations. However, based on analytical testing and general knowledge of the operations, the solvents are classified as noted.

Table 1-4

WASTE ANALYSIS PLAN
SOLVENT WASTE

Test Parameter	Method of Analysis*	Method of Preservation*	Parameter Applicability	Holding Time
Nonhalogenated Solvents	Nonhalogenated Volatile Organics Method 8015C or 8260B, SW-846	SW-846, Chapter 4, Table 4-1 Cool to <6°C	Bulk waste solvents and MLC waste solvents	14 days
Volatile Organics Compounds	Aromatic Volatile Organics Method 8021B or 8260B, SW-846	SW-846, Chapter 4, Table 4-1 Cool to <6°C	Bulk waste solvents and MLC waste solvents	14 days
Ignitability	Setaflash Closed-Cup Method for Determining Ignitability Method 1020B, SW-846	Not Applicable	Bulk waste solvents and MLC waste solvents	Not Applicable
Lead	ICP Method 6010C or 6020A, or SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6°C	Bulk waste solvents and MLC waste solvents	6 months

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.4 Solvent Contaminated Solids (F003)

Solvent contaminated solids are generated in various manufacturing areas and consists of broken glass, rags, paper wipes, disposable gloves and filters contaminated with various solvents.

This waste stream is accumulated in containers and transported to the appropriate storage rooms located in Building 309. IBM uses its knowledge of the waste generating process in classifying this waste stream (Solvent Contaminated Solids); therefore, analysis of this waste stream is not performed. Based on 2010 operating records, approximately 8 tons of this waste stream is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-5 presents a typical profile of this waste stream.

Table 1-5

WASTE PROFILE
SOLVENT CONTAMINATED SOLIDS
(F003)

Parameter	**Percent Composition**
Broken glass, rags, paper, wipes, disposable gloves and filters	>99
Miscellaneous Solvents including: 1-Butanol n-Butyl Acetate Isopropanol Methanol N-Methyl-2-pyrrolidone Methyl Isobutyl Ketone PGMEA Propylene Glycol Toluene	<1

1.5 Cyanide Waste

1.5.1 Cyanide-Potassium Ferrocyanide (D003, F007)

Cyanide-potassium ferrocyanide solution is utilized in the electroplating operation associated with the manufacture of ceramic and glass ceramic substrates.

1.5.2 Cyanide and Gold (D003, F007)

Cyanide and gold solution is utilized in the electroplating operation associated with the manufacture of ceramic and glass ceramic substrates.

1.5.3 Cyanide Contaminated Solids (D003, F007)

The cyanide-contaminated solids waste stream consists of miscellaneous items such as gloves, rags and equipment used with the potassium ferrocyanide bath solution as part of electroplating operations associated with the manufacture of ceramic and glass ceramic substrates.

This waste stream (cyanide waste) is accumulated in containers and transported to the appropriate storage rooms located in Building 309. Samples of the cyanide-potassium ferrocyanide and cyanide and gold waste are collected by facility personnel utilizing a COLIWASA sampling device or a thief in accordance with the sample collection procedures presented in this Waste Analysis Plan. Samples of cyanide-contaminated solids are collected utilizing a scoop or trier. In the event that facility personnel are not available, outside environmental contractors are utilized for sample collection. This waste stream was not generated in 2010. However, the quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-6 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-7
Test Methods:	See Table 1-7
Sampling Method:	Samples are collected using a COLIWASA sampling device, thief, scoop or trier in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-6

WASTE PROFILE
CYANIDE WASTE

Parameter	**Percent Composition**
Cyanide-Potassium Ferrocyanide (D003, F007)	
Total Cyanide	<4
Water	<99
Cyanide and Gold (D003, F007)	
Water	>99
Cyanide	<0.1
Gold	<0.5
Cyanide Contaminated Solids (D003, F007)	
Solids	>95
Total Cyanide	<5

Table 1-7

WASTE ANALYSIS PLAN
CYANIDE WASTE

Test Parameter	**Method of Analysis***	**Method of Preservation***	**Parameter Applicability**	**Holding Time**
Total Cyanide	Total and Amenable Cyanide (Colorimetric, Automated UV) Method 9012B, SW-846	SW-846, Section 2, Table 2-36 NaOH to pH≥12 Cool to <6°C	Cyanide-Potassium Ferrocyanide, Cyanide and Gold	14 days
pH	pH Electrometric Measurement Method 9040C or 9045D, SW-846	SW-846, Chapter 3, Table 3-1, None required	Cyanide-Potassium Ferrocyanide, Cyanide and Gold	24 hours
Total Cyanide	Cyanide Extraction Procedure for Solids and Oils Method 9013, SW-846	SW-846, Chapter 3, Table 3-1 None required	Cyanide-Contaminated Solids	14 days

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.6 Waste Activated Carbon - Groundwater Treatment System (D039, D040)

IBM utilizes activated carbon beds to remove organic contaminants from the groundwater at the Central Utility Plant. The bulk of the spent carbon from the groundwater treatment system is typically transferred to a bulk tanker truck and transported off-site for regeneration. The remaining portion is placed in containers and transported off-site for proper treatment/disposal.

IBM uses its knowledge of the waste generating process in classifying this waste stream (Waste Activated Carbon), therefore, analysis of this waste stream is not performed. Based on 2010 operating records, approximately 163 tons of this waste stream is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-8 presents a typical profile of this waste stream.

Table 1-8

WASTE PROFILE
WASTE ACTIVATED CARBON - GROUNDWATER TREATMENT SYSTEM
(D039, D040)

Parameter	Range of Composition
Tetrachloroethylene	<200 mg/g
Trichloroethylene	<28 mg/g

1.7 Lead Contaminated Waste

1.7.1 Lead Contaminated Solids (D008)

Lead contaminated solids are generated at the facility during chip and electronic component manufacturing. This waste is in solid form and consists of broken glass, rags, paper and disposable gloves.

1.7.2 Discarded Wafers (D008)

Wafers which are discarded are accumulated in containers in the manufacturing area. These containers are subsequently transported to the appropriate container storage room in Building 309 for storage and ultimate off-site disposal.

IBM uses its knowledge of the waste generating process in classifying this waste stream (Lead Contaminated Waste); therefore, analysis of this waste stream is not performed. Based on 2010 operating records, approximately 7 tons of this waste stream is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-9 presents a typical profile of this waste stream.

Table 1-9

WASTE PROFILE
LEAD CONTAMINATED WASTE

Parameter	**Percent Composition**
Lead Contaminated Solids (D008)	
Broken glass, rags, paper and disposable gloves	>95
Lead	<5
Discarded Wafers (D008)	
Defective/Off-specification Wafers Contaminated with Lead	100

1.8 Lead and Silver Contaminated Waste

1.8.1 Lead and Silver Contaminated Solids (D008, D011)

Lead and silver contaminated solids are generated at the facility during chip and electronic component manufacturing. This waste is in solid form and consists silver paste contaminated with lead as well as rags, paper and disposable gloves.

This waste stream is accumulated in containers and transported to the appropriate storage rooms located in Building 309. IBM utilizes its knowledge of the waste generating process in classifying this waste stream (Lead and Silver Contaminated Waste), therefore, analysis of this waste stream is not performed. This waste stream was first generated in 2010. It is estimated that approximately 9 tons of this waste stream will be generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-10 presents a typical profile of this waste stream.

Table 1-10

WASTE PROFILE
LEAD AND SILVER CONTAMINATED WASTE

Parameter	**Percent Composition**
Lead and Silver Contaminated Solids (D008, D011)	
Paste, rags, paper and disposable gloves	> 98___
Lead	< 1___
Silver	< 1___

1.9 Arsenic Contaminated Waste – Solids (D004)

The arsenic contaminated solid waste handled at the facility is generated during chip and electronic component manufacturing. This waste is in solid form and consists of paper, rags, plastic, glass cleaning pads, gloves, gaskets and Speedi-dry.

This waste stream is accumulated in containers in the manufacturing areas. These containers are subsequently transported to the appropriate room in Building 309 for storage and ultimate off-site disposal.

IBM uses its knowledge of the waste generating process in classifying this waste stream (Arsenic Contaminated Waste - Solids); therefore, analysis of this waste stream is not performed. Based on 2010 operating records, approximately 6 tons of this waste stream is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

In addition, this waste stream may include arsenic contaminated equipment. This waste stream consists primarily of manufacturing tools and ancillary equipment which are taken out of service and dismantled due to modifications or rearrangements of the manufacturing process and areas. Arsenic contaminated equipment is usually characterized based on knowledge of the process operation utilized. Samples and analysis of specific equipment will be taken only if the generator on the manufacturing line cannot provide sufficient data to adequately characterize the waste equipment.

Table 1-11 presents a typical profile of this waste stream.

Table 1-11

WASTE PROFILE
ARSENIC CONTAMINATED WASTE - SOLIDS
(D004)

Parameter	**Percent Composition**
Paper, rags, plastic, glass, cleaning pads, gloves, gaskets, Speedi-dry and equipment	>95
Arsenic	<5

1.10 Lab Packs

Lab packs include waste generated from laboratories or from manufacturing process lines in small containers. Samples are not collected and analyzed from this waste stream. These materials are packaged and disposed of by an outside contractor. Based on 2010 operating records, approximately 5 tons of this waste stream is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

As mentioned above, the lab packs are currently packaged by outside environmental contractors. Employees of these contractors are specifically trained in the safe handling and packaging of lab packs in preparation for off-site disposal.

1.11 Fluoride/Heavy Metal Sludge (F006)

The fluoride/heavy metal sludge results from the treatment process for wastewater generated from various manufacturing processes, including electroplating operations at the facility. After processing, the sludge is typically accumulated in 25 cubic yard roll-off containers which are housed in sludge container loading bays inside the fluoride/heavy metal (F/HM) treatment plants. These sludge bays are managed as less-than-90-day storage areas. Sludge may also be containerized and transported to Building 309 for storage. Once full, the containers are transported off-site for proper disposal. Samples of the sludge are collected by facility personnel utilizing a scoop or trier in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are unavailable, outside environmental contractors are utilized for sample collection. Based on 2010 operating records, approximately 1,043 tons of this waste is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-12 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-13
Test Methods:	See Table 1-13
Sampling Method:	Samples are collected using a scoop or trier in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan. Each roll-off container is sampled at five locations. The five samples obtained are then composited for analysis. One sample is collected from 55-gallon containers.

Table 1-12

WASTE PROFILE
FLUORIDE/HEAVY METAL SLUDGE
(F006)

Parameter	**Percent Composition**
Metal hydroxides, fluorides and lime	40 - 60
Water	40 - 60

Table 1-13

WASTE ANALYSIS PLAN
FLUORIDE/HEAVY METAL SLUDGE

Test Parameter	Method of Analysis*	Method of Preservation*	Holding Time
Cadmium	ICP Method 6010C or 6020A, or Flame AA Spectrophotometry 7000B, SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6ºC	6 months
Chromium	ICP Method 6010C or 6020A, or Flame AA Spectrophotometry 7000B, SW-846	SW-846, Chapter 3 Table 3-1 Cool to <6°C	6 months
Nickel	ICP Method 6010C or 6020A, or Flame AA Spectrophotometry 7000B, SW-846	SW-846, Chapter 3 Table 3-1 Cool to <6°C	6 Months
pH	pH Electronic Measurement Method 9040C, SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6°C	24 hours
Total and Amenable Cyanide	Total and Amenable Cyanide (Colorimetric Automate UV) Method 9012B, SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6°C	14 days

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.12 Miscellaneous Liquid Hazardous Waste

Miscellaneous liquid waste streams are those that are generated infrequently, at irregular intervals or are not generated directly due to a manufacturing process. When generated, miscellaneous liquid hazardous waste is placed in containers, analyzed and subsequently transported off-site for proper disposal.

If appropriate, a miscellaneous liquid hazardous waste will be sampled utilizing a COLIWASA or a thief and analyzed for parameters selected based on knowledge of the process that generated the waste. If the identity of the waste cannot be determined, the waste will be analyzed as an unknown waste. All sampling activities are conducted in accordance with the sample collection procedures presented in this Waste Analysis Plan.

1.13 Miscellaneous Solid Hazardous Waste

Miscellaneous solid waste streams are those that are generated infrequently, at irregular intervals or are not generated directly due to a manufacturing process. When generated, miscellaneous solid hazardous waste is placed in containers, analyzed and subsequently transported off-site for proper disposal.

If appropriate, a miscellaneous solid hazardous waste will be sampled utilizing a scoop or a trier and analyzed for parameters selected based on knowledge of the process that generated the waste. If the identity of the waste cannot be determined, the waste will be analyzed as an unknown waste. All sampling activities are conducted in accordance with the sample collection procedures presented in this Waste Analysis Plan.

1.14 Plating Baths

Various plating baths are utilized during the electroplating of substrates and other parts. Although the manufacturing process is designed to minimize the generation of waste, spent baths must occasionally be replaced. The plating bath is collected in containers and transported to Building 309 for storage prior to shipment off-site for disposal.

1.14.1 Nickel Plating Bath (D002)

The nickel plating bath waste stream is generated during cleanouts of the spent bath used in nickel plating operations. This waste stream consists of arsenic, lead, nickel and water.

1.14.2 Lead/Tin Plating Bath (D002, D008)

The lead/tin plating bath waste stream is generated during cleanouts of the spent bath used in lead/tin plating operations. This waste stream consists of water, lead, tin, catechol and methane sulfonic acid.

This waste stream (plating baths) is accumulated in containers and transported to the appropriate storage rooms located in Building 309. Samples of this waste stream are collected by facility personnel utilizing a COLIWASA sampling device or a thief in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available, outside environmental contractors are utilized for sample collection. Based on 2010 operating records, approximately 7 tons of this waste stream is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-14 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-15
Test Methods:	See Table 1-15
Sampling Method:	Samples are collected using a COLIWASA or thief device in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-14

WASTE PROFILE
PLATING BATH WASTE

Parameter	**Range of Composition**
Nickel Plating Bath (D002)	
Lead	<20 ppm
Nickel	<45,000 ppm
Water	>95%
Lead/Tin Plating Bath (D002, D008)	
Lead	<2.0%
Tin	<1.0%
Methane Sulfonic Acid	<1.0%
Water	>95%

Table 1-15

WASTE ANALYSIS PLAN
PLATING BATH WASTE

Test Parameter	Method of Analysis*	Method of Preservation*	Parameter Applicability	Holding Time
Lead	ICP Method 6010C or 6020A, SW-846	SW-846 Chapter 3, Table 3-1 HNO_3 to pH<2 Cool to <6C	Nickel Plating Bath, Lead/Tin Plating Bath	6 months
pH	pH Electronic Measurement Method 9040C, SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6C	Nickel Plating Bath, Lead/Tin Plating Bath	24 hours

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.15 Chrome/Phos Acid Solution (D002, D007)

The chrome/phos acid solution waste stream is the spent baths from the passivation of aluminum film on wafers. Chrome/phos acid solution is accumulated in containers in the manufacturing area, transported to the appropriate storage room in Building 309 and maintained at this facility prior to shipment off-site for proper disposal. These containers are sampled and analyzed annually. Sampling is generally conducted by facility personnel utilizing a COLIWASA or thief in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available to sample the waste, outside environmental contractors are utilized. Based on 2010 operating records, approximately 44 tons of the waste is generated annually. The quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-16 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-17
Test Methods:	See Table 1-17
Sampling Method:	Samples are collected using a COLIWASA or thief in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-16

WASTE PROFILE
CHROME/PHOS ACID SOLUTION
(D002, D007)

Parameter	**Range of Composition**
Phosphoric Acid	1 - 5%
Chromic Acid	0.1 - 0.4%
Water	>95%
pH	<2

Table 1-17

WASTE ANALYSIS PLAN
CHROME/PHOS ACID SOLUTION

Test Parameter	Method of Analysis*	Method of Preservation*	Holding Time
Chromium	ICP Method 6010C or 6020A, or SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6ºC	6 months
pH	pH Electronic Measurement Method 9040C, SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6ºC	24 hours

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.16 Central Utility Plant Wastewater (D039, D040)

The Central Utility Plant wastewater waste stream consists of the wastewater that is generated from the cleaning of carbon vessels at the Central Utility Plant. IBM began generating this waste stream in 2004. Central Utility Plant wastewater is typically accumulated in tanker trucks and either transferred to the less-than-90-day hazardous waste storage tanks in B/303 or sent directly off-site for disposal. These containers are sampled and analyzed annually. This waste stream is also accumulated in containers, transported to the appropriate storage room in Building 309 and maintained at this facility prior to shipment off-site for proper disposal. Sampling is generally conducted by facility personnel utilizing a COLIWASA or thief in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available to sample the waste, outside environmental contractors are utilized. This waste stream was not generated in 2010. However, the quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-18 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-19
Test Methods:	See Table 1-19
Sampling Method:	Samples are collected using a COLIWASA or thief in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-18

WASTE PROFILE
CENTRAL UTILITY PLANT WASTEWATER
(D039, D040)

Parameter	**Range of Composition**
Carbon	10 - 30%
Tetrachloroethylene	1 - 2 ppm
Trichloroethylene	<1 ppm
Water	70 - 90%

Table 1-19

WASTE ANALYSIS PLAN
CENTRAL UTILITY PLANT WASTEWATER

Test Parameter	Method of Analysis*	Method of Preservation*	Holding Time
Halogenated Solvents	Halogenated Volatile Organics Method 8021B or 8260B, SW-846	SW-846, Chapter 4, Table 4-1 Cool to <6°C	14 days

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.17 Lead/Tin Solder Dross (D008)

The lead/tin solder dross waste stream is generated facility-wide in sputtering furnaces. This waste stream is accumulated in containers and transported to the appropriate storage rooms located in Building 309. IBM uses its knowledge of the waste generating process in classifying this waste stream (Lead/Tin Solder Dross); therefore, analysis of this waste stream is not performed. This waste stream was not generated in 2010. However, the quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-20 presents a typical profile of this waste stream.

Table 1-20

WASTE PROFILE
LEAD/TIN SOLDER DROSS
(D008)

Parameter	**Percent Composition**
Lead/Tin Sheets	99
Sputtering Cloth	1

1.18 Gold Resin (F006)

The gold resin waste stream consists of spent resin generated from gold plating processes. This waste stream is accumulated in containers and transported to the appropriate storage rooms located in Building 309. Samples of this waste stream are collected by facility personnel utilizing a scoop or trier in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available, outside environmental contractors are utilized for sample collection. This waste stream was not generated in 2010. However, the quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-21 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-22
Test Methods:	See Table 1-22
Sampling Method:	Samples are collected using a scoop or trier in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-21

WASTE PROFILE
GOLD RESIN
(F006)

Parameter	**Percent Composition**
Resin	99
Cyanide	1
Gold	150 ppm

Table 1-22

WASTE ANALYSIS PLAN
GOLD RESIN

Test Parameter	**Method of Analysis***	**Method of Preservation***	**Holding Time**
Total and Amenable Cyanide	Total and Amenable Cyanide (Colorimetric Automate UV) Method 9012B, SW-846	SW-846, Chapter 3, Table 3-1 Cool to <6ºC	14 days

* Method of Analysis and Method of Preservation will be in accordance with latest approved revisions to SW-846.

1.19 PCB Waste (B002, B003, B004, B005, B006, B007)

IBM does not routinely generate PCB waste; however, this waste stream is included in this Waste Analysis Plan in the event that PCB waste may be identified and generated in the future. If IBM has sufficient knowledge to declare light ballasts as containing PCBs, waste analysis may not be conducted. If required, samples of this waste stream would be collected by facility personnel utilizing a scoop or trier for solid samples, or COLIWASA or thief for liquid samples in accordance with the sample collection procedures presented in this Waste Analysis Plan. In the event that facility personnel are not available, outside environmental contractors are utilized for sample collection. This waste stream was not generated in 2010. However, the quantity of this waste stream is subject to change each year and specific details regarding generation rates are updated and provided in the facility's annual generator reports.

Table 1-23 presents a typical profile of this waste stream.

Frequency of Analysis:	Annually
Parameters:	See Table 1-24
Test Methods:	See Table 1-24
Sampling Method:	Samples are collected using a scoop or trier for solid samples, or COLIWASA or thief for liquid samples in accordance with the procedures presented in Section 1.20 of this Waste Analysis Plan.

Table 1-23

WASTE PROFILE
PCB WASTE
(B002, B003, B004, B005, B006, B007)

Parameter	Range of Composition
PCBs	Varies

Table 1-24

WASTE ANALYSIS PLAN
PCB WASTE

Test Parameter	Method of Analysis*	Method of Preservation*	Holding Time
PCBs	Polychlorinated Biphenyls, Method 8082A, SW-846	SW-846, Chapter 4, Table 4-1 Cool to <6°C	Not Applicable

* Method of analysis and method of preservation will be in accordance with the latest approved revisions to SW-846.

1.20 Sample Collection Procedures

This section of the Waste Analysis Plan presents the detailed procedures used to collect the waste samples described briefly in the previous sections. Sample collection procedures are described for various sample collection devices including composite liquid waste sampler (COLIWASA), stratified sample thief, stainless steel scoop and a trier.

A summary of the type of sampling devices and procedures utilized for each particular waste stream, along with the type of tank or container the sample is typically collected from, is provided on Table 1-25. Methods of sample preservation vary based on individual waste streams and analyses to be performed, and are presented in Tables 1-2 through 1-24.

1.20.1 Sampling Equipment

The following sections describe the equipment typically utilized by IBM (or its outside environmental contractor) to collect samples of waste for analysis.

1. 20.1.1 - Composite Liquid Waste Sampler

The Composite Liquid Waste Sampler or COLIWASA is one of the most important and widely used liquid hazardous waste samplers. It permits the representative sampling of multi-phase wastes that have a wide range of viscosity, corrosivity, volatility, and solids content.

Its simple design makes it easy to use and allows the rapid collection of samples, thus minimizing the exposure of the sample collector to potential hazards from the waste.

COLIWASA samplers are generally utilized to sample tankers and containerized liquid wastes at the East Fishkill Facility. The facility insures that the material of construction of the COLIWASA sampler is compatible with the waste to be sampled.

Table 1-25

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
SAMPLE COLLECTION PROCEDURES

Waste Stream	Typical Type of Container/Tank	Typical Sampling Device	Sampling Procedure
Photo Waste - Resist and Solvents	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Solvent Waste:			
MLC Waste Solvents	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Bulk Waste Solvents	Tanker	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Cyanide Waste:			
Cyanide-Potassium Ferrocyanide	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Cyanide and Gold	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Cyanide Contaminated Solids	55-gallon container	Scoop or Trier	Sections 1. 20.1.3 or 1. 20.1.4 of this plan

Table 1-25 (continued)

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
SAMPLE COLLECTION PROCEDURES

Waste Stream	**Typical Type of Container/Tank**	**Typical Sampling Device**	**Sampling Procedure**
Lab Packs	55/20-gallon containers	Not applicable	Not applicable
Fluoride/Heavy Metal Sludge	25 cubic yard roll-off containers or 55-gallon containers	Scoop or trier	Sections 1. 20.1.3 or 1. 20.1.4 of this plan
Miscellaneous Liquid Hazardous Waste	55-gallon container	COLIWASA or thief*	Section 1. 20.1.1 of this plan
Miscellaneous Solid Hazardous Waste	55-gallon container	Scoop or trier**	Sections 1. 20.1.3 or 1. 20.1.4 of this plan
Plating Baths:			
Nickel Plating Bath	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Lead/Tin Plating Bath	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan

Table 1-25 (continued)

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
SAMPLE COLLECTION PROCEDURES

Waste Stream	Typical Type of Container/Tank	Typical Sampling Device	Sampling Procedure
Chrome/Phos Acid Solution	55-gallon container	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Central Utility Plant Wastewater	55-gallon Container or Tanker	COLIWASA or thief	Sections 1. 20.1.1 or 1. 20.1.2 of this plan
Gold Resin	55-gallon container	Scoop or trier	Sections 1. 20.1.3 or 1. 20.1.4 of this plan
PCB Waste	55-gallon container	Scoop or trier	Sections 1. 20.1.3 or 1. 20.1.4 of this plan

* If appropriate, this waste stream will be sampled for analysis utilizing a COLIWASA or thief. Otherwise, this waste will be characterized prior to manifesting the waste for off-site disposal based on the knowledge of the process that generated this waste.

** If appropriate, this waste stream will be sampled for analysis utilizing a scoop or trier. Otherwise, this waste will be characterized prior to manifesting the waste for off-site disposal based on the knowledge of the process that generated this waste.

Table 1-24 of this Waste Analysis Plan details which waste streams are sampled utilizing a COLIWASA. COLIWASA sampling follows the procedure provided in the most recent version of Solid Waste-846 (SW-846), "Test Methods for Evaluating Solid Wastes," Chapter 9, Section 9.2.2.4. The following procedure is utilized:

Procedures for Use

1. Prior to initiating sampling activity be certain that access to the waste is available through the top of the tank or container.

2. Be certain that the COLIWASA is decontaminated utilizing the procedure outlined in Section 1. 20.5. (Note: Decontamination is only required if the sampling device is not disposable.)

3. Remove a sample container from the sample case or cooler. Label container with a waterproof marker and complete the Chain of Custody Form (see Attachment 2 of this Waste Analysis Plan).

4. Wear appropriate disposable gloves and be certain that all sampling personnel are wearing the appropriate level of health and safety protection.

5. Insert the COLIWASA through the entire column of the material to be sampled.

6. When the COLIWASA is at the full depth, collect the sample by sinking the stopper ball within the COLIWASA tube to the base of the tube and lifting the COLIWASA from the container.

7. Withdraw the COLIWASA from the container and transfer the sample into the prescribed virgin or laboratory pre-cleaned sample containers and follow procedures for preservation and transport (see Sections 1. 20.2, 1. 20.3 and 1. 20.4).

8. Seal the sample container and return the sample container to the laboratory for proper storage and/or handling.

9. Decontaminate COLIWASA utilizing the procedure outlined in Section 1. 20.5. If the COLIWASA is a disposable type device, it may be left within the container. Disposable COLIWASA may not be left in a tank or tanker.

10. Secure the sample port of the container or tank.

11. Properly dispose of gloves and other appropriate health and safety equipment.

1. 20.1.2 - Stratified Sample Thief

This sampler is basically a hollow glass or rigid plastic tube which is anywhere from four to five feet in length. It generally has an inside diameter of ¼-inch to ½-inch, depending on the viscosity of the liquid to be sampled. Table 1-25 of this Waste Analysis Plan details the waste streams which are sampled utilizing a thief.

Procedures for Use

1. Prior to initiating sampling activity, be certain that access to the waste is available through the top of the tank or container.

2. Be certain that the thief has been decontaminated utilizing the procedures outlined in Section 1. 20.5.

3. Remove a sample container from sample case cooler. Label container with a waterproof marker and complete the Chain of Custody Form (see Attachment 2 of this Waste Analysis Plan).

4. Wear appropriate disposable gloves and be certain that all sampling personnel are wearing the appropriate level of health and safety protection.

5. Insert the thief into the material to be sampled to the depth desired.

6. Place gloved thumb securely over the open end of tube and carefully withdraw the thief.

7. Transfer sample into the prescribed virgin or laboratory pre-cleaned sample containers and follow procedures for preservation and transport (see Sections 1. 20.2, 1. 20.3 and 1. 20.4).

8. Seal the sample container and return sample container to the laboratory for proper storage and/or handling.

9. Decontaminate the thief as per the procedures outlined in Section 1. 20.5. If the thief is a disposable type device, it may be left within the container. Disposable thiefs may not be left in a tank or tanker.

10. Secure the sample port of the tank or container.

11. Properly dispose of gloves and other appropriate disposable health and safety equipment.

1. 20.1.3 - Sample Scoop

A laboratory scoop is utilized for sampling a variety of solid hazardous waste. Table 1-25 details the waste streams which are sampled utilizing a stainless steel or disposal plastic scoop.

Procedures for Use

1. Prior to initiating sampling activity, be certain that access to the waste is available through the top of the container.

2. Be certain that the scoop has been decontaminated utilizing the procedures outlined in Section 1. 20.5. (Note: Decontamination is only required if the sampling device is not disposable.)

3. Remove a sample container from the sample case or cooler. Label with a waterproof marker and complete the Chain of Custody Form (see Attachment 2 of this Waste Analysis Plan).

4. Wear appropriate disposable gloves and be certain that all sampling personnel are wearing the appropriate level of health and safety protection.

5. At specified location, collect the appropriate amount of sample from the surface of the waste material.

6. Transfer the sample into the prescribed virgin or laboratory pre-cleaned sample containers and follow procedures for preservation and transport (see Section 1.19.2, 1. 20.3 and 1. 20.4).

7. Seal the sample container and return sample container to the laboratory for proper storage and/or handling.

8. Decontaminate the scoop as per the procedures outlined in Section 1. 20.5 or dispose of the scoop properly. (Note: Decontamination is only required if the sampling device is not disposable.)

9. Properly dispose of gloves and other appropriate health and safety equipment.

1. 20.1.4 - Trier

A trier is a long tube with a slot that extends almost its entire length. The tip and edges of the tube slot are sharpened to allow the trier to cut a core of the material to be sampled when rotated after insertion into the material. Sampling triers are usually made of stainless steel with wooden handles. They range in size from approximately 61 to 100 cm (24 to 40 in.) long and 1.27 to 2.54 cm (1/2 to 1 in.) in diameter. Table 1-25 details the waste streams that are sampled utilizing a trier.

Procedures for Use

1. Prior to initiating sampling activity, be certain that access to the waste is available through the top of the container.

2. Be certain that the trier has been decontaminated utilizing the procedures outlined in Section 1. 20.5. (Note: Decontamination is only required if the sampling device is not disposable.)

3. Remove a sample container from the sample case or cooler. Label container with a waterproof marker and complete the Chain of Custody Form (see Attachment 2 of this Waste Analysis Plan).

4. Wear appropriate disposable gloves and be certain that all sampling personnel are wearing the appropriate level of health and safety protection.

5. Attempt to insert the trier into the material to be sampled at an approximate 45° angle from horizontal. This orientation minimizes the spillage of sample from the trier.

6. Rotate the trier once or twice to cut a core of material.

7. Slowly withdraw the trier, making sure that the slot is facing upward.

8. Transfer the sample into a virgin or laboratory pre-cleaned sample container with the aid of a spatula and follow procedures for preservation and transport (see Sections 1. 20.2, 1. 20.3 and 1. 20.4).

9. Decontaminate the trier as per the procedures outlined in Section 1. 20.5.

10. Properly dispose of gloves and other appropriate health and safety equipment.

1. 20.2 Sample Containers

Sample containers may be either plastic or glass with Teflon-lined screw-caps dependent on analytical requirements in accordance with SW-846 and ELAP. When organic analysis is prescribed, only glass containers with Teflon-lined screw-caps may be used. Volatile organic compound samples are collected in standard volatile organic analysis (VOA) containers filled to the septum and sealed with zero headspace.

For all hazardous waste samples, virgin or pre-cleaned sample containers are utilized for sampling activities.

Once samples are collected, they are immediately placed in appropriate sample containers and sealed.

Each sample container is labeled with the following information:

Sample No.: _____

Sample Location: _____

Date and Time of Sampling: _____

Sampler Initials: _____

Once sample containers are labeled, they are transported to the contracted laboratory along with the completed Chain of Custody form for proper storage and handling.

1. 20.3 Chain of Custody and Record Keeping

The contracted laboratory will maintain a chain of custody form of the type provided as Attachment 2 of this Waste Analysis Plan. Copies of the completed chain of custody forms will be maintained on-file by IBM along with copies of the analytical results.

The laboratory chain of custody form is designed to help insure the following required information is included:

1. Unique sample number
2. Analysis required
3. Sample location (general and specific origin)
4. Date/time of sample collection
5. Name of sample collector(s)
6. Date/time sample recorded in the laboratory
7. Preservation technique (if any)
8. Receiving pH
9. Number of containers
10. Volume of samples
11. Sample type (grab/composite)
12. Relinquished/received signatures
13. Comments
14. Required/requested turnaround time (TAT)

Further documentation as to sample information is kept in a database used to generate a unique sample ID for each sample. Included in this information is the general sample matrix, sampler's additional comments, Engineering request ID, log in time/date, and unique sample ID information for engineering references. Also available through the database is the list of parameters analyzed, the analyst for those parameters, and the date of analysis.

1. 20.4 Sample Preservation

Sample preservation will be accomplished at the contracted laboratory by preserving each sample according to the procedures stipulated in the Waste Analysis Plan. The most recent

version of SW-846 is utilized to obtain the preservation methods detailed in the Waste Analysis Plan.

1. 20.5 Equipment Decontamination

As previously discussed, Table 1-25 identifies the sampling devices utilized to sample each waste stream. Prior to sampling, each piece of sampling equipment will be decontaminated to prevent any cross contamination which would affect the integrity of any sample. However, decontamination of sampling equipment is not required when utilizing disposable samplers.

Teflon, PVC, polyethylene, polystyrene and stainless steel sampling equipment decontamination procedures will be the following:

- Wash thoroughly with nonresidual nonionic anionic detergent (such as alconox) and clean potable tap water using a brush to remove particulate matter or surface film.
- Rinse thoroughly with tap water.
- Rinse thoroughly with distilled water.
- Rinse in a well ventilated area with methanol (pesticide grade) and air dry.
- Rinse thoroughly with distilled water and air dry.
- Wrap completely in clean aluminum foil with dull side against the equipment. For small sampling items, such as scoops, decontamination will take place over a drum specifically used for this purpose.

The first step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease. This is followed by a tap water rinse and a distilled/deionized water rinse to remove the detergent. Next, a high purity solvent rinse is designated for trace organics removal. Methanol has been chosen because it is not an analyte of concern in the TCL. The solvent must be allowed to evaporate and then a final distilled/deionized water rinse is performed. This rinse removes any residual traces of the solvent. The aluminum wrap protects the equipment and keeps it clean until it is used at another sampling location.

ATTACHMENT 1

EXAMPLE LABORATORY REPORTING FORM

Laboratory Name _____
Address _____

NYSDOH ELAP# _____
NELAP Accredited

ANALYTICAL RESULTS

Client:	Phone	Fax:
Lab ID:	COC:	Date/Time Sampled:
Client Sample ID:	Manifest #:	Date Received:
Sample Type:	Schedule A #:	Date Reported:

Test	Method	MDL	Result	Units	Analysis Date	Analysis Time (when required)	Analyst

Comments:

ATTACHMENT 2

EXAMPLE CHAIN OF CUSTODY FORM

CHAIN OF CUSTODY RECORD

Page ___ of ___

Special Handling:

- ☐ Standard TAT – 10 to 15 business days
- ☐ Rush TAT – Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: _____

Project Mgr: _____

Invoice To: _____

P.O. No: _____ RQN: _____

Project No: _____

Site Name: _____

Location: _____ State: _____

Sampler(s) _____

1=NA_2S20_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH_3OH 8=$NaHSO_4$ 9=_____ 10=_____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1=_____ X2=_____ X3=_____

G=Grab C=Composite

Lab ID:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		Analyses:								QA Reporting Notes: (check if needed)
																				☐ Provide NYSDEC CAT A Report ☐ Provide NYSDEC CAT B Report ☐ Results Only **QA/QC Reporting Level** ☐ Standard ☐ No QC ☐ Other _____

☐ Fax results when available to (_____) _____

☐ E-mail to _____

EDD Format _____

Condition upon receipt: ☐ Iced ☐ Ambient ☐ ºC _____

Relinquished by:	Received by:	Date:	Time:

4.0 PROCESS INFORMATION

4.1 Containers

Building 309 is used to manage containers with free liquids and containers without free liquids. The containers and storage areas are inspected on a weekly basis in accordance with IBM's inspection plan. All containers located at Building 309 are handled in a manner which will not cause the container to rupture or leak (e.g., a forklift-mounted drum handler is used to move drums). While the predominant container utilized to store waste is a 55-gallon drum, other UN Performance-oriented Packaging (POP) containers are also utilized. Waste containers are kept closed except when adding or removing waste. All containers utilized at the building are in good condition, i.e., no severe rusting, deterioration or apparent structural defects. If a leak or apparent container defect is discovered, the waste is transferred to containers in good condition.

4.1.1 Containers With Free Liquids

Containerized hazardous waste is stored in the Building 309 permitted container storage facility. There are three rooms located in Building 309 utilized for container storage of hazardous waste as described in Table 4-1.

If a container is emptied and is in physically acceptable condition for reuse, the container would only be used to store the same waste it previously contained. This prevents a reaction between the material that was previously stored in the container and a new waste being added.

4.1.1.1 - Basic Design Parameters, Dimensions and Materials of Construction

Three rooms within Building 309 are permitted for the storage of hazardous waste, namely Room 2, Room 7 and Room 8. The floors of these rooms are constructed of concrete, coated with a chemically resistant material and are free of cracks and gaps. Concrete curbs approximately seven inches in height are located around the perimeter of each room to provide

Table 4-1

BUILDING 309 CONTAINER STORAGE AREAS

Room	Type of Waste	Waste Code	Max. No.*** of Containers	Typical Container Size	Quantity of Hazardous Waste Typically Stored in CSA (No. of Containers)
2	Solvent Waste	D001, D008, F003, F005	1,000	55 gallons	Approx. 400/55 gallon
	Solvent Contaminated Solids	F003			
	Fluoride/Heavy Metal Sludge	F006			
	Lead Contaminated Waste	D008			
	Photo Waste - Resist and Solvents	D001, F003, F005			
	Waste Activated Carbon - Groundwater Treatment System	D039, D040			
	Misc. Liquid Hazardous Waste	Various**			
	Misc. Solid Hazardous Waste	Various**			
	Arsenic Contaminated Waste - Solids	D004			
	Lead/Tin Solder Dross	D008			
	Central Utility Plant Wastewater	D039, D040			
	Gold Resin	F006			
7	Cyanide Waste	D003, F007	1,352	55/20/5 gallons	50/55 gallon 270/20 gallon
	Drum Consolidation and Lab Packs*	Various**			
	Misc. Solid Hazardous Waste	Various**			
8	Plating Baths	D002, D008	388	55 gallons	Approx. 270/55 gallon
	Chrom/Phos Acid Solution	D002, D007			
	Misc. Solid Hazardous Waste	Various**			
	Misc. Liquid Hazardous Waste	Various**			

*Materials to be included in lab packs are transported to CSA Room 7 where all lab-pack operations are conducted.

**Materials in this category will be properly coded based on knowledge and/or laboratory results at the time of shipment.

***All containers utilized for storing hazardous waste meet the UN POP standards.

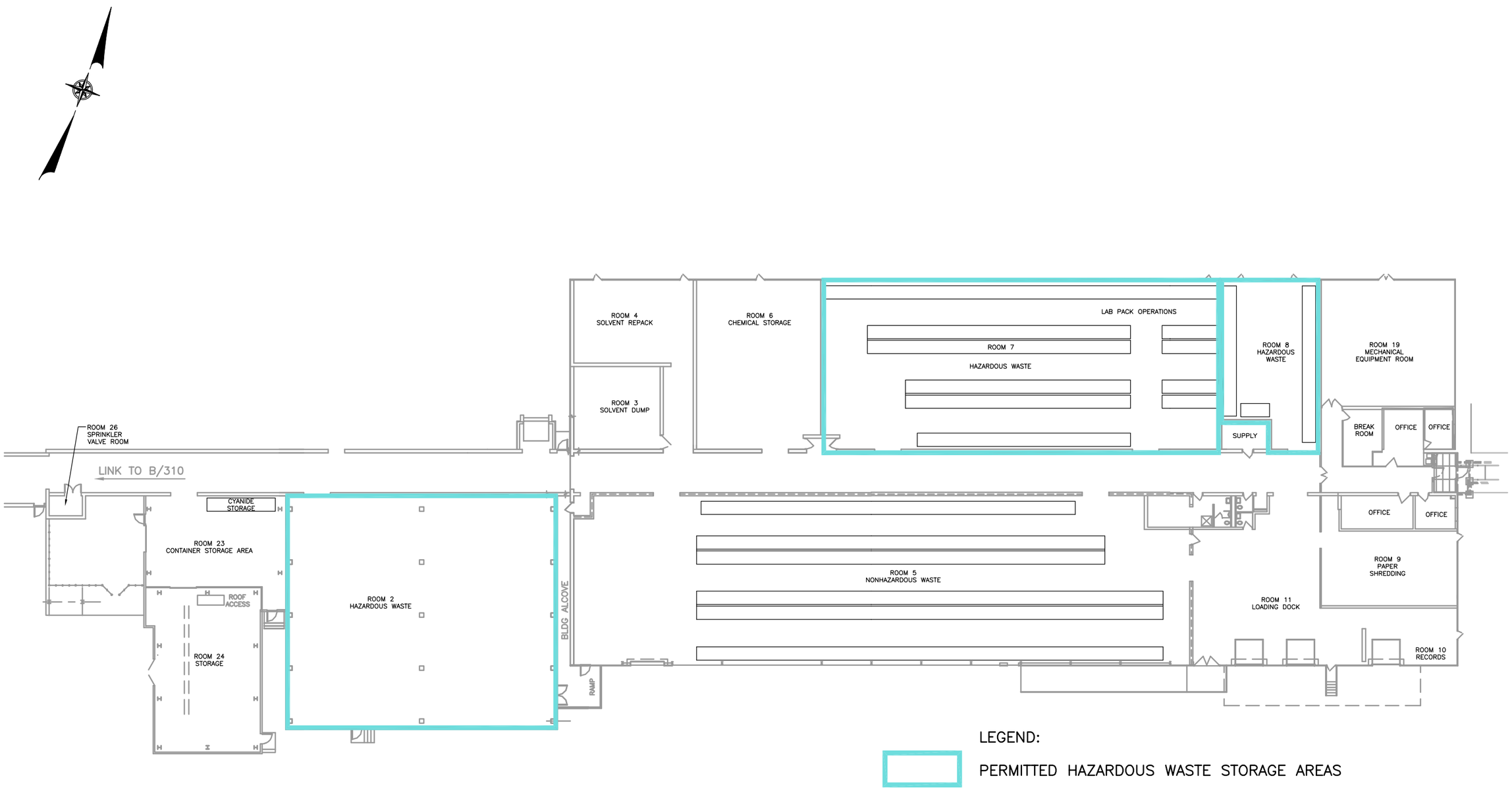
secondary containment. Pedestrian doorways are provided with landings on the both the interior and exterior portions that are also approximately seven inches above the floor. Forklift access-ways are provided with automatic doorway spill barriers that spring up from the floor when liquids are detected. These barriers are 12 inches high when in their activated position. All of these measures aid in preventing any spilled liquids from leaving its respective room. The secondary containment volume for each room is as follows:

Room No.	Secondary Containment Volume (gallons)
2	23,563
7	25,603
8	5,644

A general plan of Building 309 Rooms 2, 7 and 8 is presented as Figure 4-1. Exhibit 4A provides a letter dated July 29, 2008 by a Professional Engineer, licensed to practice in New York State, providing certification that the secondary containment upgrades "were completed in substantial compliance with the New York State Department of Environmental Conservation approved construction drawings…" "or otherwise constructed in an appropriate manner that provides equivalent environmental protection." The original attachments to this letter are provided in separate exhibits as follows: a set of as-built drawings for the rooms (Exhibit 4B), certification of containment curbs (Exhibit 4C), a technical specification for the chemically resistant floor coating (Exhibit 4D), and a data sheet for the automatic doorway spill barriers (Exhibit 4E). In addition, secondary containment capacity calculations are provided in Exhibit 4F of this document.

4.1.1.2 - Description of How Design Promotes Drainage or How Containers are Kept from Contact with Standing Liquids in the Containment System

Containers are placed on wooden pallets within each room and stacked a maximum of three high. The containers located on the bottom pallet are not in direct contact with the floor. Therefore, in the event of a spill, containers would not come in contact with standing liquids.



SCALE: 1" = 30'

IBM CORPORATION
EAST FISHKILL FACILITY, HOPEWELL JUNCTION, NEW YORK

William F. Cosulich Associates, P.C.
Environmental Engineers and Scientists

BUILDING 309 PERMITTED HAZARDOUS WASTE CONTAINER STORAGE FACILITY GENERAL PLAN

FIGURE 4-1

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4.1.1.3 - Capacity of the Containment System Compared with the Number and Volume of Containers to be Stored

The following table presents the maximum number of 55-gallon drums that can physically fit within Building 309 Rooms 2, 7 and 8, the largest container size to be placed in storage and the capacity of each room's secondary containment system:

Room No.	Largest Container (gallons)	Maximum Number of 55-Gallon Drums		10% of Total Container Volume (gallons)	Secondary Containment System Capacity (gallons)
		Quantity	Volume (gallons)		
2	55	1,000	55,000	5,500	23,563
7	55	1,352	74,360	7,436	25,603
8	55	388	21,340	2,134	5,644

As indicated on the table, each room has adequate secondary containment volume for the storage of the maximum number of containers that can physically fit within each room.

4.1.1.4 - Provisions for Preventing or Managing Run-on

All container storage rooms are located within Building 309. As a result, the rooms are not impacted by storm water run-on.

4.1.1.5 - How Accumulated Liquids can be Analyzed and Removed to Prevent Overflow

In the event of a spill or leak in any container storage room, released waste will immediately be collected utilizing either a compatible portable pump or absorbent material, which will be subsequently containerized and disposed. Any waste material remaining in the leaking container will be transferred to a container in good condition.

4.1.2 Containers Without Free Liquids

All of the rooms within Building 309 used to store hazardous waste are provided with secondary containment, including those rooms storing containers without free liquids. As a result, IBM is not required to test for free liquids within these containers.

4.1.3 Requirements for Ignitable or Reactive Wastes and Incompatible Waste

Ignitable, reactive and/or incompatible waste is stored in Rooms 2 and 7 within Building 309. Room 2 is generally utilized to store ignitable waste while Room 7 is generally utilized
to store lab packs. Due to the size of these rooms, potentially reactive and/or incompatible waste streams may be segregated and managed in a manner that would prevent the reaction of these substances.

Building 309 is located greater than 50 feet from the East Fishkill Facility property line. As a result, containers holding ignitable or reactive hazardous waste are stored greater than 50 feet from the East Fishkill Facility property line.

4.1.4 Container Management

Hazardous waste from several on-site operations is pumped directly or drained from a source tool into a compatible container. In other operations, containers are filled both manually and via hand pumps. When a container is full and requires disposal, the container is transported from the generating department to the loading dock located in the building where the waste is generated. Once placed on the loading dock, the hazardous waste is transported from the loading dock to Building 309 within 3 days.

The department that generates the hazardous waste is required to affix a chemical waste label that lists the constituents within the container and the name of the department that generated the waste. When the container reaches Building 309, the container contents are

evaluated and the container is labeled with the appropriate hazardous waste designation (i.e., waste code).

Upon arrival in Building 309, lab pack chemicals are brought to the Lab Pack Area in Room No. 7 for further processing. Here, contractor lab pack personnel properly package and segregate lab pack wastes in accordance with all applicable DOT (49 CFR) and RCRA (40 CFR) regulations.

Certain solid hazardous waste streams may be compacted into compatible drums or fiber boxes to reduce the volume required for transport. This is an effort to reduce the number of containers requiring shipment yielding a net reduction in transportation and disposal costs.

Containerized waste solvents are also received at the Building 309 Southeast Loading Dock and are taken to a dump station in the Solvent Dump Room where the contents are either pumped into Tank 220 in Building 303 or drained by inverting them manually into the screened dump station.

Once drained, the containers are closed and are marked empty ("MT") on the label. Empty containers are placed in the empty drum trailer located at the Building 309 North Loading Dock. Empty 5-gallon safety cans are marked as empty ("MT") on the label and placed on skids for return back to the generating department for reuse.

Expired/surplus chemicals in small containers may be consolidated (based on compatibility) into new drums. These chemicals may also be transported to Room No. 7 for management by contractor lab pack personnel.

Container materials of construction; maximum heights, number and volume; and types of containers in the storage areas are discussed in Section 4.1, and in the Hazardous Waste Contingency Plan (Section 7.0). Weekly container inspections are discussed in the Facility Inspections section (Section 6.2). The machinery, equipment and maintenance of required aisle

space is also discussed in the Hazardous Waste Contingency Plan (Section 7.0), and in the Procedures to Prevent Hazards section (Section 6.0).

4.2 Tanks

There are no tanks located within the permitted facility utilized for the storage of hazardous waste. All of the tanks located at the East Fishkill Facility that are utilized for the storage of hazardous waste are operated as less-than-90-day storage tanks.

4.3 Miscellaneous Units

There are no miscellaneous units located at the East Fishkill Facility utilized to manage hazardous waste.

4.4 Air Emission Standards for Process Vents

There are no process vents located within the permitted facility associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous waste with volatile organic compound concentrations of at least 10 parts per million by weight.

4.5 Air Emission Standards for Equipment Leaks

There is no equipment located within the permitted facility that manages hazardous waste with volatile organic compound concentrations of at least 10 percent by weight.

4.6 Air Emission Requirements for Tanks and Containers – Subpart CC

All containers used by IBM East Fishkill are selected and managed in accordance with the applicable DOT regulations on packaging hazardous materials for transportation specified in 49 CFR part 107, subpart B -Exemptions; 49 CFR part 172 - Hazardous Materials Table, Special

Provisions, Hazardous Materials Communications, Emergency Response Information, and training requirements; 49 CFR part 173 Shippers - General Requirements for Shipments and Packages; and 49 CFR part 180 - Continuing Qualification and Maintenance of packaging as incorporated by reference in 370.1(e).

All containers subject to these regulations are equipped with a cover and closure devices that form a continuous barrier over the container openings. Containers are opened to perform routine activities, including incoming inspection, transferring material between the containers, and removing samples for analysis. The containers are immediately closed after the activity is completed.

4.7 Containment Buildings

There are no containment buildings located at the East Fishkill Facility utilized to manage hazardous waste.

EXHIBIT 4A

BUILDING 309 SECONDARY CONTAINMENT CERTIFICATION

WILLIAM F. COSULICH ASSOCIATES. P.C.
Environmental Engineers • Scientists
330 Crossways Park Drive, Woodbury, New York 11797-2015
516-364-9880 • 718-460-3634 • Fax: 516-364-8675

July 29, 2008

Steven C. Hawkins, Manager
Environmental Regulatory Engineering
International Business Machines Corporation
2070 Route 52, Building 325
Hopewell Junction, NY 12533

Re: B/309 Secondary Containment Upgrades
IBM East Fishkill Facility
Hopewell Junction, New York
WFC No. 2699-05

Dear Mr. Hawkins:

Pizzagalli Construction Company recently completed the secondary containment upgrades to the Building 309 Containerized Waste Storage Facility located at the International Business Machines Corporation (IBM) East Fishkill Facility. Based on an April 30, 2008 visual inspection by William F. Cosulich Associates, P.C. of the completed work, as well as information provided by Pizzagalli Construction Company (attached to this letter), it appears that the upgrades were completed in substantial compliance with the New York State Department of Environmental Conservation approved construction drawings dated June 2008, or otherwise constructed in an appropriate manner that provides equivalent environmental protection. As a result, based on the information provided above, William F. Cosulich Associates, P.C. is providing this certification to demonstrate conformity with the approved construction drawings.

I certify that based on my examination of the facility and inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, and being familiar with the applicable provisions of 6 NYCRR Part 373, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I attest that the Building 309 Secondary Containment Upgrades are adequate for the facility and have been designed and constructed in accordance with good engineering practice (including consideration of applicable industry standards).

If you have any questions and/or comments, please do not hesitate to contact me at (516) 364-9880.

Seal of Registered Professional Engineer representing William F. Cosulich Associates, P.C.

STATE OF NEW YORK
BRIAN M. VEITH
071687
LICENSED PROFESSIONAL ENGINEER

By: Brian Veith Date: 7/29/08
Signature

Name of Registered Professional Engineer: Brian M. Veith
Registration No.: 071687
State: New York

BMV/KRBt/jmy
Enclosure
♦2699\BMV07298-SCH.DOC

EXHIBIT 4B

AS-BUILT DRAWINGS

INTERNATIONAL BUSINESS MACHINES CORPORATION

B/309 SECONDARY CONTAINMENT UPGRADE
EAST FISHKILL FACILITY
HOPEWELL JUNCTION, NY

JUNE 2007

LOCATION MAP
N.T.S.

LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
1	DEMOLITION AND REMOVAL PLAN
2	INSTALLATION PLAN
3	DETAILS

70023
P&B Specialties
Job Completed 3/4/08
Per Drawings. Except for
Red lines Details

William F. Cosulich
Associates, P.C.
ENVIRONMENTAL ENGINEERS

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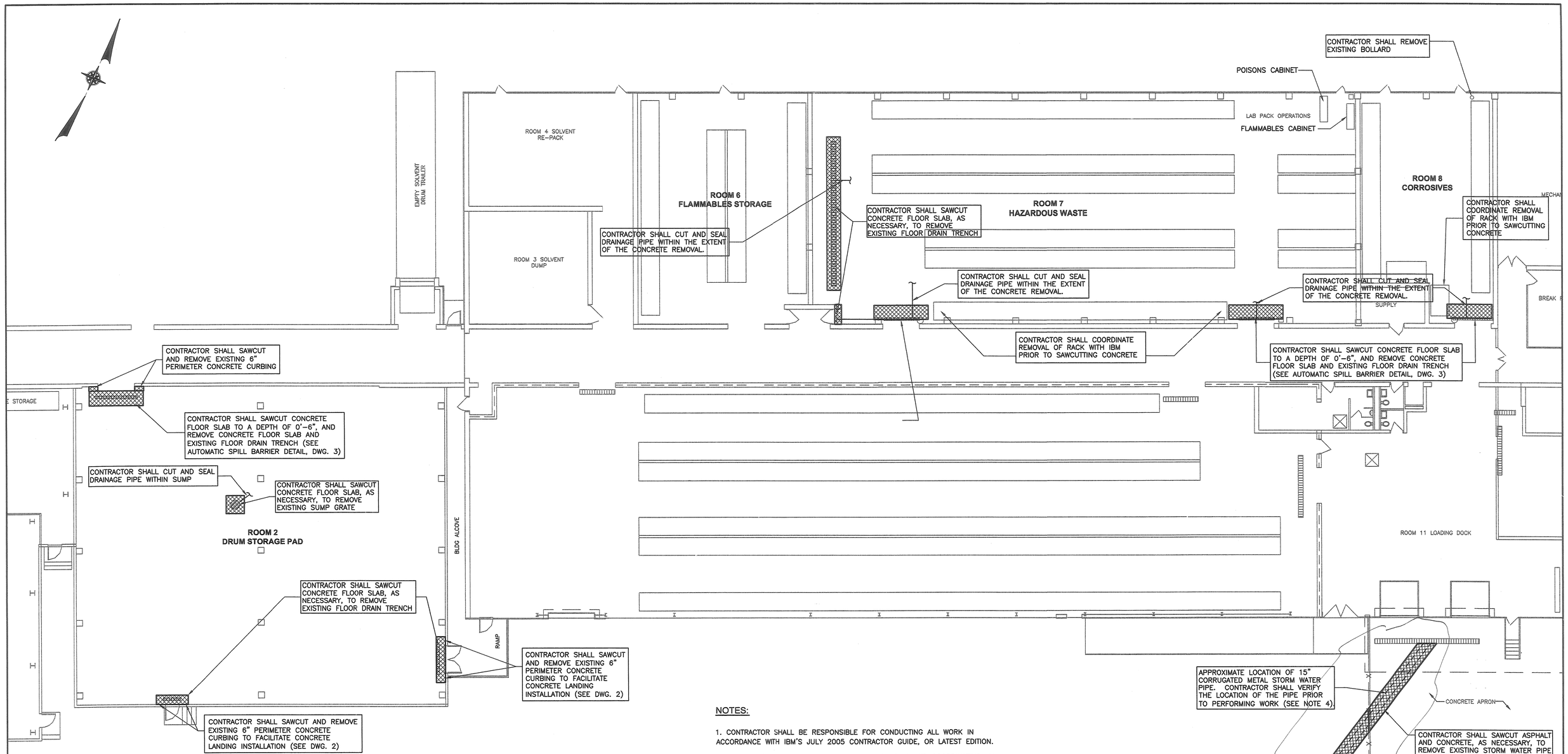

LEGEND:

EXTENT OF DEMOLITION

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING ALL WORK IN ACCORDANCE WITH IBM'S JULY 2005 CONTRACTOR GUIDE, OR LATEST EDITION.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR PHASING AND COORDINATING ALL ASPECTS OF THE WORK WITH IBM, ESPECIALLY WHEN THE WORK WILL INTERFERE WITH THE DAILY OPERATIONS OF THE BUILDING.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, LICENSES, CERTIFICATIONS, APPROVALS AND/OR ACCEPTANCES REQUIRED BY FEDERAL, STATE, LOCAL GOVERNING AGENCIES AND IBM.

4. PRIOR TO ANY EXCAVATION OR CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY IBM, ALL UTILITY COMPANIES AND APPLICABLE AGENCIES AND REQUEST A MARKOUT OF THEIR LINES AND PROPERTIES IN THE FIELD IN THE AREAS OF THE PROPOSED WORK. IN ADDITION, THE CONTRACTOR SHALL PROVIDE THE SERVICES OF AN INDEPENDENT UTILITY MARKOUT SERVICE SUBCONTRACTOR QUALIFIED TO LOCATE AND MARKOUT ALL UTILITIES IN THE VICINITY OF THE WORK USING THE APPROPRIATE EQUIPMENT AND METHODS AVAILABLE PRIOR TO CONSTRUCTION.

5. CONTRACTOR SHALL DISPOSE OF OFF-SITE ALL CONCRETE, ASPHALT AND OTHER DEBRIS REMOVED AS A PART OF THE WORK IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING ALL WORK IN ACCORDANCE WITH IBM'S JULY 2005 CONTRACTOR GUIDE, OR LATEST EDITION.

DRAWING ONLY INTENDED TO BE USED AS A CONCEPTUAL DESIGN FOR GENERAL GUIDANCE AND REGULATORY APPROVAL.

P&B Specialties As built 3/14/08

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: PM	DRAWN BY: CM
DESIGNED BY: PM/BMV	CHECKED BY: BMV/ER

William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS

IBM CORPORATION
EAST FISHKILL, NEW YORK
DUTCHESS COUNTY NEW YORK

BUILDING 309
SECONDARY CONTAINMENT UPGRADE

DEMOLITION AND REMOVAL PLAN

PROJECT NO. 2584
DATE: JUNE 2007
SCALE: 1"=10'
DRAWING NO. 1

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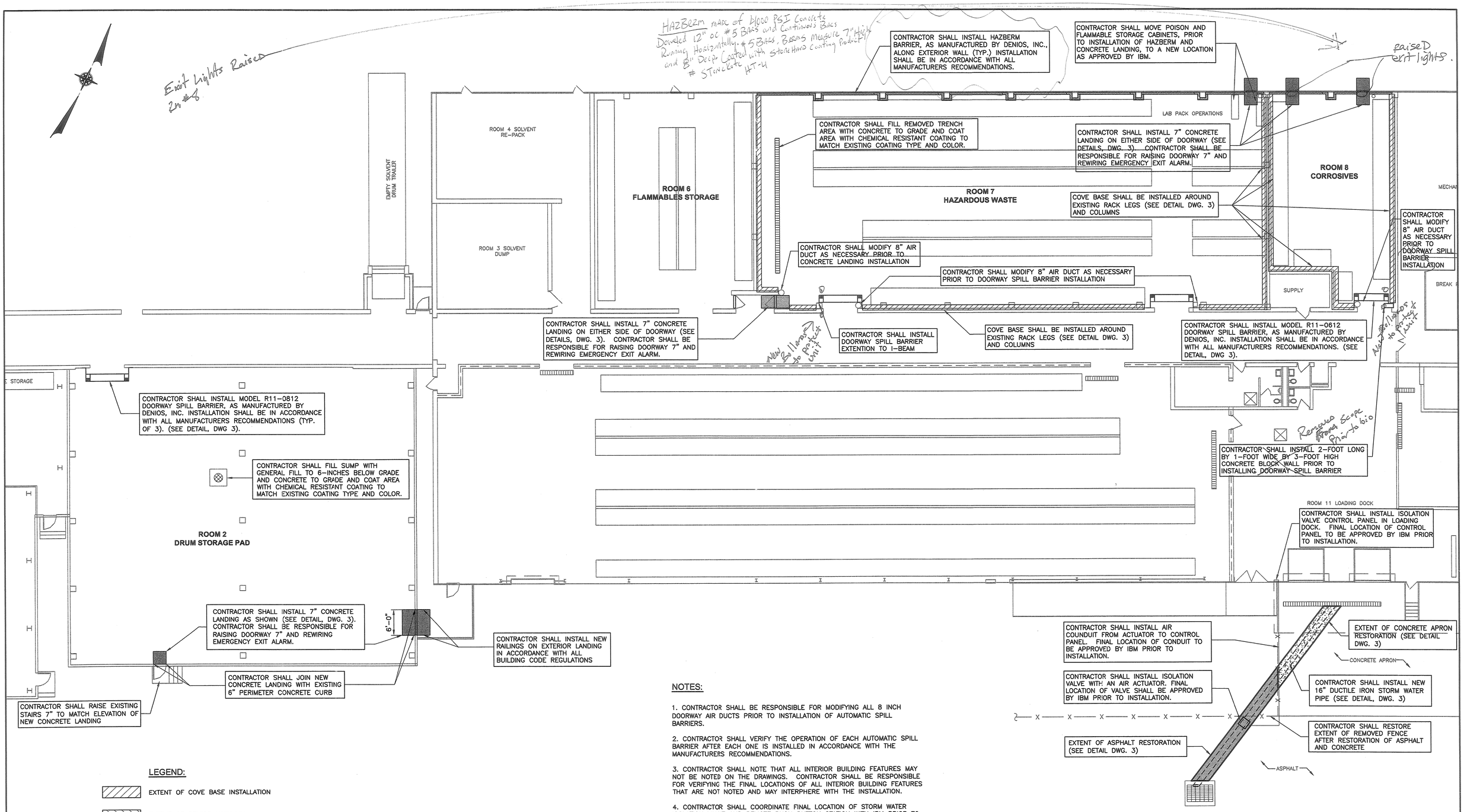

LEGEND:

- EXTENT OF COVE BASE INSTALLATION
- EXTENT OF DENIOS HAZBERM
- EXTENT OF ASPHALT RESTORATION
- EXTENT OF CONCRETE RESTORATION

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING ALL 8 INCH DOORWAY AIR DUCTS PRIOR TO INSTALLATION OF AUTOMATIC SPILL BARRIERS.
2. CONTRACTOR SHALL VERIFY THE OPERATION OF EACH AUTOMATIC SPILL BARRIER AFTER EACH ONE IS INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
3. CONTRACTOR SHALL NOTE THAT ALL INTERIOR BUILDING FEATURES MAY NOT BE NOTED ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE FINAL LOCATIONS OF ALL INTERIOR BUILDING FEATURES THAT ARE NOT NOTED AND MAY INTERPHERE WITH THE INSTALLATION.
4. CONTRACTOR SHALL COORDINATE FINAL LOCATION OF STORM WATER ISOLATION VALVE AND REMOTE PUSH BUTTON STATION WITH IBM PRIOR TO INSTALLATION.
5. CONTRACTOR SHALL BACKFILL AREA AROUND NEW STORM WATER PIPE WITH EXISTING MATERIAL IN ACCORDANCE WITH TYPICAL PIPE COVER DETAIL (SEE DETAIL, DWG. 3).
6. CONTRACTOR SHALL RESTORE, IN KIND, ALL ASPHALT AND CONCRETE TO THE ELEVATIONS AND SLOPES THAT EXISTED PRIOR TO EXCAVATION.

DRAWING ONLY INTENDED TO BE USED AS A CONCEPTUAL DESIGN FOR GENERAL GUIDANCE AND REGULATORY APPROVAL.

Ashbuilt P&B specialties 3/14/08

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William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS

IBM CORPORATION
EAST FISHKILL, NEW YORK
DUTCHESS COUNTY NEW YORK

BUILDING 309
SECONDARY CONTAINMENT UPGRADE

INSTALLATION PLAN

PROJECT NO. 2584
DATE: JUNE 2007
SCALE: 1"=10'
DRAWING NO. 2

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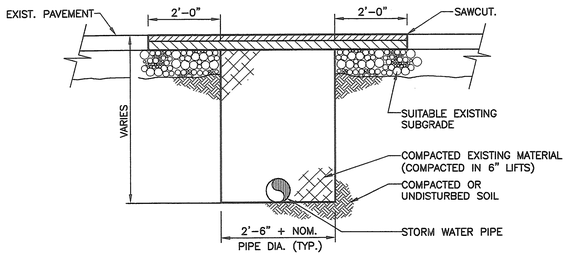
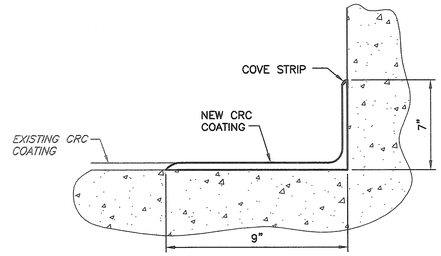


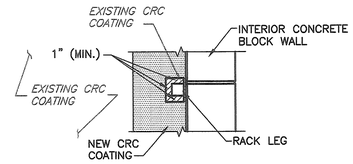
TYPICAL PIPE COVER DETAIL

N.T.S.



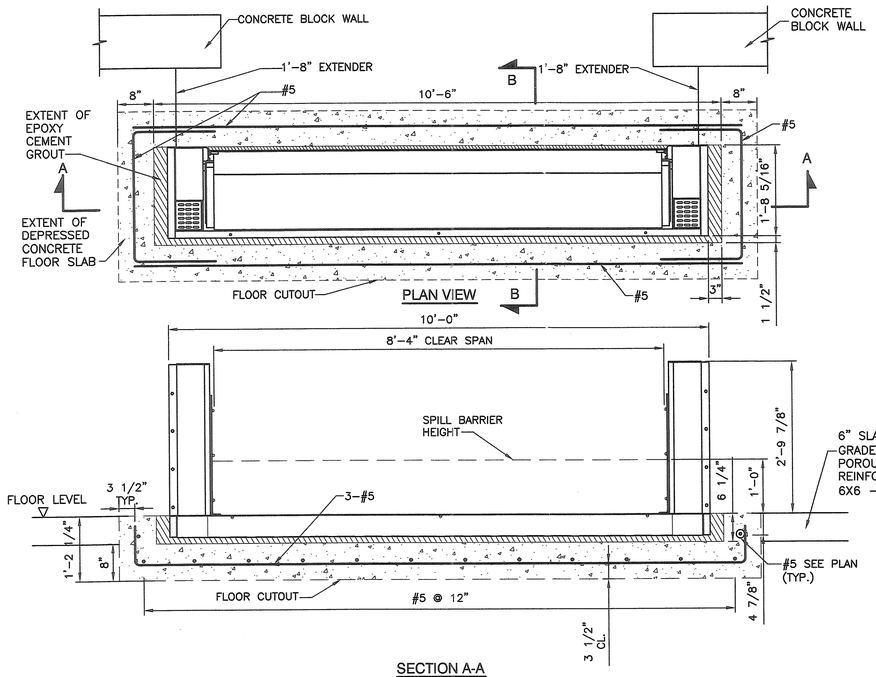
COVE BASE DETAIL

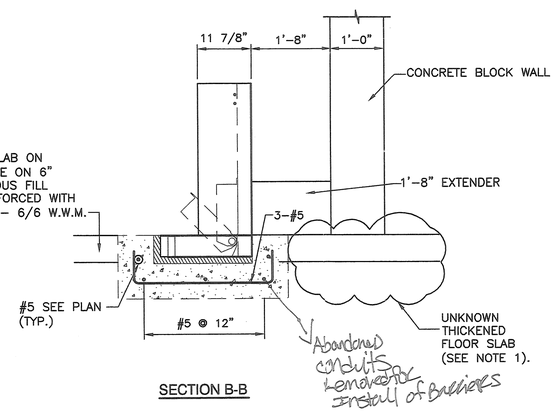
N.T.S.



RACK LEG COVE BASE DETAIL

SCALE: 1"=1'-0"





DOORWAY SPILL BARRIER DETAIL

SCALE: 3/4"=1'-0"

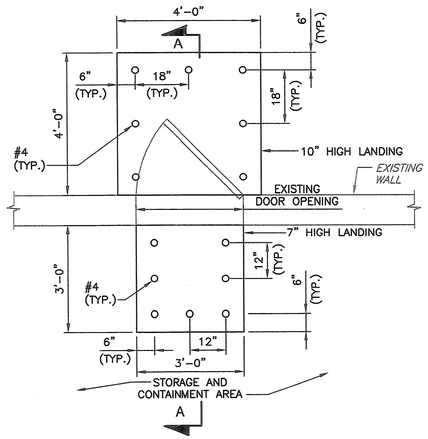
NOTES:

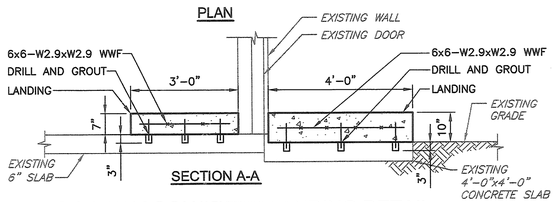
1. A THICKENED FLOOR SLAB IS PRESENT UNDERNEATH FULL HEIGHT INTERIOR CONCRETE BLOCK WALLS, BASED ON AVAILABLE AS-BUILT INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXTENT OF THE THICKENED FLOOR SLAB PRIOR TO INSTALLATION OF EACH AUTOMATIC SPILL BARRIER. THE CONTRACTOR SHALL NOT DAMAGE THE INTEGRITY OF THE THICKEND FLOOR SLAB IN ORDER TO VERIFY ITS EXTENT.

2. THE FINAL LOCATION OF EACH AUTOMATIC SPILL BARRIER SHALL BE CONFIRMED BY IBM AFTER THE CONTRACTOR HAS VERIFIED THICKENED FLOOR SLAB EXTENT.

3. CONTRACTOR SHALL FILL AREA BETWEEN FLOOR AND BARRIER WITH CEMENT EPOXY GROUT IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

4. CONTRACTOR SHALL EXTEND CHEMICAL RESISTANT COATING TO COVER THE EXTENT OF ALL NEW CONCRETE. CONTRACTOR SHALL SEAL ALL GAPS WITH ELASTOMER AND CHEMICAL RESISTANT SEALANT IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.





DOORWAY CONCRETE LANDING DETAIL

SCALE: 1/2"=1'-0"

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR RAISING DOORWAY 7" AND REWIRING EMERGENCY EXIT ALARM.

2. CONTRACTOR SHALL EXTEND CHEMICAL RESISTANT COATING TO COVER THE EXTENT OF ALL NEW CONCRETE. CONTRACTOR SHALL SEAL ALL GAPS WITH ELASTOMER AND CHEMICAL RESISTANT SEALANT IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.

DRAWING ONLY INTENDED TO BE USED AS A CONCEPTUAL DESIGN FOR GENERAL GUIDANCE AND REGULATORY APPROVAL.

AS-built 3/14/08 P&B specialties

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: PM	DRAWN BY: CM
DESIGNED BY: PM/BMV	CHECKED BY: BMV/ER

William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS

IBM CORPORATION
EAST FISHKILL, NEW YORK
DUTCHESS COUNTY NEW YORK

BUILDING 309
SECONDARY CONTAINMENT UPGRADE

DETAILS

PROJECT NO. 2584
DATE: JUNE 2007
SCALE: 1"=10'
DRAWING NO. 3

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EXHIBIT 4C

BUILDING 309
CERTIFICATION OF CONTAINMENT CURBS

pizzagalli
construction company

July 10, 2008

To Whom It May Concern:

Pizzagalli Construction Company was the Construction Manager on the B309 Secondary Containment Project for IBM East Fishkill from its start in September 2007 to completion in April 2008. Pizzagalli provided continuous supervision of the subcontractors in the field and adhered to the provided Cosulich drawings. The only modifications to the drawings are indicated on the red lines provided to IBM and the additional sketch of the curb pinning provided to IBM.

Feel free to contact me if there are any questions or concerns. Thank you.

Sincerely,

Scottie Richardson
Project Manager

P.O. Box 1671 Wappingers Falls, NY 12590
845.892.8215 845.892,6329 fax

EAST FISHKILL IBM BUILDING 309 CONTAINMENT CURBS

RECEIVED
JUL 09 2008
PIZZAGALLI CONST. CO.
JOB #

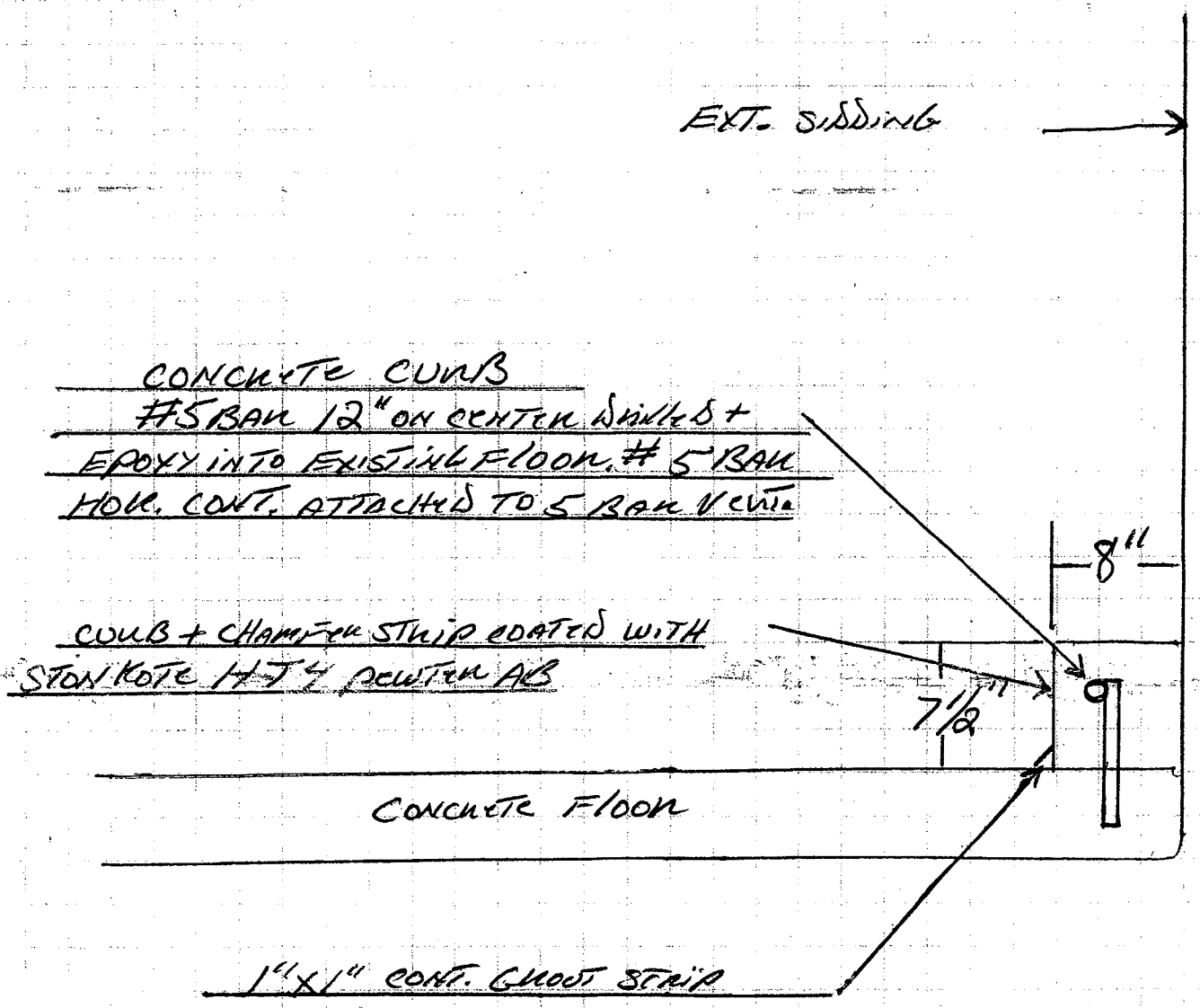


EXHIBIT 4D

FLOOR COATING SPECIFICATION

aa

STONCLAD HT

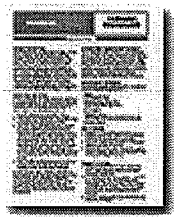
GS HT UT XP

Click on tabs above to see more product colours & product data sheets.

.

Ultra corrosion resistant formulation that can withstand temperatures up to 93°C / 200°F (121°C / 250°F for intermittent spills).

- Wear Resistant
- Impact & Abrasion Resistant
- Stain Resistant a

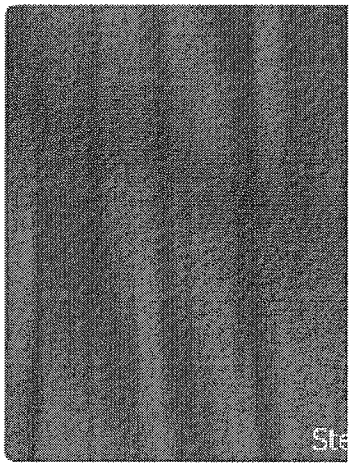


PRODUCT DATA SHEETS

"Mouse-Over" a colour chip below to view a larger sample.

Steel Gray | Brick Red | Desert Tan | Pewter | Teal Blue | Silver Gray

Sage | Slate | Reef Green | Mint | Charcoal | Beechwood



Colour representations on this website will vary based on your computer system, monitor and settings. For actual colour samples, please contact your local representative.

Our Regional Offices

stonhard

an RPM Canada

STONCLAD HT

DIRECTIONS

STONCLAD

BEFORE YOU START...*Read these directions carefully! The surface to be covered must be properly prepared, and the temperatures of both the floor and the Stonclad HT components must be between 60-85°F/16-30°C BEFORE beginning application.*

DESCRIPTIONS/USES

Stonclad HT is a three-component, epoxy based floor surfacing system. It was specifically designed for surfacing and patching industrial floors exposed to corrosive spillages and abrasive wheeled traffic.

After mixing and application, the Stonclad HT cures quickly, forming an exceptionally durable, slip-resistant floor surface. These properties make Stonclad HT ideal for use in areas where the floors are subject to impact, heavy or abrasive traffic, and spillages of acids, alkalies, solvents, fats, oils, sugars and other corrosive substances.

LIMITATIONS

- Do not use Stonclad HT in areas where floor temperatures will exceed 200°F/93°C on a continuous basis.
- Do not apply Stonclad HT over gypsum based products, asphalt, mastic or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to applying primer and overlayment.

PACKAGING

Stonclad HT is packaged in units for easy handling. Each unit consists of:

2 cartons, each containing:
  6 foil bags of Part A (curing agent)
  6 poly bags of Part B (resin)

12 individual bags of Part C (aggregate)

COVERAGE

Each unit of Stonclad HT will cover approximately 200 sq. ft./18.58 sq. m. of surface at a nominal 1/4 in./6 mm thickness. If the surface being covered is rough, additional material should be allowed for the area.

A batch of Stonclad HT is made up of one foil bag of Part A, one poly bag of Part B, and one bag of Part C. When mixed, each batch will cover approximately 16-17 sq. ft./1.49-1.58 sq. m.

EVALUATION OF AREA BEFORE APPLICATION
The floor area to be surfaced must be:

1. STRUCTURALLY SOUND

- No loose or crumbling concrete.
- No "laitance" or unbonded cement particles.
- No previously applied sealers or paints.
- If a metal surface, no rust or mill scale, and no flexing under load.
- If wood, no flexing under load and no splintering.

2. CLEAN

- No wax, grease, oils, fats, dirt or other foreign matter.
- Metal surfaces must be free of oil, grease and other similar contaminants.
- Wood surfaces must not be oil-impregnated or badly splintered.

3. DRY

- All traces of moisture must be removed. Also, moisture must not be allowed to come in contact with the Stonclad HT during installation and curing. Do not use water or steam in the vicinity of the application. Moisture can seriously affect working time and other properties of the Stonclad HT and MUST BE AVOIDED!

4. WARM

- Temperature of both the floor and the Stonclad HT components must be at least 60°F/16°C. If the temperature of the components is 60°F/16°C or lower, the Stonclad HT will be stiff and difficult to apply. Do not attempt to install the material if the temperature of the components is above 85°F/30°C. High temperatures will cause the material to harden (cure) more quickly than desired.

TOOLS NEEDED TO MIX AND INSTALL

When installing Stonclad HT, use JB Power Blenders, 5 gallon mixing pails, blender timers, a screed box for open areas, a screed rake for confined areas, a 3 in.x 12 in. steel finishing trowel and a power trowel.

ARRANGEMENT OF THE MIXING AREA

The mixing area should be set up using the following guidelines:

1. Position two JB Power Blenders side by side with the Blender Timer between them (Figure 1).
2. Carefully arrange the cartons of Part A and Part B to one side of the two blenders.

   Note: When handling cartons containing Part A and Part B, you will see a "Caution" notice printed on them. The notice warns you to use only a SHALLOW cut (1/4 in./6 mm or less) when using a knife to open the carton. Using a knife with a longer blade risks the possibility of penetrating the plastic and foil bags inside.

3. The bags of Part C should be lined up on the other side of the two blenders.
4. Set the Blender Timer for 60 seconds.
5. Place an empty carton close to the blenders where it will be handy for trash and storage of the blender paddle between mixing cycles.

PRIMING

Stonhard's HT Primer must be applied to the prepared floor surface before installing Stonclad HT.

Use of HT Primer ensures a secure bond to the substrate, prevents draining of liquids from the Stonclad HT and makes application of the overlayment easier. (See the HT Primer Product Data for details.) HT Primer must remain tacky during the installation of Stonclad HT. If the primer becomes tack-free, the area must be re-primed prior to continuing the application.

MIXING STONCLAD HT

1. Empty the contents of one foil bag of Part A (liquid) into a 5 gallon mixing pail.
2. Then empty the entire contents of one poly bag of Part B (liquid) into the mixing pail containing the Part A.

   Note: It is important to allow sufficient time for ALL of the Part A and Part B liquids to drain into the mixing pail.

3. Transfer the mixing pail to a JB Blender and activate the timer to start the blender.
4. When the blender stops, re-activate the timer and immediately pour the entire contents of one bag of Part C (aggregate) into the rotating mixing pail. Allow the three components to mix for the entire cycle.
5. When the blender stops, scrape off any mixed material that may be adhering to the mixing paddle, then place the paddle into the empty carton, where it will be on hand for use when mixing the next batch. Remove the mixing pail and deliver the mixed material to the workers who will be applying it to the floor.

By structuring the sequence of operations as described above, there should always be a fresh batch of Stonclad HT ready to be transferred to the workers who will be applying it to the floor. Also, by following the structured sequence of operations, one can eliminate the possibility of mixing mistakes.

Note: Once the material has been mixed, working time is approximate 20 minutes.

APPLYING STONCLAD HT

1. A Screed Applicator (Figure 2) is used to apply the mixed Stonclad HT to the floor. Before use, the Screed Applicator must be set to apply a 5/16 in./8 mm layer of material. This will result in a nominal 1/4 in./6 mm topping after the material has been compacted and trowel finished.

   Note: The Stonclad HT has already begun to cure, so troweling must proceed without delay.

2. After screeding the Stonclad HT, steel finishing trowels are used to compact and smooth the surface of the material (Figure 3). Use enough pressure to compact the Stonclad HT to the required 1/4 in./6mm thickness; then, holding the trowel at a slightly lower angle, smooth out any trowel marks. If the mortar "pulls" creating a rough or open surface, either the trowel has become sticky or it is being held at the wrong angle. Keep the trowel clean by frequently cleaning it with scouring pads and warm, soapy water, remembering to WIPE IT DRY BEFORE USING IT AGAIN to apply the Stonclad HT. The finished Stonclad HT surface should be level, free of trowel marks and tightly closed to prevent a porous topping.
3. In large, open areas, a Power Trowel is used to compact and smooth the surface of the material (Figure 4). See Stonclad PT Directions for further information.
4. The mixing, screeding, troweling procedure is repeated as needed until the entire area has been covered. Coverage and thickness can usually be judged by the eye, but DO check the actual thickness at frequent intervals during the entire installation.
5. Where Stonclad HT does not abut a vertical surface, trowel the Stonclad HT into a chase (groove) cut in the concrete.
6. If applying a cove, the cove should be troweled along with the floor to provide a seamless transition. The Stonclad HT material is used for the cove base and the floor.

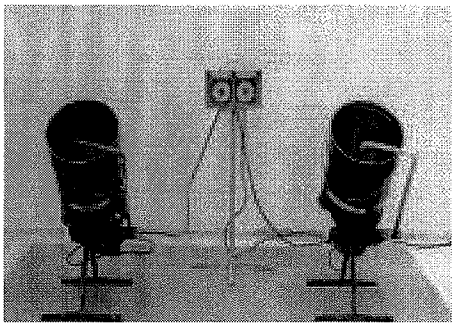


FIGURE 1

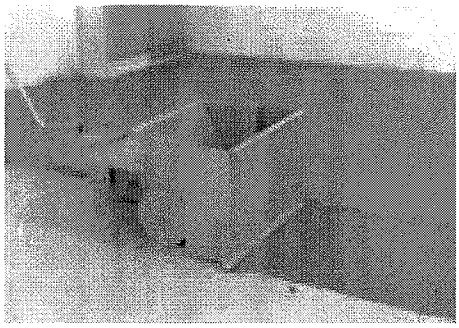


FIGURE 2

FIGURE 3

FIGURE 4

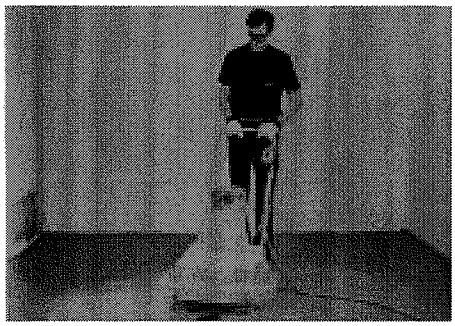


FIGURE 5

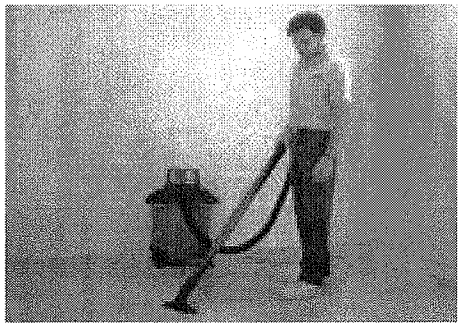


FIGURE 6

HARDENING TIME

At 72°F/22°C allow:

- 8 hours for foot traffic
- 24 hours for moderate wheeled loads
- 48 hours for common industrial spillages and heavy traffic

> **Note:** When installing Stonclad HT in a cold environment, the temperature must be kept at 60°F/16°C for at least 18 hours after installation before the cooling system can be re-started. After the Stonclad HT is cured, cooling of the area must be done slowly (maximum 10°F per 24 hour period) to avoid cracking or delamination of the Stonclad HT.

CLEANING UP

Clean all equipment IMMEDIATELY AFTER USE with scouring pads and warm, soapy water or with mineral spirits. Hardened material will require mechanical means of removal.

IMPORTANT: If any unusually long delay arises, such as a break for lunch, it will be necessary to completely clean all mixing paddles and pails BEFORE ceasing operation. This is extremely important! Immediate cleaning of the tools will prevent future contamination of the new batches of Stonclad HT with particles of partially cured material when the mixing operation resumes. The presence of such particles will seriously affect the troweling and finishing of the floor and MUST be avoided!

COATING STONCLAD HT

To obtain the maximum performance from a Stonclad HT floor, application of a Stonhard coating is recommended. Application of Stonkote HT4 will improve the cleanability and appearance of the floor while enhancing the chemical and abrasion resistance. Before coating a Stonhard floor, all trowel marks and surface imperfections must be removed to produce a smooth, level surface. Grind the floor using a floor grinder with medium stones (Figure 5) and vacuum to remove all dust particles (Figure 6). See the Stonkote HT4 Product Data sheet for details.

CAUTION

Avoid contact with Parts A and B as they may cause skin and/or eye irritation. In case of contact, immediately flush area with copious amounts of clean water for at least 15 minutes and seek medical attention. Workmen should cover hands with protective creams or rubber gloves. Wash hands thoroughly with SOAP AND WATER after use, and before eating, smoking, etc.

Use only with adequate ventilation.

STORAGE

Store all components of Stonclad HT between 60-85°F/16-30°C in a dry area. Avoid excessive heat and do not freeze. The shelf life is three years in the original, unopened container.

DO NOT STACK SKIDS OF PART C ON TOP OF SKIDS OF PART A OR B – LEAKAGE MAY OCCUR.

IMPORTANT:
Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

1/02
Rev. 1/02

STONHARD

www.stonhard.com

Worldwide Offices:

USA	800-257-7953	Brazil	(55)-11-4612-9797	Middle East	(971)-4-3470460
Canada	905-430-3333	South America	(54-3327)-44-2222	Africa	(27)-11-310-1821
Mexico	(52)-5-563-9900	Europe	(32)-2-720-8982	Asia	(852)-2914-1133

A Division of StonCor Group, Inc.

Material Safety Data Sheet

STONHARD

Section 1 - Manufacturer and Product Information

Manufacturer:	STONHARD, DIVISION OF STONCOR GROUP, INC.
Mailing Address:	ONE PARK AVENUE MAPLE SHADE, NJ 08052
Customer Information:	(856) 779-7500
24 Hour Emergency Phone:	CHEMTREC 1-800-424-9300 Outside US (703) 527-3887

Product Name:	STONKOTE HT4 PT A	Revision Date:	03/28/2008
Product Code:	335A	Supercedes :	02/21/2007
Preparer:	Bowers, Lee		

Section 2 - Composition / Information On Ingredients

CAS # OR NJ TRADE SECRET #	CHEMICAL NAME	WEIGHT % RANGE
2855-13-2	ISOPHORONEDIAMINE	15-40

Chemical Exposure Guidelines

CAS# OR NJ TRADE SECRET #	OSHA PEL	ACGIH TLV
2855-13-2		

Section 3 - Hazards Identification

Emergency Overview: MOBILE LIQUID. ODOR: AMMONIACAL. SEVERE EYE IRRITANT. SEVERE RESPIRATORY TRACT IRRITANT. CORROSIVE LIQUID. MAY CAUSE SKIN SENSITIZATION. IN CASE OF FIRE USE: CARBON DIOXIDE (C02), DRY CHEMICAL, ALCOHOL FOAM, DRY SAND, OR LIMESTONE.

Potential Health Effects:

Eyes: CONTACT QUICKLY CAUSES IRRITATION AND PAIN, BURNS, AND NECROSIS AND PERMANENT INJURY. BURNS MAY CAUSE BLINDNESS.

Skin: CONTACT QUICKLY CAUSES SEVERE IRRITATION AND BURNS.

Ingestion: MAY CAUSE BLEEDING OF THE GASTROINTESTINAL TRACT AND THE VOMITING OF BLOOD.

Inhalation: SEVERE RESPIRATORY TRACT IRRITANT. INHALATION OF VAPORS MAY CAUSE COUGHING AND CHEST PAIN.

Systemic: EXPOSURE TO SKIN MAY CAUSE SENSITIZATION.

* This product contains the following chemicals classified by the International Agency for Research on Cancer (IARC) as 1, 2A, or 2B carcinogens:

None

Section 4 - First Aid Measures

Eyes: HOLD EYELIDS APART AND IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION.

Skin: IMMEDIATELY FLUSH AFFECTED AREA WITH WATER FOR 15 MINUTES. SEEK MEDICAL ADVISE. DO NOT APPLY GREASES OR OINTMENTS. LAUNDER CONTAMINATED CLOTHING, LEATHER SHOULD BE DISCARDED.

Ingestion: DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION IMMEDIATELY.

Inhalation: MOVE TO FRESH AIR. PREVENT ASPIRATION OF VOMIT. IF BREATHING HAS STOPPED GIVE ASSISTED RESPIRATION. SEEK MEDICAL ATTENTION.

Section 5 - Fire Fighting Measures

Flash Point: 233F / 111C (PMCC REFERENCED)

Lower Explosive Limit, %: N/A
Upper Explosive Limit, %: N/A

Extinguishing Media: Carbon Dioxide, Dry Chemical, Foam

Haz. Combustion Products: MAY GENERATE TOXIC OR IRRITATING COMBUSTION PRODUCTS.

Fire Fighting Instruction: RETAIN EXPENDED LIQUIDS FROM FIRE FIGHTING FOR LATER DISPOSAL.

Fire Fighting Equipment: USE FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS.

Other Information: SUDDEN REACTION AND FIRE MAY RESULT IF MIXED WITH AN OXIDIZING AGENT.

Section 6 – Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: AVOID CONTACT WITH EYES AND SKIN. DO NOT BREATHE VAPOR. WEAR PROTECTIVE EQUIPMENT INCLUDING GOGGLES, APPROVED RESPIRATOR AND GLOVES. AVOID CONTAMINATION OF DRINKING WATER, NATURAL WATER, GROUND WATER OR ANY WATERWAY, OR SOIL. SPILLS SHOULD BE COLLECTED TO PREVENT CONTAMINATION. CLEAN UP RESIDUAL WITH NON-COMBUSTIBLE ABSORBENT MATERIAL AND WASH WITH WATER. REMOVE WITH SHOVEL PLACE IN PROPERLY LABELED DRY SEALABLE CONTAINERS FOR LARGE SPILLS: CONTAIN WITH DIKE.

Section 7 - Handling And Storage

Handling: HANDLE IN WELL VENTILATED WORK SPACE. AVOID BREATHING OF VAPORS.

Storage: STORE IN STEEL CONTAINERS PREFERABLY LOCATED OUTDOORS, ABOVE GROUND AND SURROUNDED BY DIKES TO CONTAIN SPILLS OR LEAKS. KEEP AWAY FROM OXIDIZERS, HEAT OR FLAMES. KEEP IN COOL, DRY, VENTILATED STORAGE AND IN CLOSED CONTAINERS.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: ADEQUATE GENERAL AND LOCAL EXHAUST.

Respiratory Protection: NOT REQUIRED UNDER NORMAL CONDITIONS. USE ORGANIC VAPOR RESPIRATOR UNDER EMERGENCY CONDITIONS.

Skin Protection: NITRILE RUBBER GLOVES. LATEX GLOVES. IN EMERGENCY SITUATIONS WEAR IMPERMEABLE GLOVES WITH CUFFS.

Eye Protection: CHEMICAL SAFETY GLASSES. SPLASH-PROOF GOGGLES. IN EMERGENCY SITUATIONS USE FULL FACE SHIELD.

Other Protective Equipment: SLICKER SUIT, RUBBER BOOTS IN SPILL RESPONSE SITUATIONS.

Section 9 - Physical And Chemical Properties

Physical State:	LIQUID
Appearance:	YELLOW
Odor:	AMINE ODOR
Vapor Pressure:	NIL
Vapor Density:	NO DATA
Boiling Range:	N.D. - None
Solubility in H2O:	SLIGHT
Specific Gravity:	None
Viscosity:	N/A
pH:	ALKALINE

(See section 16 for abbreviation legend)

Section 10 - Stability And Reactivity

Stability: STABLE

Conditions To Avoid: NOT APPLICABLE

Incompatibility: OXIDIZING AGENTS, CLEANING SOLUTIONS, SUCH AS CHROMERGE AND AQUA REGIA. ACIDS.

Hazardous Decomposition Products: FIRE: CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES. ELEVATED TEMPERATURES: IRRITATING AND TOXIC FUMES.

Hazardous Polymerization: WILL NOT OCCUR.

Section 11 - Toxicological Information

Skin/Dermal: > 805.00 MG/KG (LD50, RABBIT) (ESTIMATE)

Oral/Ingestion: > 1080.00 MG/KG (NO DEATHS) (LD50, RAT) (ESTIMATE)

Inhalation: NO DATA AVAILABLE

Section 12 - Ecological Information

Movement & Partitioning: NOT DETERMINED

Degradation & Transformation: NOT DETERMINED

Ecotoxicology: NOT DETERMINED

Section 13 - Disposal Information

Disposal Information: INCINERATE OR LANDFILL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.

Section 14 - Transportation Information

DOT Proper Shipping Name:	POLYAMINES, LIQUID, CORROSIVE, n.o.s.
DOT Technical Name:	(CONTAINS ISOPHORONEDIAMINE, MODIFIED ALIPHATIC AMINES)
DOT Hazard Class:	8
Hazard Subclass:	NONE
DOT UN/NA Number:	UN2735
Packing Group:	III
Resp. Guide Page:	153

Section 15 - Regulatory Information

CERCLA – SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD

SARA Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

None

Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

None

U.S. Clean Air Act:

EPA Coating Category*:	INDUSTRIAL MAINTENANCE COATING
EPA VOC Content Limit (g/l):	450

Product VOC Content (g/l)**:	5.0
Thinning Recommendations:	NONE
Application Recommendations:	FOR PROFESSIONAL USE ONLY.

* As per the federal EPA definition for coating categories in 40 CFR 59.401.
** Grams of VOC per liter of coating product as applied (mixture of Part A and Part B) per EPA Method 24.

U.S. State Regulations: As follows –

New Jersey Right-to-Know:

The following materials are non-hazardous, but are among the top five components in this product.

CAS # OR NJ TRADE SECRET #	CHEMICAL NAME
68609-08-5	MODIFIED ALIPHATIC AMINES
18275200000-5006	NJTSR #56705700001-5759P / 576

Pennsylvania Right-to-Know:

The following non-hazardous ingredients are present in the product at greater than 3%.

CAS # OR J TRADE SECRET #	CHEMICAL NAME
68609-08-5	MODIFIED ALIPHATIC AMINES

California Proposition 65:

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

None

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards.

None

International Regulations:

CANADIAN WHMIS:

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

*** CANADIAN DSL:**

All chemical ingredients included on inventory

* European Economic Community (EEC) EINECS Master Inventory:

All chemical ingredients included on inventory

Section 16 - Other Information

ESTABLISH GOOD PERSONAL HYGIENE AND WORK PRACTICES. ALWAYS WASH HANDS AND FACE BEFORE EATING, DRINKING OR SMOKING. AVOID CONTACT WITH EYES AND SKIN.

HMIS Ratings:

Health: 3 Flammability: 1 Reactivity: 0 Personal Protection: H

REASON FOR REVISION: None

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with the respect to the use of any material supplied by us.

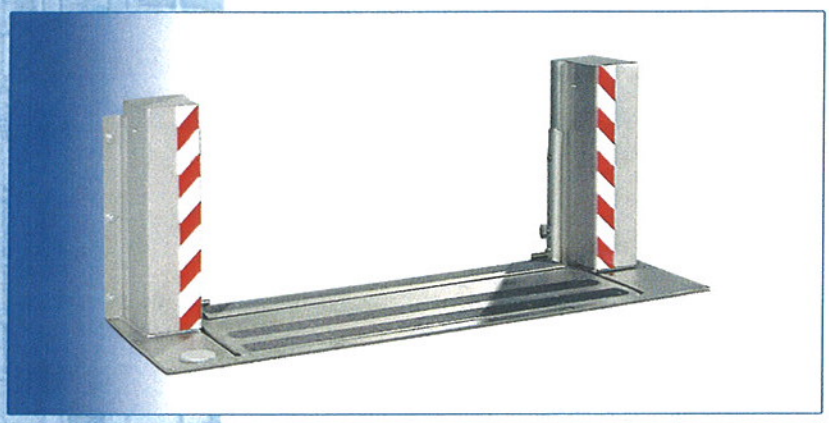
EXHIBIT 4E

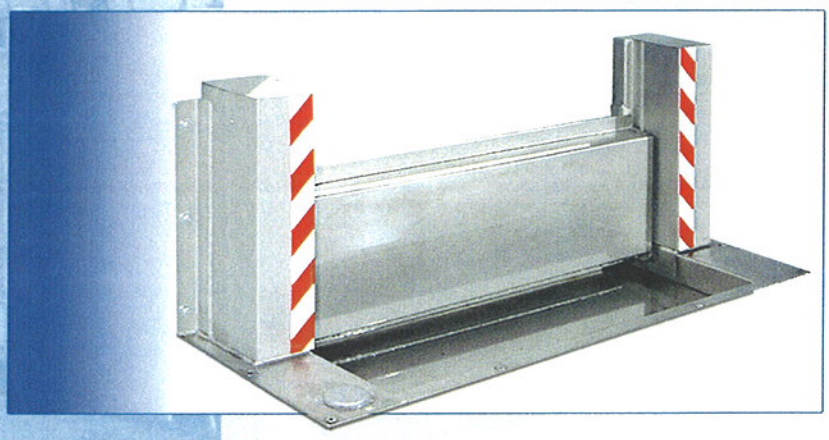
AUTOMATIC DOORWAY SPILL BARRIER

DATA SHEET

Automatic Doorway Spill Barriers

contain large spills and sprinkler releases; limiting contamination and clean-up to one area.





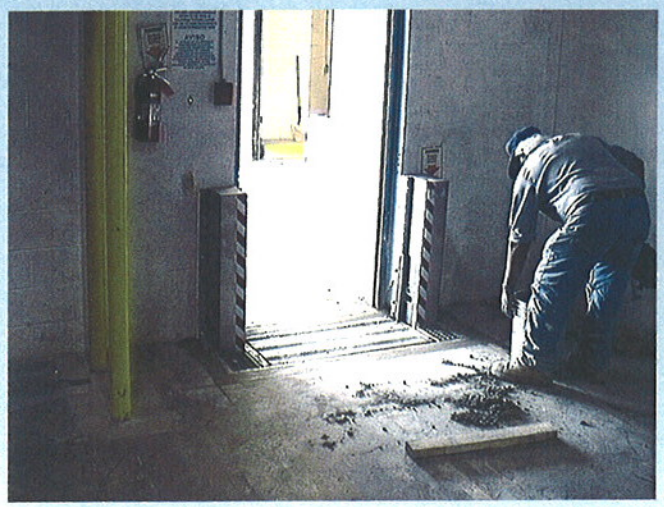
Spill Barriers

DENIOS
ENGINEERING

DENIOS Automatic Doorway Spill Barriers contain large spills within a room, eliminating any risk of damaging other areas of a facility or contaminating storm or sewer drains.

Designed to provide containment of larger spills and sprinkler releases, features of the Automatic Doorway Spill Barrier include:

- Solid welded stainless steel construction.
- Self-contained one piece system design.
- Fully automatic operation.
- No external power source requirements.
- Easy installation in existing doorways; stores horizontally in the floor, permitting unobstructed vehicular and personnel traffic until a spill occurs.
- Automatically closes with introduction of liquid in the collection sump; creating a liquid tight seal and containing the spill in the room where it originated.
- Designed to fit in doorways between 3 and 20 feet, with barrier heights of 8 to 39 inches.



DENIOS' Automatic Doorway Spill Barrier helps business address and satisfy the requirements of the following regulations:

- **NFPA-30 4.4.2.5** – Curbs, scrubbers, special drains, or other suitable means shall be provided to prevent the flow of liquids under emergency conditions into adjacent building areas.
- **UFC-60.4.6.3.4** – Secondary containment for indoor storage areas shall be designed to contain a spill from the largest vessel plus the design flow volume of fire-protection water calculated to discharge from the fire-extinguishing system over the minimum required system design area or area of the room... for a period of 20 minutes.
- **OSHA 1910.106 (e) (3) (iv) (a)** - Emergency drainage systems shall be provided to direct flammable or combustible liquid leakage and fire protection water to a safe location. This may require curbs, scuppers, or special drainage systems to control the spread of fire.
- **OSHA 1910.106 (d) (4) (i)** – Openings to other rooms or buildings shall be provided with non-combustible liquid-tight raised sills or ramps at least 4" in height...

Typical Applications

- Any application where regulated volumes of hazardous chemicals, especially flammable liquids, are stored or used
- Any location where sprinkler discharges must be confined to a specific plant area
- Warehouse, distribution, or fulfillment applications, especially where aerosols and flammable liquids are stored
- Metal manufacturing, machining, finishing, and fabricating
- Chemical manufacturers, especially plastics, resins, rubber and adhesives
- Ink storage in commercial printing plants
- Large volume liquid storage areas
- Paper processing plants
- Pharmaceutical, health care product producers
- Food and beverage manufacturers
- Flood prevention for overhead doors
- Flood prevention for underground parking structures

SPILL BARRIERS

DENIOS ENGINEERING

In both cost and performance, DENIOS Automatic Doorway Spill Barriers provide the most effective design available for containing sprinkler releases and other spills.

- Eliminates the need for expensive, impractical trenches or collecting ponds
- Lays flat in the doorway eliminating the need for ramps or dikes and allows safe, easy room access to personnel and material handling equipment
- Requires little factory or warehouse floor space, especially when compared to ramps
- Provides a liquid tight barrier
- Low installation cost; installs easily in new or existing openings
- Low maintenance; requires only periodic inspection

DENIOS, Inc.
1000 W. Ormsby Ave.
Buildings 16-16W
Louisville, KY 40210-1810

Phone 502 933 7272 or 800 216 7776
Fax 502 933 1560

E-Mail: info@thehazmatpro.com
Internet: www.thehazmatpro.com

DENIOS ENGINEERING

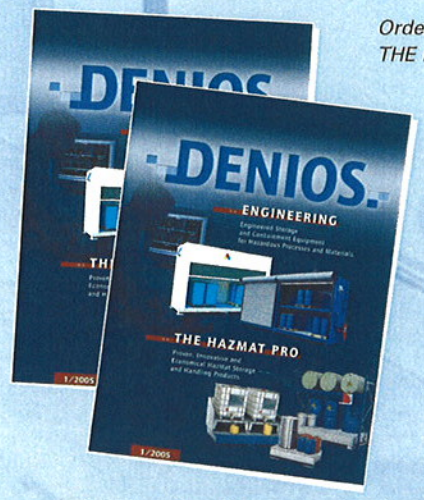
From its 70,000 square foot manufacturing facility in Louisville, KY, DENIOS designs and fabricates the most innovative hazmat and chemical containment products available. From one drum sumps to explosion rated processing rooms, DENIOS provides the widest and most complete range of storage, handling, and containment products to businesses and government.

That range of products, combined with the expertise of the technical sales and engineering staffs, ensures DENIOS will provide exactly the product or products needed to bring an application into compliance. In addition, because DENIOS is a design / build operation and oversees all aspects of the engineering and manufacturing of equipment, clients are provided more control and flexibility in the design, options, and overall project budget.

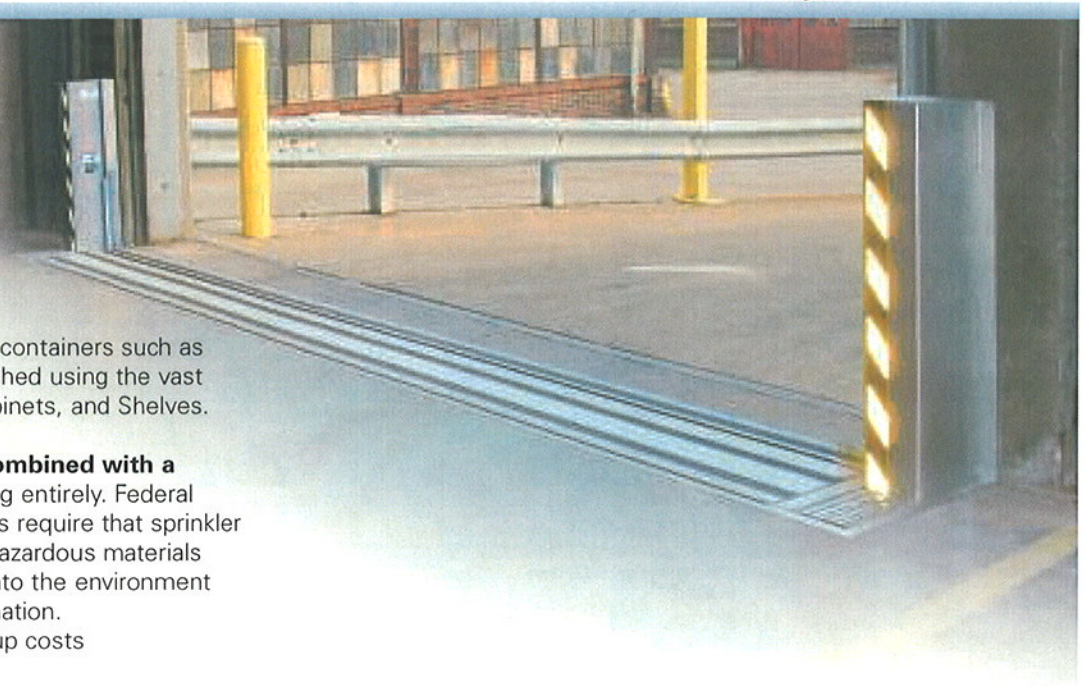
DENIOS ENGINEERING also offers a complete line of custom chemical storage cabinets, buildings, lockers and related equipment designed to solve your unique hazardous process or materials storage and containment issues.

Please also refer to **DENIOS' THE HAZMAT PRO** Catalog for our full line of standard hazardous storage and containment products.

Order the new DENIOS THE HAZMAT PRO Catalog!



Contact us!
1-800-216-7776

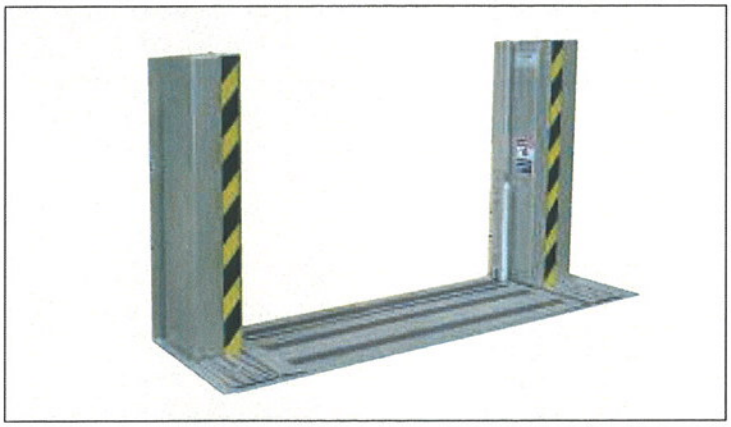


Automatic Doorway Spill Barriers

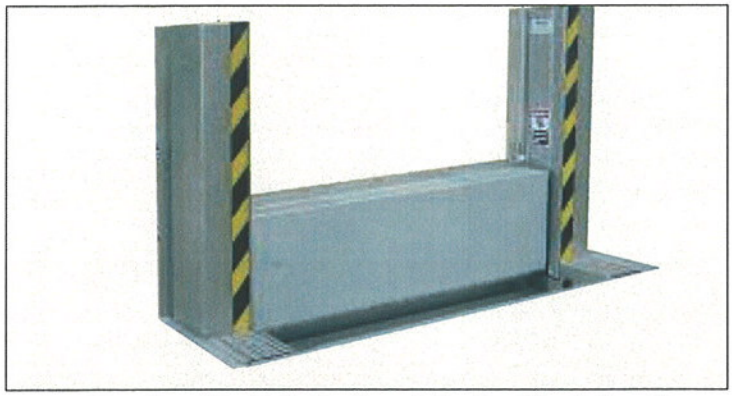
Providing spill containment for individual containers such as drums and IBC's can be easily accomplished using the vast array of DENIOS Spill Decks, Pallets, Cabinets, and Shelves.

Containment of your stored chemicals **combined with a sprinkler system release** is another thing entirely. Federal Regulations along with Local Jurisdictions require that sprinkler water in combination with regulated or hazardous materials also be prevented from being released into the environment via sewers, streams, or ground contamination. When a release occurs, fines and clean-up costs can be staggering.

Until recently, the only alternatives were extensive containment trenches and collecting ponds, or self-containment areas with large ramps and dikes at each door or entryway. Ramps and dikes create material handling and other challenges.



Barrier shown in its normally open (horizontal) position, allowing free, unobstructed movement in and out of the contained area or room.



Activated by a flow of liquids, barrier shown in its closed (vertical) position prevents liquids from flowing beyond the contained area or room.

DENIOS has the answer!

A unique device that automatically closes off any doorway or opening at the first sign of flowing liquids retaining spills and sprinkler releases inside the immediate storage or process area.

NFPA-30 4.4.2.5

Curbs, scuppers, special drains, or other suitable means shall be provided to prevent the flow of liquids under emergency conditions into adjacent building areas.

UFC-60.4.6.3.4

Secondary containment for indoor storage areas shall be designed to contain a spill from the largest vessel plus the design flow volume of fire-protection water calculated to discharge from the fire-extinguishing system over the minimum required system design area or area of the room... for a period of 20 minutes.

OSHA 1910.106 (e) (3) (iv) (a)

Emergency drainage systems shall be provided to direct flammable or combustible liquid leakage and fire protection water to a safe location. This may require curbs, scuppers, or special drainage systems to control the spread of fire.

OSHA 1910.106 (d) (4) (i)

Openings to other rooms or buildings shall be provided with non-combustible liquid-tight raised sills or ramps at least 4" in height...

E-Mail: info@thehazmatpro.com | Fax: 1-502-933-1560

Contain Spills and Sprinkler Releases Where They Occur. Operates fully AUTOMATICALLY

Provides Liquid-Tight Barrier
- Remain liquid-tight during and after a floating fire

No External Power Requirement
- Self-closing mechanism operates without supplemental electrical, pneumatic, or hydraulic power

Permits Free Traffic Flow
- Stores flat in the doorway opening permitting free flow of traffic

Low Maintenance
- Calibration-free design. Unit requires only periodic inspection

Low Installation Cost
- Installs easily in new or existing openings. Complete step-by-step drawings and instructions provided

Combine with curbing to effectively cut off and contain liquid storage areas

Nominal Width of Door	Model Number - 12-Inch Liquid Retention Height	Model Number - 18-Inch Liquid Retention Height	Model Number - 24-Inch Liquid Retention Height	Opening Span (in)	Sealed Width (in)
Three feet	R11-0312	R11-0318	R11-0324	36	40
Four feet	R11-0412	R11-0418	R11-0424	48	52
Six feet	R11-0612	R11-0618	R11-0624	72	76
Eight feet	R11-0812	R11-0818	R11-0824	96	100
Ten feet	R11-1012	R11-1018	R11-1024	120	124
Twelve feet	R11-1212	R11-1218	R11-1224	144	148
Fourteen feet	R11-1412	R11-1418	R11-1424	168	172
Sixteen feet	R11-1612	R11-1618	R11-1624	192	196

FEATURES

- ***Attaches to wall beside opening***
- ***PTFE seals provide leak-tight closure***
- ***All components from stainless steel***
- ***Easy, self-closing action***
- ***Stores flat in floor. No ramp or barrier***
- ***4 - 6 inch floor sump for initial liquid collection activates the barrier***

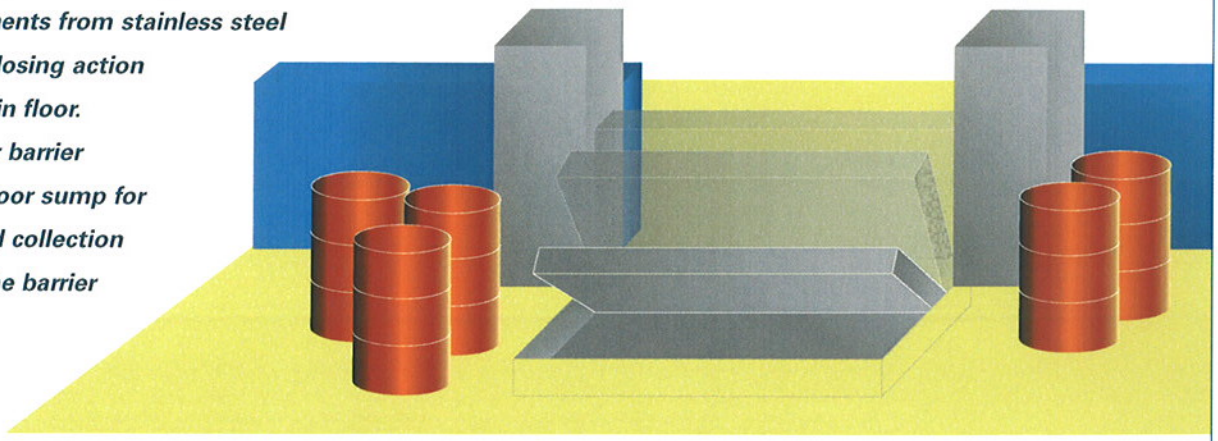


EXHIBIT 4F

SECONDARY CONTAINMENT

CAPACITY CALCULATIONS

EXHIBIT 4F
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
BUILDING 309 CONTAINER STORAGE AREAS
SECONDARY CONTAINMENT CALCULATIONS

Room Number	**2**	**7**	**8**
Total Floor Area (ft^2)	5,400	5,867	1,293
Berm Height (inches)	7	7	7
Existing Secondary Containment (gallons)	23,563	25,603	5,644
Maximum Number of Containers[1]	1,000	1,352	388
Container Size (gallons)	55	55	55
Maximum Capacity (gallons)[2]	55,000	74,360	21,340
Secondary Containment Requirement (gallons)[3]	5,500	7,436	2,134
Percentage Contained	428%	344%	264%

Notes

1. As listed on IBM's Part 373 Permit.
2. Maximum Number of Containers x Container Size
3. Ten percent of the volume of the maximum capacity

5.0 CORRECTIVE ACTION PROGRAM

IBM is currently conducting an Interim Corrective Measures Program to monitor, collect, and treat contaminated groundwater at the East Fishkill Facility. The current Corrective Measures Program is addressing groundwater remediation in the following Areas of Concern (AOCs): Area A, Area B, Area C Landfill, Area D, B/322 AOC, B/330 AOC, the SEQ, and the deeper bedrock. A site map showing the Corrective Measure Program is provided as Exhibit 5A.

A summary of the investigations, the remediation implemented and NYSDEC determinations for each of the AOCs is discussed below.

5.1 Area A Area of Concern

Area A is located beneath and adjacent to B/308, B/309 and B/310. There are two distinct source areas associated with Area A. The first source area is located within a closed tank farm which contained both virgin and waste solvents located north of B/309, adjacent to the east side of B/310. The second source area is located adjacent to both sides of the linkway connecting B/308 with B/310. Tetrachloroethene (PCE) and its related breakdown products (Trichloroethene [TCE], cis-1,2-Dichloroethene [cis-1,2-DCE], Vinyl Chloride [VC]), Freon TF (FTF), and Freon 123A (F123A) and to a lesser extent chromium and fluoride have been identified as contaminants which exceed the Groundwater Protection Standards.

Remediation efforts in Area A consist of pump and treat. The Area A Treatment Facility (B/384) is located adjacent to and south of the B/308-B/310 linkway. Contaminated groundwater, extracted from a large diameter sump and two associated well points that are installed within the sump, is processed through an air stripper prior to discharge to the Industrial Wastewater Treatment Plant (IWTP). The Area A plume has also impacted the fractured dolomite bedrock aquifer. Pumping of Production Well 2 (PW-2) in the bedrock, in conjunction with operation of the site's other production wells, contains this plume.

The NYSDEC has approved IBM's groundwater investigations in Area A as meeting the requirements of an RFI and its pump and treat systems (Area A Treatment Facility and Deep Bedrock System) as Interim Corrective Measures.[1] NYSDEC has made a No Further Action determination for soils in Area A with the provision that some of the inactive, below ground, waste transfer systems beneath B/308, B/309 and B/310 are classified as inaccessible. These inaccessible units must be investigated when these units become accessible.[2]

5.2 Area B Area of Concern

Area B is a former fire training area located near the eastern perimeter of the facility. IBM operates a pump and treat facility to contain low levels of volatile organic compounds (VOCs). The pumped water is treated through activated carbon and is discharged to a septic leach field.

NYSDEC has approved IBM's groundwater investigations in Area B as meeting the requirements of an RFI and Interim Corrective Measures[3] and that there is No Further Action required for remediation of soils in this area.[4]

5.3 Area C Landfill

The Area C Landfill is located just east of B/330C. The area was used primarily as a construction debris landfill and when investigated was found to contain hazardous constituents, including PCE, FTF and their breakdown products. In 1982, 20,000 cubic yards were excavated and sent off-site to a permitted, secure landfill. The excavation went to bedrock and the area was subsequently back filled and clay capped. Residual chemical contamination remains in the bedrock. Pumping of the on-site production wells contains the migration of residual contaminants from the landfill.

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1 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *Groundwater Investigation/Treatment Documents*, March 10, 1993.
2 V. Valaitis, New York State Department of Environmental Conservation to J. Hogan, IBM, *IBM East Fishkill: Final Report*, August 13, 1998.
3 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *Groundwater Investigation/Treatment Documents*, March 10, 1993.
4 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *RCRA Corrective Action: Soil/Waste Investigation Documents*, September 29, 1993.

NYSDEC has approved IBM's groundwater investigation (RFI) and Corrective Measures Study for the landfill.[5]

5.4 Area D Area of Concern

Area D is a former fire training area located on the western boundary of the East Fishkill Facility within the Water Pollution Control Facility (WPCF). Low concentrations of PCE and TCE are currently detected in this area. IBM operates a pump and treat system, which discharges directly to the WPCF where groundwater is combined with sanitary wastewater and treated industrial wastewater prior to treatment and discharge under a SPDES permit to the Gildersleeve Brook. There is no known contamination in the bedrock associated with Area D.

NYSDEC has approved IBM's groundwater investigations in Area D as meeting the requirements of a RFI and Interim Corrective Measures[6] and that there is No Further Action required for remediation of soils in this Area.[7]

5.5 Southeast Quadrant Area of Concern

The Southeast Quadrant Area of Concern is a former contractors' staging area located in a filled area adjacent to a New York State Freshwater Wetland (HJ-52) in the southeast corner of the East Fishkill Facility. The groundwater contamination from this area is located in the fill, native soil and very shallow, fractured bedrock. PCE and its breakdown products are the principal chemicals of concern.

NYSDEC, in 1993, approved IBM's groundwater investigations in the SEQ as meeting the requirements of a RFI[8] and in 2000 approved the design of a groundwater extraction system

5 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *RCRA Corrective Action: Soil/Waste Investigation Documents*, September 29, 1993.
6 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *Groundwater Investigation/Treatment Documents*, March 10, 1993.
7 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *RCRA Corrective Action: Soil/Waste Investigation Documents*, September 28, 1993.
8 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *Groundwater Investigation/Treatment Documents*, March 10, 1993.

as meeting the requirements of a Focused Corrective Measures Study and an Interim Corrective Measures Design.[9] The system, including Production Well 23 (PW-23), was installed in 2000 and startup occurred in early 2001. The extracted water is treated at the B/316 Centralized Carbon facility and then used for process water systems. A RFA and RFI for soil contamination were completed for this area. NYSDEC determined that No Further Action is required for soils in the SEQ.[10]

5.6 B/322 Area of Concern

The groundwater plume referred to as the B/322 Area of Concern is believed to emanate from largely two areas; one in the area of the B/320B-B/322 linkway in the vicinity of a closed waste solvent tank farm and second, within B/322 along the western side of the building, near monitor well GW-766.

The B/322 plume is located primarily in the shallow soil aquifer. Identified constituents are PCE, FTF and their associated breakdown products. To a lesser extent, arsenic, chromium, nickel and fluoride have been identified as chemicals of concern related to the B/322 plume.

In 2000, IBM implemented a pump and treat system for the B/322 plume. Water is pumped from three extraction wells (with one backup available), which limit migration of VOCs toward the Gildersleeve Brook. The water is combined with sanitary and treated industrial wastewater and treated at the WPCF prior to discharge.

NYSDEC approved the groundwater RFI[11], the design,[12] the technical specifications and record drawings for B/322 system and has determined that the system is acceptable as an Interim Corrective Measure.[13] NYSDEC has made a No Further Action determination for soils in the

9 H. Wilkie, New York State Department of Environmental Conservation to S. Tranchina, IBM, *Focused CMS-SEQ Groundwater Extraction System*, January 24, 2000.
10 V. Valaitis, New York State Department of Environmental Conservation to J. Hogan, IBM, IBM *East Fishkill: Final Report*, August 13, 1998
11 K. Gronwald, New York State Department of Environmental Conservation to M. West, IBM, *IBM East Fishkill Building 322 Area of Concern RFI Report*, September 30, 1997.
12 H. Wilkie, New York State Department of Environmental Conservation to S. Tranchina, IBM, *Final Design Report – Groundwater Migration Control System for Building 322*, September 22, 1999.
13 H. Wilkie, New York State Department of Environmental Conservation to S. Tranchina, IBM, *Technical Specifications and Record Drawings-B/322 RCRA Groundwater Containment System*, April 14, 2000.

B/322 AOC provided that Solid Waste Management Units (SWMUs) identified as inaccessible will be addressed when the units become accessible.[14] To date, no SWMUs associated with B/322 have been identified as inaccessible SWMUs.

In 2009, elevated levels of fluoride were detected in monitoring well GW-580 on the southeast side of B/322. The source of the fluoride was a compromised wastewater pipeline and associated containment which have been taken out of service. The fluoride impacted groundwater is and will be contained within the site's existing groundwater flow and remediation systems.

5.7 B/330 Area of Concern

The B/330 AOC is located beneath and adjacent to B/330C and B/330D. The sources of this plume are associated with historical waste solvent tank farms, one located on the south side of B/330C and the other located to the east of B/330C, and underground waste piping within the buildings. The primary contaminants of concern are PCE and FTF. Separate phase PCE has been detected within B/330D and the bedrock aquifer has been impacted. In 2002, a pump and treat system, including Production Well 25 (PW-25) was constructed in order to contain the B/330 AOC plume near the source. The extracted water is treated at the B/316 Centralized Carbon facility and then used for process purposes.

The NYSDEC has approved IBM's RCRA Facilities Investigation for groundwater investigations for the B/330 Area of Concern.[15] IBM completed a CMS for this Area of Concern and recommended near source extraction of contaminated groundwater to better contain the contamination closer to B/330 and to enhance mass removal. NYSDEC has approved the CMS.[16] The design of the B/330 AOC pump and treat system was approved as a focused CMS and an

14 V. Valaitis, New York State Department of Environmental Conservation to J. Hogan, IBM, *IBM East Fishkill: Final Report*, August 13, 1998.
15 K. Gronwald, New York State Department of Environmental Conservation to M. West, IBM, *IBM East Fishkill B/330 AOC RFI Report*, September 30, 1997.
16 K. Gronwald, New York State Department of Environmental Conservation to S. Tranchina, IBM, *RCRA CMS Task IV Final Report*, March 27, 2001.

Interim Corrective Measure Design.[17] The B/330 AOC pump and treat system was put online in January 2002. NYSDEC approved the system as an Interim Corrective Measure.[18]

In addition, NYSDEC approved and granted IBM a No Further Action determination for contaminated soils for B/330 with the provision that underground waste pipelines beneath the buildings are classified as inaccessible and must be addressed when these units become accessible.[19]

5.8 B/315 Catch Basin Area of Concern

During the course of construction in 2002, a storm sewer catch basin located on the north side of B/315 was determined to have sediment with PCE in the bottom of a catch basin. The area was sampled and approximately 32 cubic yards of soil were excavated and the catch basin was removed. Post excavation sampling indicated no VOCs remaining in the soil above TAGM 4046. The NYSDEC approved the remediation of this area as an Interim Corrective Measure and No Further Action is required.[20]

5.9 Bedrock Remediation Area

The Bedrock Remediation Area results primarily from sources within Area A and the B/330 Areas of Concern migrating vertically through the soil and till into the bedrock. The bedrock plume is contained to the IBM East Fishkill Facility through the continuous pumping of on-site production wells. This pumping, at approximately 1 million gallons per day, has created strong onto site gradients thus containing contaminated groundwater in the bedrock to the IBM East Fishkill Facility.

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17 H. Wilkie, New York State Department of Environmental Conservation to S. Tranchina, IBM, *Design Report, Groundwater Containment System, B/330 AOC*, October 28, 2002.

18 H. Wilkie, New York State Department of Environmental Conservation to S. Tranchina, IBM, *Groundwater Containment System, PW-25, B/330 AOC, Construction Quality Assurance Report*, July 21, 2003.

19 H. Wilkie, New York State Department of Environmental Conservation to S. Tranchina, IBM, *Newly Identified Are of Concern E (AOC-E) Report, B/315 Catch Basin*, July 31, 2002.

20 V. Valaitis, New York State Department of Environmental Conservation to J. Hogan, IBM, *IBM East Fishkill: Final Report*, August 13, 1998.

Eight on-site production wells (PW-1, PW-2, PW-4, PW-5/5A, PW-6, PW-7, PW-23 and PW-25) generally operated continuously until October 22, 2007 when a wellfield rebalancing plan was implemented. Termination of pumping at PW-4, PW-5/5A, PW-6 and PW-7 was proposed to provide more efficient and targeted contaminant containment and recovery at the site.

The first step in this plan was termination of pumping at PW-5/5A, PW-6 and PW-7 for a one year trial period. The wells will be maintained in an operational condition until completion of the test plan, associated data analysis and NYSDEC approval of a permanent modification to the wellfield operation. After completion of the wellfield rebalancing, it is anticipated that PW-1, PW-2, PW-23 and PW-25 will be pumped continuously and the remaining on-site production wells will be pumped as necessary for plume containment and water supply. PW-9 is pumped for water supply emergencies only.

Water from the on-site production wells is pumped to B/316 and treated with granular activated carbon. The carbon treated water from the pumping production wells is discharged to the head end of the deionized water treatment system or to the raw water storage tanks which feed the process water systems. Treated water from all on-site production wells also may be discharged directly to the tributary to the Gildersleeve Brook (Central Drainage) or the IWTP after carbon treatment.

Beginning in August 2007, the production well water supply has been supplemented with municipal water from the Poughkeepsies' Water Treatment Facility via the Central Dutchess Water Transmission Line. Municipal water provides all of the site's potable water and is blended with well water for process uses.

NYSDEC has approved IBM's groundwater investigations in the bedrock and approved the wells and the carbon system as Interim Corrective Measures.[21] The well field rebalancing plan work plan was approved by NYSDEC.[22]

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21 S. Kaminski, New York State Department of Environmental Conservation to W. Rudloff, IBM, *Groundwater Investigation/Treatment Documents*, March 10, 1993.

22 K. Gronwald, New York State Department of Environmental Conservation to D. Speed, IBM, *Work Plan, Field Observation of Alternate Groundwater Extraction Operations*, August 17, 2007.

EXHIBIT 5A

CORRECTIVE MEASURE PROGRAM

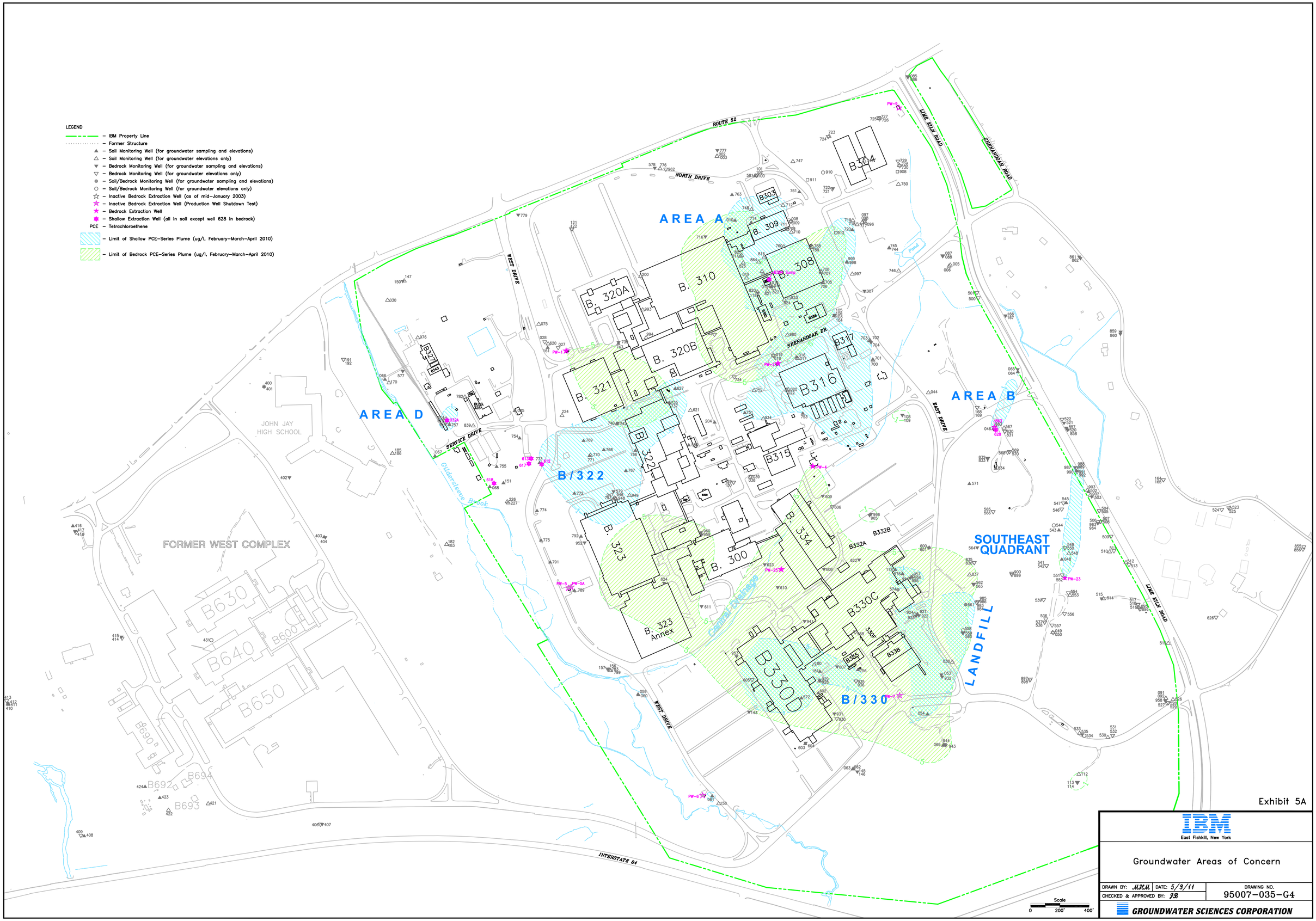


Exhibit 5A

IBM
East Fishkill, New York

Groundwater Areas of Concern

DRAWN BY: MJM DATE: 5/9/11
CHECKED & APPROVED BY: JB
DRAWING NO. 95007-035-G4

GROUNDWATER SCIENCES CORPORATION

6.0 PROCEDURES TO PREVENT HAZARDS

6.1 Security

IBM has established an extensive security system to safeguard the East Fishkill Facility and to minimize the possibility of entry into the East Fishkill Facility by unauthorized personnel.

6.1.1 Security Procedures and Equipment

Security Operations is responsible for security at the East Fishkill Facility. It is the responsibility of Security Operations to:

1. Protect all company property from theft or damage.
2. Protect personnel from hazardous situations.
3. Prevent unauthorized access to the facility.
4. Enforce security regulations to prevent compromise of classified information.
5. Enforce traffic and parking regulations on IBM property.
6. Provide random site patrols and observe and report all unusual situations so that proper action may be taken.

6.1.2 Staffing

The Security Control Center and Emergency Services is staffed 24 hours per day, seven days per week and operates out of Building 320 and Building 308, respectively. All emergencies should be called into the Security Control Center at 4-3333. Calls to this number are dispatched to Emergency Services and logged by the security control center.

6.1.3 Barrier and Means to Control Entry

Access to the East Fishkill Facility is potentially available through five gates located along Route 52 and Lime Kiln Road. These gates are opened/closed in accordance with schedules established and revised by Security Operations. When gates are closed, employees may only access the facility by using magnetic identification badges located at Gates 1, 3 and 5.

All visitors must register at a lobby manned by security personnel and obtain a guest badge. Guests are required to be accompanied by a badged employee while on site property. Contractors (i.e., non-IBM employees performing work at the facility) are required to obtain contractor's badges. These badges permit the contractor to travel about the plant site as required.

Entrances to Building 309 are locked at all times.

6.1.4 Warning Signs

In order to minimize the likelihood of unauthorized personnel entering Building 309, warning signs are posted as required by 373-2.2(f)(3). These signs are posted at all entrances to Building 309 and are visible from any approach to the building. The signs are visible a minimum distance of 25 feet.

6.1.5 Waiver

The East Fishkill Facility does not request a waiver from the requirements of the cited regulation and will continue to act to prevent unknowing or unauthorized entry of persons or livestock onto the facility.

6.2 Facility Inspections

6.2.1 Inspections - General Information

This section and those that follow address types of problems, frequency of inspection, and specific process inspection requirements.

Table 6-1 lists potential problems that could be associated with hazardous waste storage units. The frequency of inspection for each item is identified in the example checklists contained in Exhibit 6A.

Load/Unload Area Inspection

The B/309 load/unload area utilized for handling hazardous waste is inspected prior to use according to the items in Table 6-1 as required by 373-3.2(f)(2)(iv). Any precipitation that accumulates within a load/unload area will be removed within a reasonable time frame. Items that may be evaluated during the inspection are listed on Table 6-1.

Container Inspection

Weekly inspections are conducted of the Building 309 permitted container storage area by facility operators and are documented on the weekly inspection form, an example of which is contained in Exhibit 6A of this document. These inspections include an evaluation of the condition of containers, the containment systems and surrounding areas to detect any evidence of spills.

A record of all inspections is maintained. The record of inspections includes:

- date and time of inspection,
- name of inspector,

Table 6-1

POTENTIAL PROBLEMS

Item	Types of Problems	Required Response Action
PERMITTED CONTAINER STORAGE AREAS		
Waste stored	Inappropriate waste in room	Transport waste to appropriate location
Containers	Not closed	Close completely
	Not labeled or improperly labeled	Label properly
	Leakage, corrosion or damage	Transfer contents to another container Indicate problem on drum label clean up leaks with absorbent material
Pallets	Damaged	Replace
Containment System	Cracks, deterioration	Notify maintenance personnel for repair
Emergency exits	Not accessible	Clear pathway
Warning signs	Illegible	Repair or replace
Fire extinguisher	Need to be recharged	Notify Emergency Control personnel for recharging
	Not in proper location	Find and place in proper location
	Not accessible	Clear pathway
Emergency Response Equipment	Spill cabinet seal broken	Replenish supplies and reseal
B/309 LOAD/UNLOAD STATION		
Concrete Pad	Cracks, spalling, deterioration, staining, joint deterioration	Repair
Trenches	Evidence of precipitation or release	Remove
Warning signs	Illegible	Repair or replace

- observations made, and
- date and nature of any repairs or other actions taken.

In addition to the above, regular inspections are conducted of: monitoring equipment; emergency and safety equipment; security devices; operating and structural equipment vital to prevent, detect or respond to environmental or human health hazards; and, communications or alarm systems, fire protection equipment and decontamination equipment.

6.2.2 Types of Problems

The types of problems personnel look for during inspections are presented on Table 6-1 and included on the example inspection forms provided in Exhibit 6A at the end of this section.

6.2.3 Frequency of Inspection

The frequency of inspections for the various areas and equipment are discussed in Section 6.2.1 and included on the example inspection forms provided in Exhibit 6A.

6.2.4 Specific Process Inspection Requirements

A description of the specific inspection programs for containers is presented in Section 6.2.1 and in Exhibit 6A. In accordance with 373-2.9(e), the container storage areas are inspected on a weekly basis.

6.2.5 Remedial Action

If a release is detected during an inspection, or if any tank, drum or pipe appears to be in danger of leaking, the person observing the condition will immediately contact Emergency Control. If appropriate, the procedures described in the Hazardous Waste Contingency Plan (Section 7.0 of this document) will be followed in responding to the situation. If the detected

problem is minor, such as an open drum, an employee with hazardous waste management training will correct the problem without contacting Emergency Control.

6.2.6 Inspection Log

An example of the weekly inspection form for the permitted container storage area at Building 309 and the daily less-than-90-day hazardous waste storage tank inspection form is provided in Exhibit 6A. All inspection forms for permitted and less-than-90-day hazardous waste management units are maintained on file in the facility operating record. The date and time of the inspection, name(s) of inspector(s), observation(s) noted, and date and nature of repairs or remedial actions performed are recorded on the appropriate form.

6.3 Preparedness and Prevention

6.3.1 Equipment Requirements

The IBM East Fishkill Facility Hazardous Waste Contingency Plan (Section 7.0) addresses internal and external communications, and emergency equipment. The preparedness and prevention regulatory requirements cited in 6 NYCRR 373-1.5 and 2.4 are addressed in the Hazardous Waste Contingency Plan. The prevention and preparedness discussion below expands upon the discussions in the Hazardous Waste Contingency Plan.

6.3.1.1 - Internal Communications

A telephone system located in Building 309 can be used to notify the appropriate personnel who would initiate all necessary emergency procedures.

IBM personnel within Building 309 are also equipped with two-way radios, which can be utilized to directly notify emergency personnel.

6.3.1.2 - External Communications

All emergencies are reported internally by calling 4-3333.

6.3.1.3 - Emergency Equipment

Emergency equipment for fire control, spill control and cleanup, and decontamination is listed in the IBM East Fishkill Facility Hazardous Waste Contingency Plan (Section 7.0). Quantities, locations and capabilities of the equipment are also provided in the Hazardous Waste Contingency Plan.

6.3.1.4 - Water for Fire Control

All container storage area rooms in Building 309 which are utilized to store hazardous waste are equipped with sprinklers that are connected to the facility fire main system.

6.3.2 Aisle Space Requirement

Adequate aisle space is present in all active portions of Building 309 to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in the event of an emergency. There is a minimum of two feet of aisle space provided in the drum storage rooms. Main aisles are wider to permit heavier traffic. In these rooms and all other areas of the facility, there is sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment during an emergency.

6.4 Preventive Procedures, Structures and Equipment

6.4.1 Unloading Operations

All containers stored within Building 309 are staged on wooden pallets. The containers and pallets are moved around the building utilizing forklifts. Containers are only unloaded at specified load/unload areas and are immediately transferred to their appropriate designated storage location. Spark arresting equipment is utilized as needed.

The loading dock located outside Room 11 in Building 309 is the primary load/unload area for containerized hazardous waste generated at the East Fishkill Facility. All containerized hazardous waste that is generated on-site is delivered to Building 309 via this loading dock for storage in one of the appropriate hazardous waste container storage area rooms. The pad located on the exterior of the loading dock is constructed of coated concrete and is sloped towards a storm water collection trench. The collection trench is equipped with a manual air-actuated valve which is kept closed during load/unload operations to prevent spills from entering the facility's storm water drainage system. A second containment trench (with no discharge pipe) is located at the base of the loading dock. Therefore, in the unlikely event of a spill during the transfer of drums to the loading dock, waste will not enter the storm drainage system and is contained within the containment trench system.

The facility maintains procedures for loading and unloading containerized hazardous waste. In addition, spill control and fire extinguishing equipment are available within Building 309, and the Emergency Control Department and Fire Brigade are on call 24 hours a day to respond to any type of emergency.

6.4.2 Runoff

The Building 309 Container Storage Area is located indoors. As a result, precipitation cannot come into contact with the container storage area or the containers in storage. In addition,

secondary containment systems assure containment of any spills that may occur, and preclude the possibility of any contamination as a result of a spill or spill runoff.

6.4.3 Water Supply

Contamination of surface water or groundwater is prevented by the secondary containment systems utilized to collect any released hazardous material.

6.4.4 Equipment and Power Failure

An emergency power supply is available on-site to serve safety and security operations.

6.4.5 Personal Protective Equipment

All personnel handling hazardous waste receive training in the use of personal protective gear. In the event of an emergency involving hazardous wastes, the Emergency Control Department determines the personal protective equipment requirements for emergency response personnel. Protective equipment, including clothing, gloves, face shields, dust masks, goggles, and spill response equipment is contained in the IBM HAZMAT vehicle.

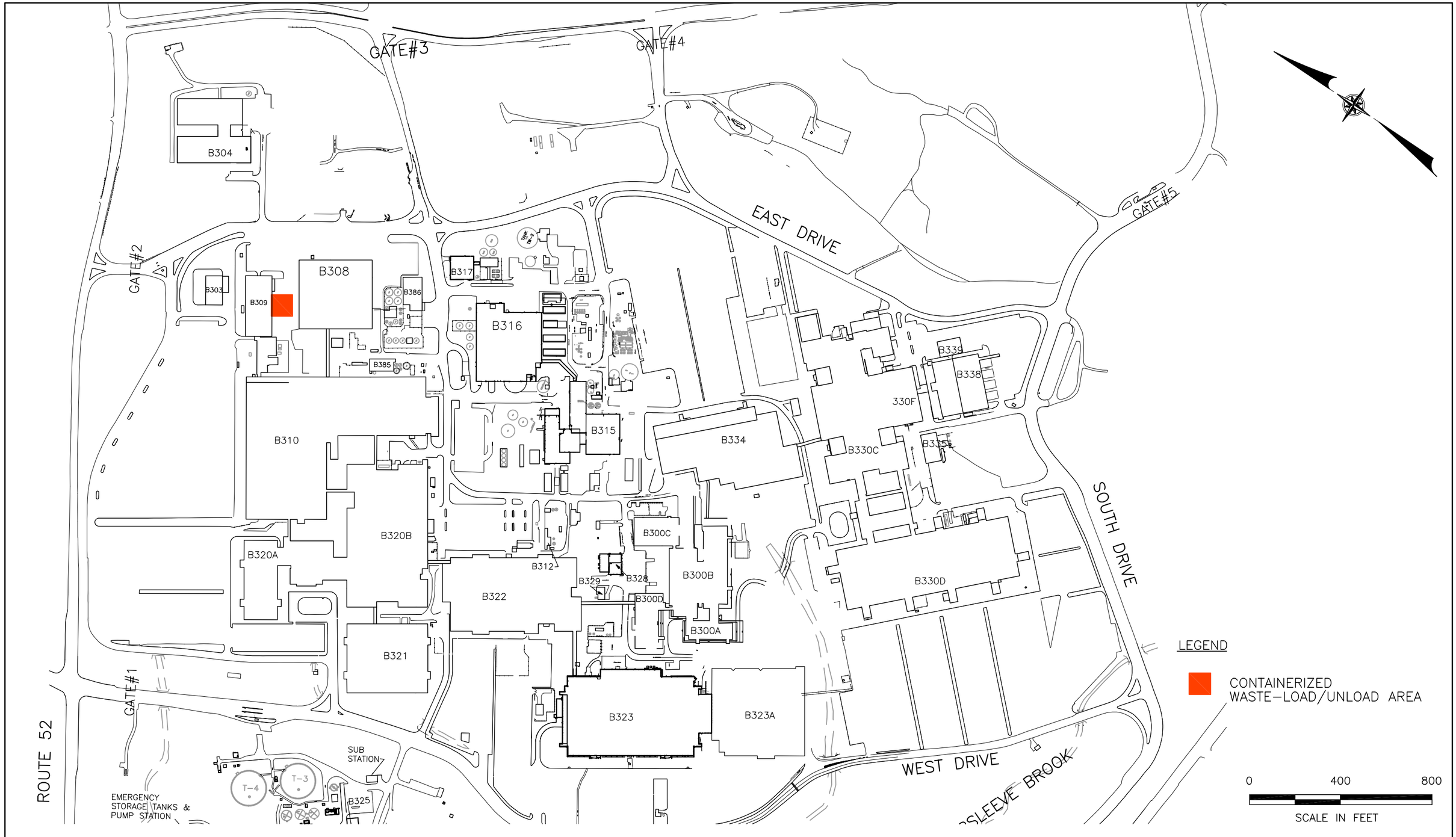
In order to prevent the inhalation of toxic air contaminants, a self-contained breathing apparatus (Scott Air Pack) may be used for initial-response, as determined necessary by the responding personnel. This apparatus provides protection against airborne contaminants and oxygen-deficient atmospheres for a period of up to 30 minutes. Larger capacity units that provide a longer duration are also available. Emergency response personnel are trained in the use of respiratory protection and receive annual review courses with practical experience in simulated emergency situations.

6.4.6 Load/Unload Areas

The load/unload areas located at the IBM East Fishkill Facility are utilized in association with the on-site and off-site transportation of bulk and containerized hazardous waste and are designed and operated in a manner which precludes the possibility of a release of waste to the surrounding environment. As stated in 373-1.5(a)(2)(viii), facilities must employ procedures, structures or equipment that will prevent hazards in unloading operations, prevent run-off from hazardous waste handling areas, prevent contamination of water supplies, mitigate effects of equipment failure and power outages, prevent undue exposure of personnel to hazardous waste, and prevent releases to the atmosphere. As demonstrated below, IBM complies with this requirement by providing procedures, structures and equipment (such as trenches and emergency response equipment) to prevent or minimize any unlikely release of hazardous waste to the environment.

BUILDING 309 HAZARDOUS WASTE STORAGE FACILITY

The loading dock located outside of Room 11 of the Building 309 Hazardous Waste Storage Facility is the primary load/unload area for containerized hazardous waste generated at the IBM East Fishkill Facility. Figure 6-1 depicts the location of this containerized waste load/unload area. All containerized hazardous waste that is generated on-site is delivered to Building 309 via this loading dock for storage in one of the appropriate hazardous waste container storage area rooms. The containerized waste is subsequently loaded onto a truck at this load/unload area for transportation off-site for disposal. The load/unload area is constructed of coated concrete and is partially located beneath an overhanging roof. A containment trench (with no discharge pipe) is located at the base of the loading dock on a slightly raised platform. A storm water collection drain is located at the low point of the load/unload area and is connected to the storm water drainage system with a manual air actuated valve that is kept closed during load/unload operations. The containment trench is designed to collect any spills at the loading dock and prevent the spilled material from entering the storm water collection drain. Therefore, in the unlikely event of a spill, hazardous waste would be contained within the containment



William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS

IBM CORPORATION
EAST FISHKILL, NEW YORK

BUILDING 309 CONTAINERIZED HAZARDOUS WASTE LOAD/UNLOAD AREA LOCATION MAP

FIGURE 6-1

F:\3063\DWG\3063-FIG 6-1 6-2.dwg, 6-1, 12/1/2010 2:35:33 PM, AStrauss

trench and would not enter the storm water drainage system. Any hazardous waste collected in the trench would be removed within 24 hours. Spill control and fire extinguishing equipment are available within Building 309.

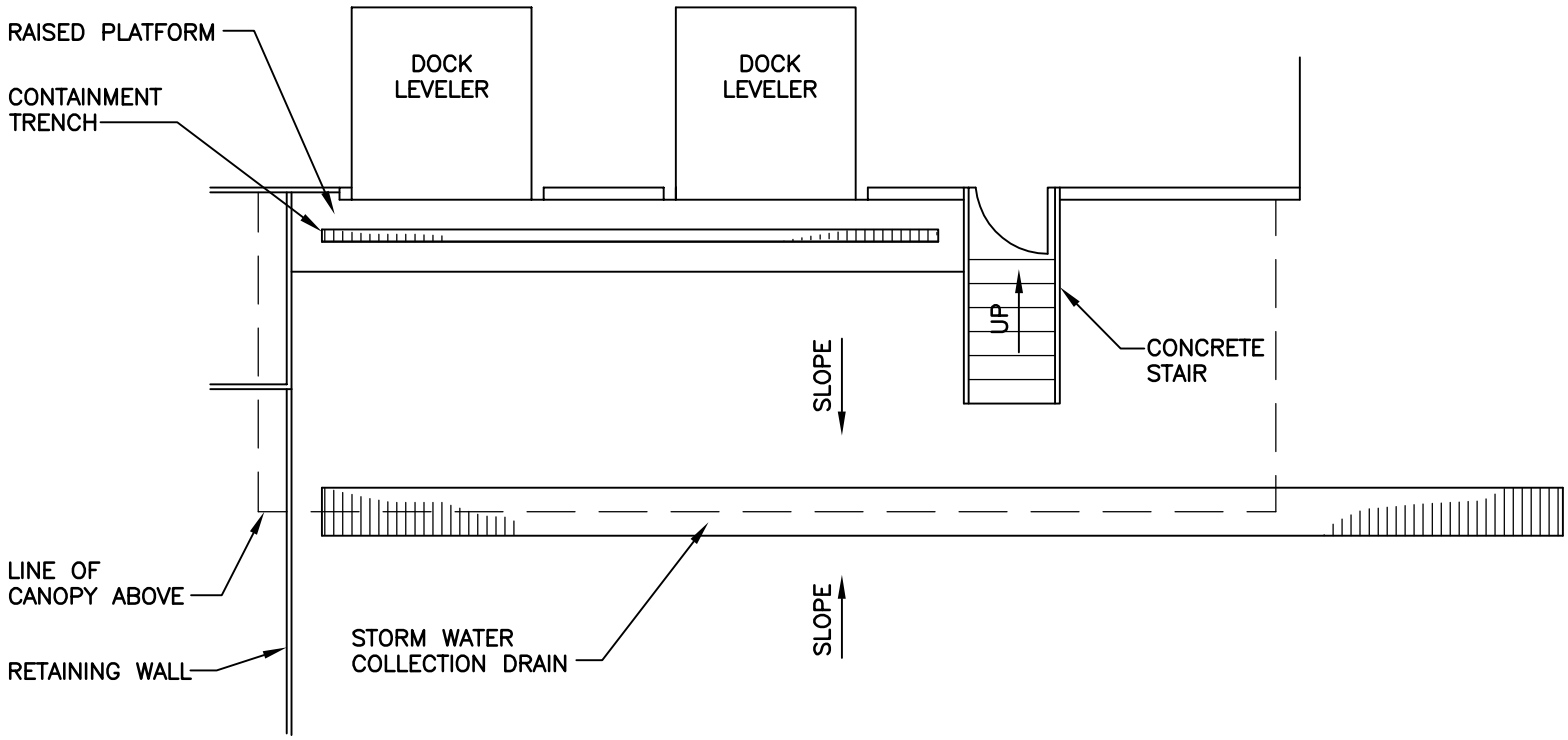
A schematic of the Building 309 containerized waste load/unload area is provided on Figure 6-2.

BULK HAZARDOUS WASTE LOAD/UNLOAD AREAS

The load/unload areas utilized at the IBM East Fishkill Facility in association with the on-site transportation of bulk hazardous waste are located throughout the facility and are designed and operated in accordance with the performance standards stipulated in 373-1.5(a)(2)(viii). IBM has established specific procedures for emptying hazardous waste storage tanks, which stipulate the use of specific personal protective health and safety equipment, the closing of all associated storm water drainage valves, the inspection of all adjacent eyewash stations and showers, the proper grounding of all tank trucks and the requirement that all transfer activities be conducted within spill containment areas. Load/unload areas are also inspected prior to use for structural damage (Section 6.2). In addition, the Emergency Control Department and Fire Brigade are on call 24 hours a day to respond to any type of emergency.

CONTAINERIZED HAZARDOUS WASTE LOAD/UNLOAD AREAS

The load/unload areas utilized in conjunction with the on-site transportation of containerized hazardous waste are located throughout the facility and are designed and operated in accordance with the performance standards stipulated in 373-1.5(a)(2)(viii). IBM maintains procedures for loading and unloading containerized hazardous waste.



APPROXIMATE SCALE:1/8"=1'

William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL, NEW YORK

BUILDING 309 CONTAINERIZED HAZARDOUS WASTE LOAD/UNLOAD AREA

FIGURE 6-2

F:\2297\PERMIT 373\2297-07.dwg, FIG6-2, 7/23/2008 4:08:05 PM, DBCadd

6.5 Prevention of Reaction of Ignitable, Reactive and Incompatible Wastes

6.5.1 Precautions to Prevent Ignition or Reactions of Ignitable or Reactive Wastes

Containerized ignitable waste is stored in Room No. 2 at Building 309. Smoking is not allowed in the hazardous waste storage area or at the generation points of the ignitable waste. Activities that might produce heat, sparks or flame are prohibited in the vicinity of these containers. In order to avoid any potential source of external ignition during storage, all containerized waste is sealed except when it is necessary to add waste to a container or to sample the content for analysis. Smoking is not allowed within Building 309. "No Smoking" signs are posted in conspicuous locations in and around the building to indicate this. Spark arresting equipment is utilized as needed.

6.5.2 General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste

Hazardous waste from several on-site operations are pumped or drained directly from the tool to a compatible drum. When a drum is full and requires disposal, the drum is transported from the production department to the loading dock of the building in which the manufacturing process is located. The waste is then transported to Building 309.

The department that generates the hazardous waste is required to affix a chemical waste label that lists the constituents within the container and the name of the department that generated the waste. All waste packaging and labeling is in strict compliance with the applicable regulations. When the drum reaches Building 309, the container contents are evaluated and the container is labeled with the appropriate hazardous waste designation (i.e., waste code) prior to shipment.

These precautions ensure the proper handling of ignitable and reactive waste, and prevents the mixing of incompatible waste.

6.5.3 Management of Ignitable or Reactive Waste in Containers

The location of Building 309, which houses all permitted container storage areas, is shown on Figure 2-2 of Section 2.0 of this document. As shown on Figure 2-2, this location complies with the requirement that ignitable and/or reactive waste be stored at least 50 feet from the facility's property line.

6.5.4 Management of Incompatible Waste in Containers

As described in Subsection 6.5.2, all incompatible wastes stored in containers are segregated into appropriate areas. These procedures ensure that incompatible wastes are not placed in the same container or in an unwashed container that previously held an incompatible waste. In addition, while in storage in Building 309, dikes, berms, walls and other devices are used to separate containers of incompatible wastes.

6.5.5 Management of Ignitable or Reactive Waste in Tanks

Reactive waste is not stored in tanks. Tanks containing ignitable waste are grounded and equipped with pressure relief valves. Ignitable waste is stored in tanks for less than 90 days; therefore, these tanks are not subject to permit requirements.

6.5.6 Incompatible Waste in Tanks

Procedures have been implemented at the IBM East Fishkill Facility to ensure that incompatible wastes are not placed in the same tank. Waste compatibility is evaluated prior to allowing tools to be connected to less-than-90-day hazardous waste storage tanks. Any waste placed in tanks is stored for less than 90 days; therefore, these tanks are not subject to permit requirements.

EXHIBIT 6A

EXAMPLE FACILITY INSPECTION CHECKLISTS

Form Date: 01/01/07 Form ID: 309-003-D Retention: S + 10 Years
Form Owner: D/9MXA # Form Pages: 1
IBM East Fishkill NYD000707901

Waste Chemical Warehouse Weekly Inspection

Area: _____ Year: _____

NOTE: CHECK BOXES IF ALL ITEMS ARE SATISFACTORY

Item / Date					
Are all emergency exits, fire extinguishers, eyewashes and showers clear of obstacles?					
Are hazardous wastes stored in the proper rooms?					
Are all containers being properly managed (e.g., closed; properly labeled; no leaks, corrosion or damage; broken pallets)?					
Are the containment systems free of cracks and gaps?					
Are warning signs visibly posted and readable?					
Are fire extinguishers available and properly charged?					
Is emergency response equipment available and in good condition?					
Are all lighting fixtures working properly? If not, notify Maintenance.					
Have good housekeeping rules been adhered to?					
Inspector Name					
Time					
Comments:					

Form Date: 07/23/08 Form ID: 309-024-D Retention: S + 10 Years
Form Owner: D/9MXA # Form Pages: 1
IBM East Fishkill NYD000707901

B/309 Load/Unload Station Daily Area Inspection

Area: _____ Year: _____

NOTE: CHECK BOXES IF ALL ITEMS ARE SATISFACTORY

Item / Date					
Concrete pads are free of deterioration (e.g., cracks, spalling, staining and joint deterioration)?					
Trenches and sumps are free of liquids (e.g., precipitation, releases)?					
Storm drain valves are operational?					
Warning signs are visible posted and readable?					
Inspector Name					
Time					

Comments:

Daily Hazardous Waste Solvent Tank Inspection

Week Beginning:_____

Inspection Item	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
RCRA Tank #: Maint Tank#: Class: Capacity: gal. Chemical: Alarms: HI HI-HI Pump: On Off Location:							
Piping							
Integrity							
Containment							
Hi Level Alarms							
Operation of Meter							
Eyewash/Housekeeping							
Tank Level ( )							
Next Pump Out Date							
Time (AM or PM)							
Inspector							
RCRA Tank #: Maint Tank#: Class: Capacity: gal. Chemical: Alarms: HI Hi-HI Pump: On Off Location:							
Piping							
Integrity							
Containment							
Hi Level Alarms							
Operation of Meter							
Eyewash/Housekeeping							
Tank Level ( )							
Next Pump Out Date							
Time (AM or PM)							
Inspector							
RCRA Tank #: Maint Tank#: Class: Capacity: gal. Chemical: Alarms: HI Hi-HI Pump: On Off Location							
Piping							
Integrity							
Containment							
Hi Level Alarms							
Operation of Meter							
Eyewash/Housekeeping							
Tank Level ( )							
Next Pump Out Date							
Time (AM or PM)							
Inspector							
RCRA Tank #: Maint Tank#: Class: Capacity: gal. Chemical: Alarms: HI Hi-HI Pump: On Off Location:							
Piping							
Integrity							
Containment							
Hi Level Alarms							
Operation of Meter							
Eyewash/Housekeeping							
Tank Level ( )							
Next Pump Out Date							
Time (AM or PM)							
Inspector							

Comments: (See next page)

Daily Hazardous Waste Solvent Tank Inspection Week Beginning:_____

Maint Tank #	Date	Initials	Comment

7.0 HAZARDOUS WASTE CONTINGENCY PLAN

This Hazardous Waste Contingency Plan has been prepared for the IBM East Fishkill Facility located at 2070 Route 52 in Hopewell Junction (Dutchess County), New York. Specifically, this Hazardous Waste Contingency Plan addresses the Building 309 Container Storage Area as well as permit exempt less-than-90-day tanks and container storage areas. Pursuant to the New York State Department of Environmental Conservation (NYSDEC) hazardous waste regulations found at 6 NYCRR Part 373-2.4, this Hazardous Waste Contingency Plan has been prepared for hazardous waste storage elements of the IBM East Fishkill Facility.

This Hazardous Waste Contingency Plan discusses the procedures and organizational responsibilities that will be applied to minimize hazards to human health or the environment in the event of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil or surface water.

The sections of this Hazardous Waste Contingency Plan follow the outline of the pertinent sections of the NYSDEC Part 373 regulations. The procedures outlined in this Hazardous Waste Contingency Plan apply to all areas located within the boundaries of the East Fishkill Facility.

7.1 General Information

Facility Name:	IBM East Fishkill Facility
Facility Location:	2070 Route 52 Hopewell Junction, NY 12533-3507
Owner:	New York State Urban Development Corporation d/b/a Empire State Development Corporation 633 3rd Avenue New York, NY 10017

Operator:	International Business Machines Corporation 2070 Route 52 Hopewell Junction, NY 12533-3507
Site Plan:	A site plan of the East Fishkill Facility is provided as Figure 7-1 and a figure showing the surface drainage patterns and the location of the storm sewer system is provided as Figure 7-2. A wind rose for the East Fishkill Facility is provided as Figure 7-3.

The facility includes various research and development operations, as well as the facilities and operations involved in the manufacturing of semiconductor and electronic computing equipment. Manufacturing activities were initiated at the facility in April 1963.

Production, administration, and research and development activities are performed at the IBM East Fishkill Facility. This plan establishes emergency response actions for the site to assure prompt response during an emergency. Implementation of these actions should minimize the risk to human health and the environment.

The facility fire safety program consists of the installation, inspection and maintenance of the facility's fire fighting systems (i.e., sprinkler and extinguishing [CO_2] systems, extinguishers, hydrants and standpipes) which are installed in accordance with NFPA-13 and NFPA-30, and the maintenance of an autonomous fire department (Emergency Services) and the IBM Fire Brigade. The fire fighting systems (sprinklers, hydrants, standpipes) are all integrated into one fire fighting system which is maintained at 150 psi by a series of pumps connected to on-site water supply tanks. All Container Storage Area (CSA) rooms in Building 309 utilized to store hazardous waste are equipped with sprinklers that are connected to this fire fighting system.

The Emergency Control Department is staffed with personnel trained in fire fighting and hazardous materials response, New York State Fire Code Enforcement and Emergency Medical Services. The Emergency Control Department is equipped with four emergency response vehicles, including one fire fighting engine, one utility vehicle, one hazardous materials engine

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: MRH	DRAWN BY: PSM
DESIGNED BY: MRH	CHECKED BY: BMV

William F. Cosulich Associates, P.C.
ENVIRONMENTAL ENGINEERS

INTERNATION BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
DUTCHESS COUNTY NEW YORK

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PART 373 PERMIT RENEWAL APPLICATION

IBM EAST FISHKILL FACILITY
SITE PLAN

PROJECT NO. 2297
DATE: MAY 2006
SCALE: AS NOTED
DRAWING NO. 7-1

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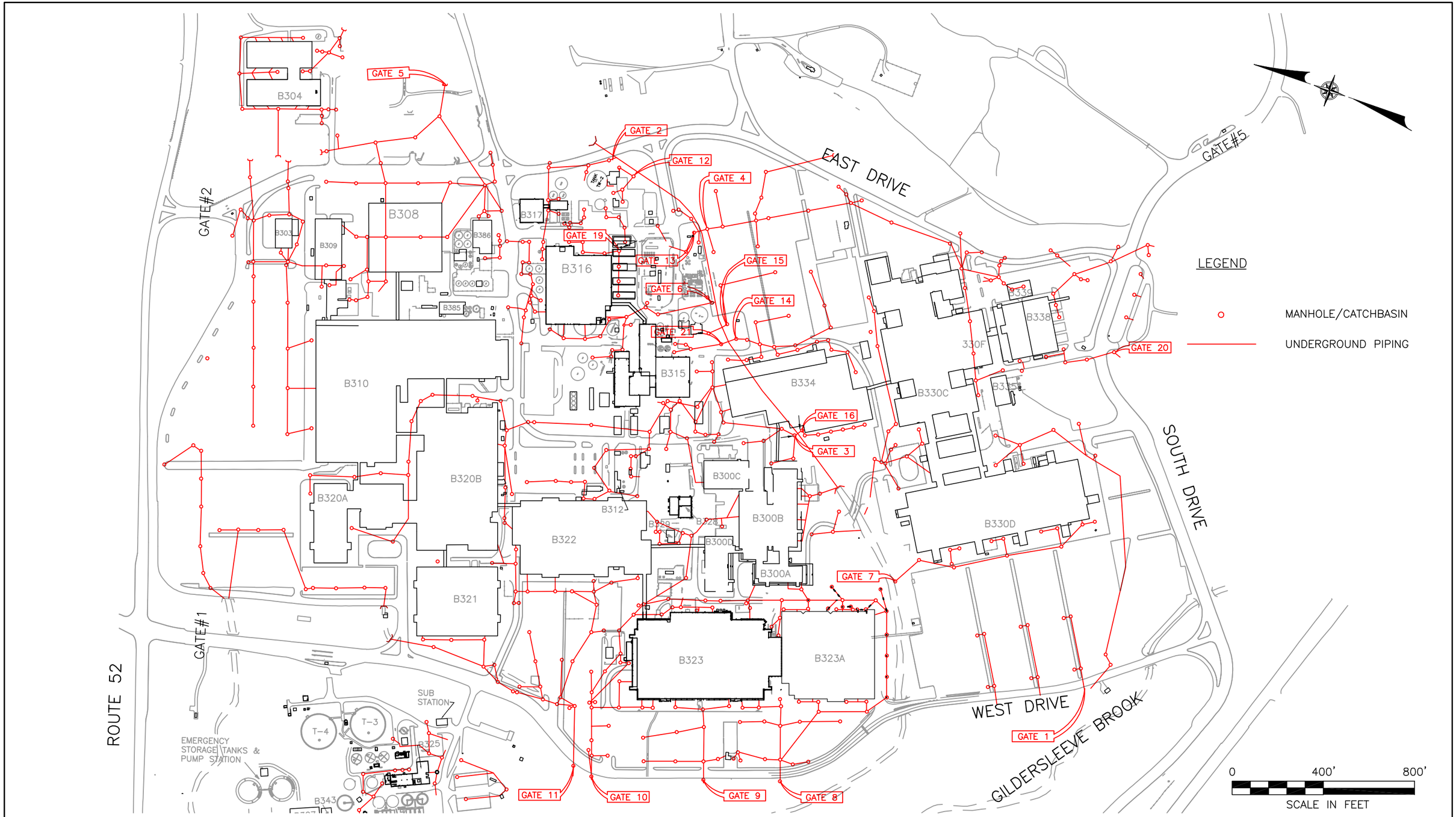

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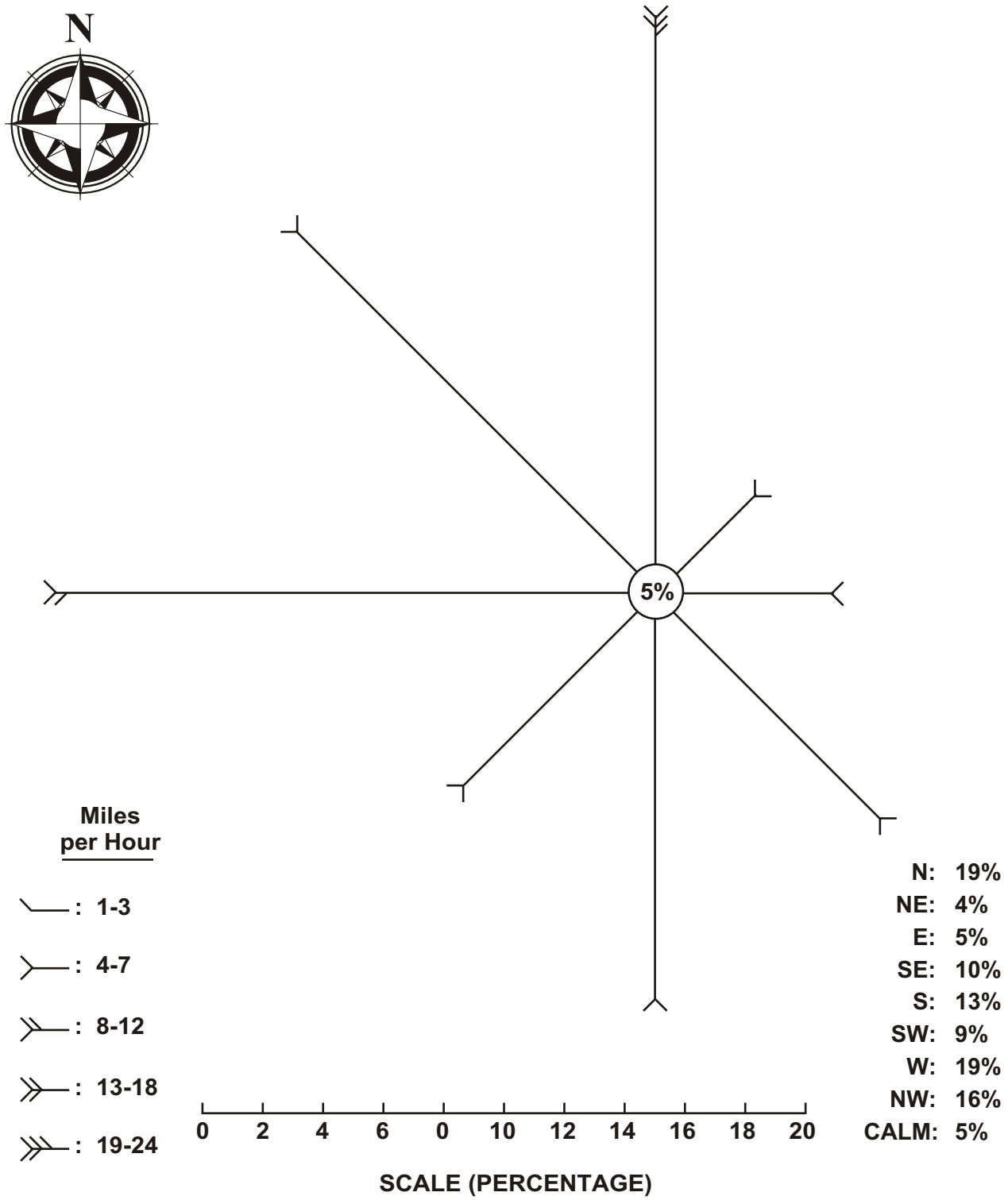
EAST FISHKILL FACILITY STORM WATER DRAINAGE SYSTEM

FIGURE 7-2

F:\3063\DWG\3063-FIG 7-2.dwg, FIG7-2, 12/1/2010 2:35:39 PM, AStrauss



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INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY

WIND ROSE

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ENVIRONMENTAL ENGINEERS AND SCIENTISTS

FIGURE 7-3

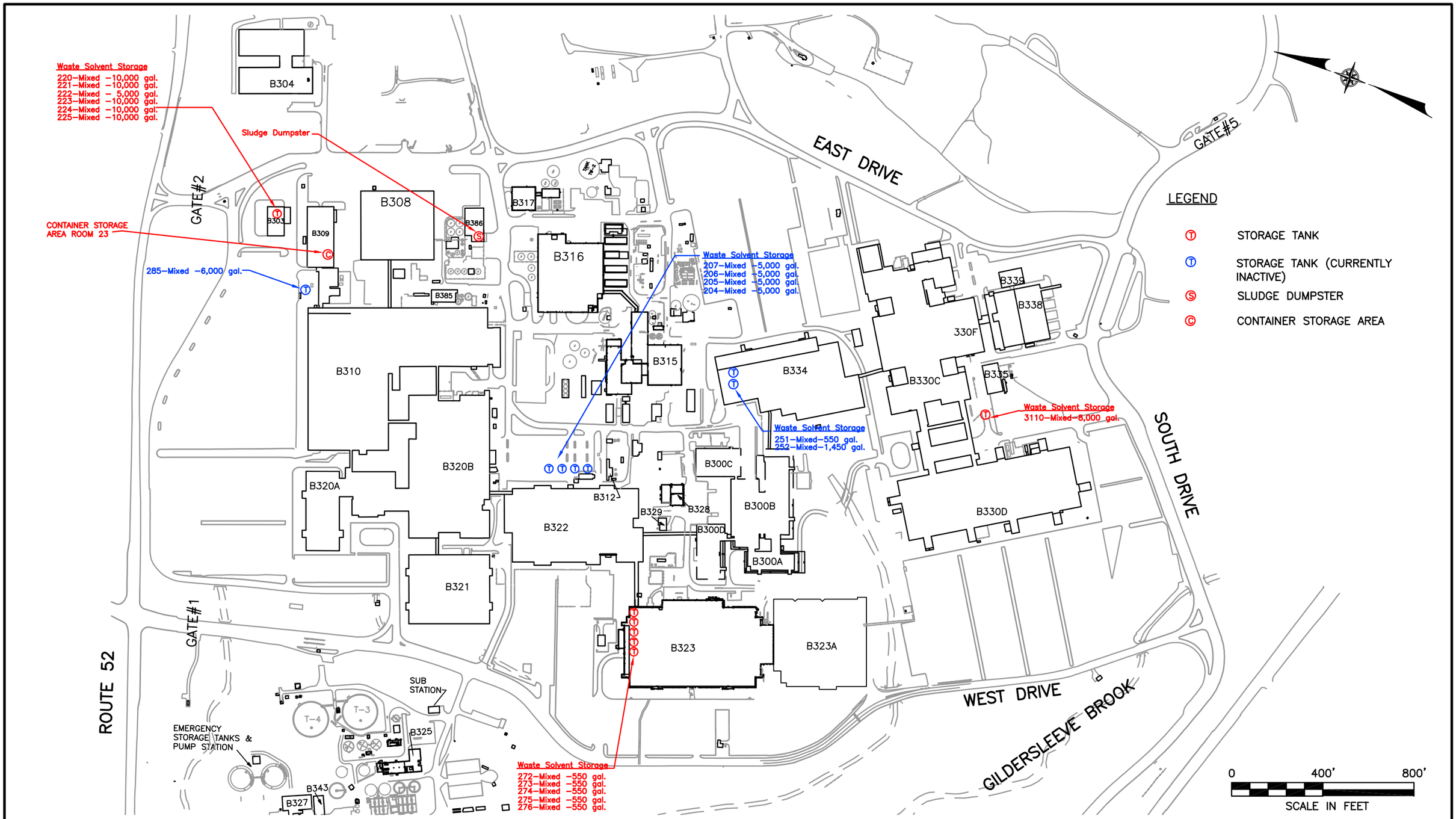
and one suburban-type vehicle. In addition, the facility maintains a Fire Brigade comprised of members from other business units on site for the purpose of assisting the Emergency Control Department in responding to various on-site emergencies. The members of the Fire Brigade are trained in all necessary fire fighting techniques and are required to attend monthly training sessions conducted by the Emergency Control Department.

Hazardous waste generated on-site is stored in the Building 309 permitted storage areas or in less-than-90-day tanks, containers or dumpsters. These less-than-90-day storage units are located as shown on Figure 7-4.

7.2 Emergency Coordinator

The person discovering the emergency must immediately notify the Emergency Control Department at 4-3333. Emergency Control will then call the following list of Emergency Coordinators or Alternates until one of the individuals is contacted:

Name and Address	**Work Phone**	**Home Phone**
Primary Coordinator		
Steven C. Hawkins 70 Travis Road Hyde Park, NY 12538	(845) 894-1039	(845) 454-1145
Alternate Coordinators		
Cathy Delaney 293 Drake Road Pleasant Valley, NY 12569	(845) 894-8500	(845) 635-1877
Robert Newhard 71 Andrews Road LaGrangeville, NY 12540	(845) 894-3242	(845) 233-5951



IBM CORPORATION
EAST FISHKILL, NEW YORK

UPDATED MARCH 11, 2011

William F. Cosulich Associates, P.C.
Environmental Engineers and Scientists

EAST FISHKILL FACILITY SITE PLAN
LESS THAN-90-DAY STORAGE UNIT LOCATION PLAN

FIGURE 7-4

F:\3063\DWG\3063-FIG 7-4.dwg, FIG7-4, 6/6/2011 5:13:54 PM, dbcadd

The Emergency Coordinator (primary or alternate) is responsible for overseeing the entire hazardous waste emergency response effort. This individual has the designated authority to commit the resources to carry out the Hazardous Waste Contingency Plan for control of the emergency. The Emergency Coordinator will contact other site personnel as necessary. At all times, there is at least one Emergency Coordinator available on-site or on-call.

7.3 Implementation of the Hazardous Waste Contingency Plan

This Hazardous Waste Contingency Plan will be implemented whenever there is a fire, explosion, or unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil or surface water, which may be harmful to human health or the environment, and which requires assistance from off-site emergency response personnel.

7.4 Emergency Response Procedures

The Emergency Coordinator will ensure that the emergency actions described in this section are undertaken immediately upon implementation of this Hazardous Waste Contingency Plan.

7.4.1 Notifications

In the event of an on-site emergency, all site personnel have been instructed to contact the dispatcher on extension 4-3333 (845-894-3333). Internal procedures at the facility require that releases of chemicals and wastes which could impact health, safety or the environment be reported to Emergency Control. All releases of chemicals and waste outside the buildings or to the environment, must be reported to Emergency Control. In the event of a release of hazardous waste or hazardous waste constituents, the dispatcher receiving the call will record all available information (including the nature of the emergency, location and other pertinent details), and then activate the emergency response system. The Emergency Coordinators or Alternate will be contacted by personal pager or telephone.

Upon receipt of a hazardous waste emergency call, and concurrent with other response efforts, a response team will be sent to the site of the emergency. The response team will provide manpower and support equipment to bring the emergency under control, confine the affected area, and prevent the hazard from spreading to unaffected areas.

The emergency/fire response personnel at the facility include the members of the Fire Brigade and the Emergency Control Department (located in Building 308). The Emergency Control Department consists of approximately 17 members who are personnel trained in fire fighting. The Emergency Control Department is manned 24 hours a day, 7 days a week, and consists of 8-hour shifts with no less than four personnel per shift. The number of members which may be on duty at any one time depends upon the workload, number of employees and/or outside contractors present at the facility at a particular time. Each member of the Emergency Control Department is specifically trained and experienced to respond to any emergency on-site regardless of whether the emergency is a fire, hazardous substance release or a medical emergency. Furthermore, certain members of the department are specialists in hazardous materials response, New York State Fire Code Enforcement Officers, and are Emergency Medical Technicians. The facility maintains a program for training members of the Emergency Control Department. Section 7.5 contains information regarding the emergency equipment utilized by Emergency Control Department personnel.

In the event of a major emergency, the response team would establish an on-site command post to provide centralized communication with responding local, state and federal agencies and contractors.

If a release, fire or explosion which could threaten human health or the environment outside the facility has occurred, the Emergency Coordinator or his designated representative will immediately notify the NYSDEC using the New York State 24-hour oil and hazardous material spill notification number (800-457-7362) in accordance with 6 NYCRR Part 373-2.4(g)(4)(ii). In addition, the National Response Center (800-424-8802) will be notified.

Upon response and evaluation of the release, a determination is made if any regulatory reportable quantities have been exceeded or if other notification requirements have been triggered. Appropriate notifications are given to regulatory agencies based on this determination.

A written report will be submitted to the NYSDEC Commissioner within 15 days of any incident, which occurred inside and/or outside the facility which would require the implementation of the site's Hazardous Waste Contingency Plan.

Phone numbers for outside emergency response assistance are provided in Section 7.6 of this Hazardous Waste Contingency Plan.

7.4.2 Identification of Hazardous Materials

Hazardous material involved in an emergency will be identified by knowledge of the facility, including known piping and tank systems, processes and chemicals. If for any reason released material cannot be identified, a sample will be collected for chemical analysis. Laboratory analyses conducted in support of the Part 373 Permit will be undertaken by a contracted laboratory that has been approved by the New York State Department of Health Environmental Laboratory Approval Program (ELAP).

There is a database readily available at the facility that provides information concerning the properties of chemical substances used at the site. Referred to as CIM/CAM, this computerized chemical information database was developed by IBM. Hard copies of Material Safety Data Sheets (MSDSs) are maintained for chemicals that are not available on the on-line databases.

The MSDS contains information concerning the various names of the chemical, the identity and concentration of chemicals used in proprietary formulations, the physical and chemical characteristics of the chemicals, health effects, exposure limits and reactivity data. Chemical Authorization Requests (CARs) are authorizations issued to the manufacturing and

support departments allowing use of a specific chemical. CARs contain information concerning department use including information on daily usage and storage.

7.4.3 Hazard Assessment

The Emergency Coordinator is responsible for assessing possible health or environmental hazards, and determining the need for evacuation and notification of the proper authorities. The assessment will be based on a knowledge of the processes associated with the release, areal extent and quantities involved in the incident, materials released during the incident and knowledge of the site and surrounding area. The coordinator will gather information from the response team members, individuals knowledgeable in the affected processes, and site management. The assessment will evaluate the impact of any release to the air, local waterways, groundwater or soils, and the effects of any hazardous or toxic constituents that are generated.

In order to assess the impact of an incident, the Emergency Coordinator is required to first observe an incident in order to determine the extent of a release and the type of release (gaseous, granular, liquid). In addition, the Emergency Control Department in conjunction with Industrial Hygiene is equipped with combustible gas meters, explosimeters and oxygen detectors which may be used to assess conditions at the location of a fire, explosion or in a confined space situation.

If the Emergency Coordinator determines the incident could threaten human health or the environment, he/she will:

- Depending on the severity of the incident either: (a) implement the facility's evacuation plan to assure the safety of plant personnel or (b) notify appropriate local authorities and assist in implementation of an area-wide evacuation plan.
- Call the New York State Department of Environmental Conservation Spill Notification number (800-457-7362) or the National Response Center (800-424-8802).

7.4.4 Control Procedures

7.4.4.1 - Actions During a Spill or Release of Hazardous Waste

The following procedures are to be followed in the event of a hazardous waste release:

- The individual who discovers or detects a release shall immediately notify the Emergency Control Department via the security control center dispatcher by dialing 4-3333. The Emergency Control Department will contact the Emergency Coordinator, and the Emergency Coordinator will notify all other required personnel and regulatory authorities.
- If equipment and services related to the release are not automatically shut down, the first employee on the scene knowledgeable of the appropriate shut down procedures and authorized to perform the required actions, should perform the actions, including informing the affected manufacturing departments.
- Personnel and ignition sources must be cleared from the area.
- The release receptor must be identified and the appropriate actions initiated.

In order to prevent the inhalation of toxic air contaminants, a self-contained breathing apparatus (Scott Air Pack) may be used for initial response, as determined necessary by the responding personnel. This apparatus provides protection against all airborne contaminants and oxygen-deficient atmospheres for 30 minutes. Larger capacity units which provide longer duration are also available. Emergency response personnel are trained in the use of respiratory protection and receive annual review courses with practical experience in simulated emergency situations.

7.4.4.2 - Actions During a Fire and/or Explosion

The following procedures are to be followed in the event of a fire and/or explosion involving hazardous waste:

- The individual who discovers the fire and/or explosion shall immediately notify the Emergency Control Department via the security control center dispatcher by dialing

4-3333. The Emergency Control Department will contact the Emergency Coordinator, and the Emergency Coordinator will notify all other required personnel and regulatory authorities.

- Emergency Control personnel will be dispatched to the scene to evaluate the situation and take corrective action as needed.

7.4.5 Prevention of Recurrence or Spread of Fires, Explosions or Releases

During an emergency, the Emergency Coordinator will take all reasonable steps necessary to assure that fires, explosions, and releases do not occur, recur or spread to other areas of the facility. These steps will include, where appropriate: shutting down processes in the affected areas with continued monitoring; collecting, containing, and treating released wastes; removing and isolating containers; and, proper use of fire control structures (fire doors), systems (sprinklers) and equipment (extinguishers, fire trucks). Actual steps to be taken will vary in response to individual situations and will be at the discretion of the Emergency Coordinator.

7.4.6 Storage and Treatment of Released Material

Personnel under the direction of the Emergency Coordinator will arrange for the treatment, storage or disposal of recovered waste, contaminated soil, sorbent, equipment or any other contaminated material resulting from an emergency or the subsequent restoration or decontamination of emergency equipment.

Released hazardous waste will be collected, placed in compatible containers, labeled as hazardous waste and incorporated into the existing hazardous waste management system. Contaminated liquids, including wash water, rinse water from equipment decontamination and water from fire fighting operations will be collected, analyzed for hazardous characteristics, and disposed of appropriately. Contaminated solids, such as soil, sorbent, rags, and protective clothing will be placed in compatible containers, labeled as waste and transported off-site for disposal. Ultimate disposal of hazardous waste will be through a federal and/or state approved treatment or disposal facility.

Contaminated materials will be classified appropriately based on the hazards associated with the released chemical. If more than one chemical was involved, or the chemical is unknown, chemical analyses will be performed on the waste material.

Emergency equipment available for use during an emergency and for containing released material is described in Section 7.5 of this Hazardous Waste Contingency Plan.

7.4.7 Incompatible Waste

The Emergency Coordinator shall ensure that the released material does not come into contact with any incompatible materials. Wastes collected and generated during an emergency cleanup will be stored accordingly. In addition, in the event of a spill, waste that may be incompatible with the released material will not be treated, stored or disposed until completion of the cleanup activities.

7.4.8 Post-Emergency Equipment Maintenance

Following an emergency situation, all emergency equipment that is used will be restored to full operational status either by decontamination or replacement. Emergency equipment will be cleaned, evaluated for serviceability, and returned to storage. The Emergency Coordinator will be responsible for assigning personnel to ensure that all safety equipment utilized during cleanup will be restored to full operational status or replaced. The type of cleaning and treatment of the cleaning media will depend on the emergency. All wash chemicals and rinse water will be collected, placed in compatible containers, analyzed for hazardous characteristics, and disposed of appropriately.

All self-contained breathing apparatus air tanks and fire extinguishers will be refilled following an emergency. Disposable items and items that cannot be adequately cleaned, including sorbents and protective clothing, will be placed in compatible containers and disposed of in an appropriate manner. Emergency supplies will be restocked following an emergency.

7.4.9 Container Spills and Leakage

If a drum is determined to be leaking, absorbent material would be applied to capture any liquid which had already escaped. The leaking drum would either be placed into a “salvage” drum, or its contents transferred into another regular drum. Placement in a “salvage” versus another regular drum would be based on expediency and safety factors. However, general preference would be into a salvage drum. The used absorbent material and drum contents would be disposed of as a hazardous waste.

In the event that a roll-off container holding sludge begins to leak, IBM will add absorbent material and take other appropriate measures to stop the leak. The sludge roll-off containers are located within an impervious secondary containment area capable of containing any spilled liquid. If a roll-off container continues to leak following the addition of absorbent material, the contents of the container will be transferred to a non-leaking container prior to off-site transportation.

7.4.10 Tank Spills and Leakage

If a tank is determined to be leaking, the influent liquid would be diverted to an alternate tank or tanker vehicle, and the source process would be shut down if necessary. All liquid in the tank would be removed. Any hazardous liquid which resides within a hazardous waste tank secondary structure will be removed within 24 hours. The tank would be repaired using methods and materials appropriate to the tank’s material of construction or closed.

If the tank required a major repair, a certification by a professional independent engineer that the repaired system is capable of handling hazardous waste without release for the intended life of the system would be obtained before the system is put back into service (as required by 6 NYCRR Part 373-3.10(g)(6)). If the tank is not repairable, it would be closed in accordance with the requirements of 6 NYCRR Part 373-3.7.

7.4.11 Precipitation Management

The facility has a specific procedure to address the removal of precipitation from secondary containment areas. The standard operating procedure requires that in the event of a spill, precipitation contained in secondary containment areas and load/unload areas be analyzed prior to discharge to surface waters. The analyses performed for each contaminant area precipitation sample are based on the potential contaminants as follows:

Material Stored/Location	Parameter
Petroleum Product	Oil and Grease
Inorganic Wastewaters	pH Metals
Organic Solvents	Volatile Organic Compounds

Laboratory analyses conducted in support of the Part 373 Permit would be undertaken by a contracted laboratory that has been approved by the New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Authorization for the release of precipitation is required from Environmental Engineering. This authorization is given upon receipt of and comparison of the analytical results to appropriate guidelines (e.g., SPDES permit, water quality standards, etc.). Prior to the release of the precipitation, the contained precipitation is visually checked for any contaminants.

If the contained precipitation is not authorized for release to surface water, it is either transferred to one of the site's wastewater treatment facilities or disposed off-site. The transfer to the wastewater treatment facility is typically accomplished by means of tanker trucks owned and operated by on-site vendors.

The loading/unloading containment areas are equipped with storm drains, which prevent the accumulation of precipitation inside the containment areas. These drains are closed during

loading/unloading operations to prevent hazardous waste or hazardous waste constituents from discharging to surface water. Furthermore, in the unlikely event of a release, a hazardous waste determination will be made on the spilled material. The material will be removed via vacuum truck and properly disposed of off-site.

7.4.12 Aisle Space Requirement

There is a minimum of two feet of aisle space provided in the drum storage rooms. Main aisles are wider to permit heavier traffic. In these rooms and all other areas of the facility, there is sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment during an emergency.

7.5 Emergency Equipment

The facility maintains an inventory of spill and emergency response equipment. Mobile equipment includes a fire engine converted for use during hazardous materials response (HAZMAT), a fire engine, utility vehicle and suburban type vehicle.

The HAZMAT fire engine contains an extensive supply of emergency response materials, containment materials, personnel safety equipment, reference documents and tools. This vehicle is parked at Building 316 when it is not in use.

The Utility Vehicle is garaged in Building 308. This truck is used for spill control, firefighting and related emergency response. Truck equipment includes various types of extinguishers, SCBAs (self-contained breathing apparatus), related safety equipment, emergency medical equipment, spill control equipment and confined space rescue equipment.

The suburban-type vehicle is equipped with fire extinguishers and first aid equipment. This vehicle is used to transport personnel and equipment, and is garaged in Building 308. This vehicle is equipped with emergency medical equipment, which includes, but is not limited to,

backboards, oxygen, and automatic defibrillator. There is a radio on board that allows communication with the Dutchess County 911 Dispatch Center.

Additional emergency response equipment and materials are stored in several locations. Sorbents, booms and salvage drums are stored in the supply building adjacent to Building 308 and in Building 309. Regular drums are stored in the fenced area east of Building 310 and additional salvage drums are stored in Building 309.

Fixed emergency response equipment includes automatic fire and smoke alarms, sprinklers and extinguisher systems as well as spill control structures (dikes, berms and drainage control). Sprinkler systems are installed in Building 309 where hazardous waste is stored in drums. These systems are subject to bimonthly testing by Emergency Control and annual inspection by Factory Mutuals Insurance. The type of sprinkler system installed in each hazardous waste storage area is either an overhead or in-rack wet pipe system. The wet pipe sprinkler system is designed to contain water in the pipes at all times and is, therefore, capable of responding immediately to a fire or explosion. Portable fire extinguishers and fixed extinguishing systems (CO_2) are inspected visually on a monthly basis and annually according to manufacturer's specifications.

Types of portable fire extinguishers utilized at the facility include pressurized water, carbon dioxide, and dry chemical (limited usage). All fire extinguishers utilized at IBM are Factory Mutual and UL Listed Units.

This facility has internal communication equipment for use in emergency situations. This equipment includes a public address system which serves the entire site. In the event of an evacuation of a building/the site, a distinct three tone alarm with a verbal announcement will be transmitted via the public address system. Other internal communication systems include portable radios used by Emergency Control, security, and facilities maintenance, and pagers for Fire Brigade personnel.

7.5.1 Spill and Fire Fighting Equipment

Spill emergency equipment and materials are stored in several locations. Each room in Building 309 contains emergency equipment that is located inside a spill containment cabinet where a seal must be broken in order to open the cabinet. Emergency equipment and materials located in Building 309 are listed on Table 7A-1 in Exhibit 7A. The inventory identified on Table 7A-1 is maintained by Building 309 personnel. The equipment and materials listed in Table 7A-2 in Exhibit 7A are stored in Engine No. 3 at Building 316 and can be transported to the spill site. Other equipment and materials are stored in a small supply building, as shown on Figure 7-5, adjacent to Building 308. The equipment and materials in these buildings are listed in Table 7A-3 in Exhibit 7A. Other equipment, materials, and vehicles available for spill emergencies are listed in Table 7A-4 in Exhibit 7A. The inventories identified on Tables 7A-2 through 7A-4 are maintained and updated by Emergency Control. All site spill response personnel are familiar with the use of the spill emergency equipment and materials.

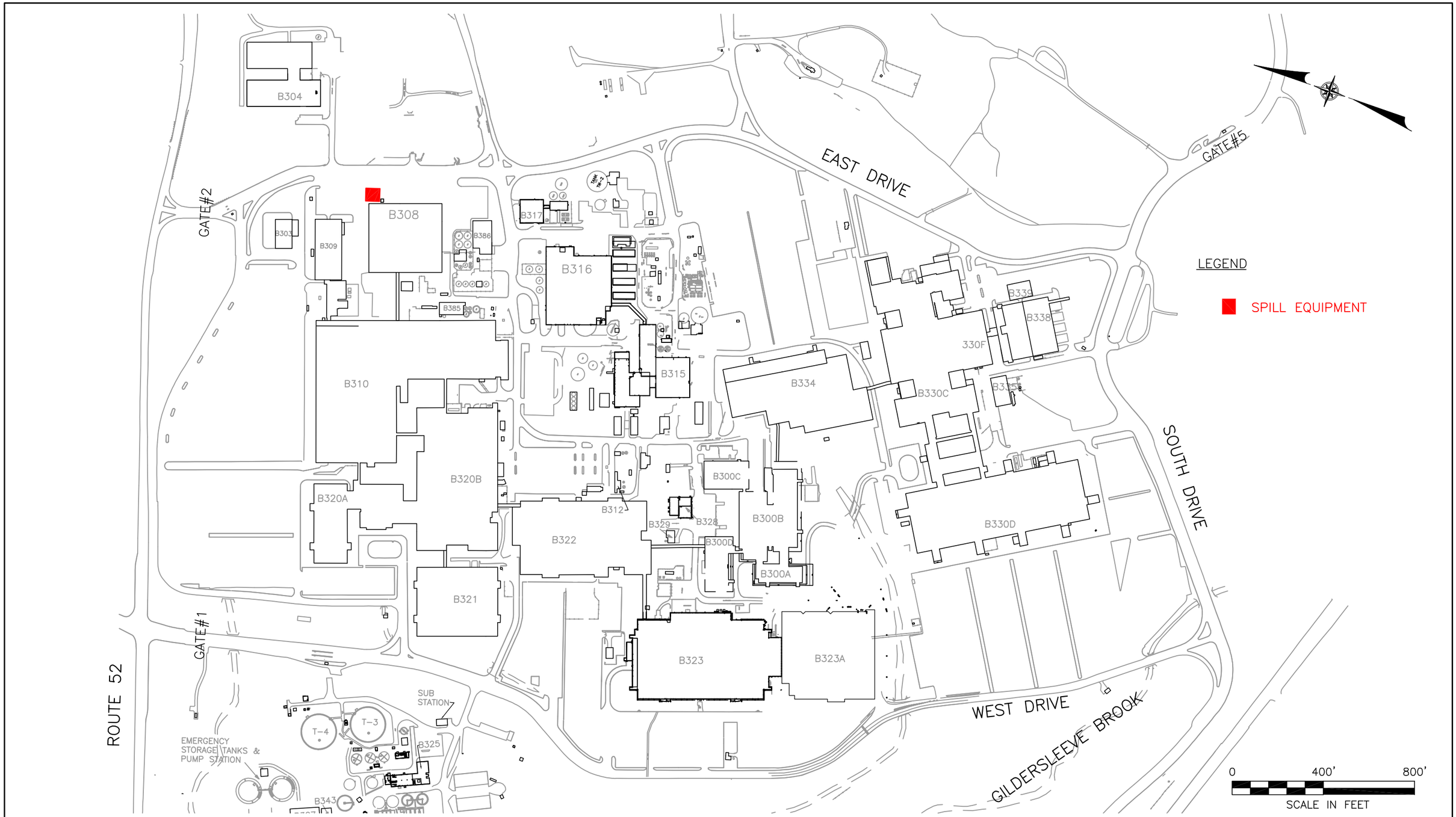
Once a seal is broken, an inventory of the equipment is conducted and the equipment is replenished, as needed. The cabinet is then resealed.

7.5.2 Spill Equipment Description and Capabilities

- Booms/shovels/rakes - consolidation and removal of contaminated debris/oils/ hazardous materials and other residues from spill/release cleanups of hazardous wastes and used oils.

- Absorbent pads/Oilsorb/Speedy-Dry/sandbags - to contain any releases/spills of hazardous wastes, used oils, etc. and to facilitate the removal of contaminated materials.

- Solid/liquid waste drums/drum liners/salvage drums - used for the storage of residuals resulting from release/spill incidents prior to proper disposal at an off-site TSDF. All drums/containers are DOT approved.



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EAST FISHKILL, NEW YORK

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LOCATION OF SPILL EQUIPMENT

FIGURE 7-5

F:\3063\DWG\3063-FIG 7-5.dwg, FIG7-5, 12/1/2010 2:35:49 PM, AStrauss

- Personal protective equipment (PPE) - to be worn by personnel involved in release/spill cleanup activities and includes:
  - Solvex and Trionic Gloves
  - Eye protection (conforming to ANSI Standard Z87.1-1989)
  - Tyvek suits (Saran coated or polyethylene coated)
  - Respirators (air purifying, chemical cartridge specific - see MSDS for further details)
- Traffic cones/barrier tape - warning devices to alert employees and outside personnel of potentially dangerous conditions.
- Gas driven pumps/hoses/gasoline can - for emergency waste transfers from a potentially leaking container to a non-leaking container via a gasoline-powered pump. Gasoline is stored in an OSHA/DOT approved container.
- Drain Blockers - release/spill containment used to prevent hazardous waste from entering the storm water drainage system.
- Fire extinguishers - Type BC containing sodium bicarbonate (for use on flammable liquid or electrical fires).
- Fire hydrants/hoses - used for discharging large volumes of water.
- Spill kits - typically contain spill pads, dikes, socks, PPE, booms and other cleanup equipment.
- Spill mats - sealing off the site's storm water drainage system to prevent releases to any navigable waterway.

7.6 Coordination Agreements

In the event of a hazardous waste emergency, arrangements for assistance have been made with hazardous waste contractors, local and state police forces, local fire departments, hospitals, and emergency medical services (ambulance). Upon notification, the Dutchess County Department of Emergency Response will become the focal point for all external contact with police and fire agencies, hospitals and rescue personnel. Table 7-1 represents a listing of the fire

Table 7-1

EMERGENCY CONTROL ASSISTANCE

Fire Protection:

East Fishkill Fire Department
EFFD Headquarters
Route 52
Hopewell Junction, NY 12533
911 (emergency)
(845) 226-1652 (business)

Dutchess County Department of Emergency Response
Dutchess County Bureau of Fire
348 Creek Road
Poughkeepsie, NY 12601
(845) 486-2081

Hospitals:

St. Lukes Hospital
70 Dubois Street
Newburgh, NY 12550
(845) 561-4400
Note: Emergency Control can notify hospital via radio.

Vassar Hospital
Reade Place
Poughkeepsie, NY 12601
(845) 454-8500
(845) 431-5680 (emergency room)

Note: Emergency Control can notify hospital via radio.

St. Francis Hospital
North Road
Poughkeepsie, NY 12601
(845) 471-2000
(845) 431-8220 (emergency dept.)

Table 7-1 (continued)

EMERGENCY CONTROL ASSISTANCE

Ambulance Service:

East Fishkill Fire District
EFFD Headquarters
Route 52
Hopewell Junction, NY 12533
911

Mobile Life Support Services
69 Dickson Street
Newburgh, NY 12550
(845) 562-4368

Hazardous Waste Contractors:

Techtron Environmental, Inc.
P.O. Box 5597
Essex Junction, VT 05453
(802) 878-9776
(845) 896-4360 (24-hour number)

Shaw Environmental and Infrastructure
(formally IT Corporation; formerly O.H. Materials Corp.)
16406 U.S. Route 224 East
Findlay, OH 45840-9761
(419) 425-6097
(800) 537-9540 (24-hour number)

Onyx Environmental Services (formerly AETC)
1 Eden Lane
Flanders, NJ 07836
(973) 347-7111

Chem Trec (Chemical Transportation Emergency Center)
2501 M Street
N.W. Washington, DC 20037
(800) 424-9300

Note: Chem Trec is an emergency response information service offered by the Chemical Manufacturer's Association.

Table 7-1 (continued)

EMERGENCY CONTROL ASSISTANCE

Security Operations Assistance:

East Fishkill Police Department
Route 376
East Fishkill, NY 12533
(845) 221-2111

Dutchess County Sheriffs Department
P.O. Box 389
Poughkeepsie, NY 12601
(845) 452-0400

New York State Police
Middlebush Road
Wappinger Falls, NY 12590
(845) 298-0398

Fishkill Police Department
401 Route 52
Fishkill, NY 12524
(845) 831-1110

New York State Department of Transportation
4 Burnett Boulevard
Poughkeepsie, NY 12601
(845) 473-4174

Dutchess County Highway Department
Dutchess Public Works Division
38 Dutchess Turnpike
Poughkeepsie, NY 12603
(845) 486-2900

protection agencies, hospitals, ambulance services, police agencies and hazardous waste contractors which could be contacted in the event of a hazardous waste emergency. Coordination Agreements are provided in Exhibit 7B.

The Emergency Control Department is formally recognized by the East Fishkill Fire District and the Dutchess County Department of Emergency Response and New York State as an autonomous fire department. Therefore, in the unlikely event of a fire or explosion at the facility, the Emergency Control Department would be the first department "due on-site." However, if additional firefighting capability is required, the East Fishkill Fire District can respond in an estimated 15 minutes. Periodically, Emergency Control conducts practice fire drills, emergency responses and table top drills at the IBM East Fishkill Facility that include members of the Local Emergency Planning Committee (LEPC), the Dutchess County Department of Emergency Response, Dutchess County Hazardous Materials Team, and representatives of the New York State Police, the fire chiefs from local Dutchess County fire districts and the East Fishkill Fire Department and Rescue Squad.

A copy of this Hazardous Waste Contingency Plan has been provided to East Fishkill Fire District, Dutchess County Department of Emergency Response, East Fishkill Police Department and Dutchess County Sheriff's Department. IBM periodically offers site visits to off-site personnel involved in emergency response to familiarize these individuals with the facility layout and capabilities. In addition, the facility continues to work closely with emergency response and fire/rescue operations personnel throughout the county, state and nation.

On the local municipal level, arrangements have been made with the East Fishkill Police Department to assist Site Security in the event of a hazardous waste emergency. The East Fishkill Police Department generally uses two patrol cars at all times. Staffing during the day shift generally consists of six to eight officers. At other times, two officers and a dispatcher are available. In the event of an emergency, the entire staff could be made available to assist Site Security. Such assistance would primarily involve traffic control during evacuation, providing access for fire protection vehicles, and setting up roadblocks.

The Wappinger office of the New York State Police maintains a staff of troopers, several of whom could be provided to IBM to assist in an emergency. Again, the primary function of the state police would be to control traffic and assist with the off-site aspects of plant evacuation.

If an emergency required local and state police assistance, Site Security Control Center would be responsible for notifying the New York State Department of Transportation and the Dutchess County Highway Department. The purpose of such notification would be to inform them of any road closings or traffic light controls that have been implemented.

The East Fishkill Fire District is most readily available to provide fire protection assistance. Also, the East Fishkill Fire District can be reached directly by telephone or radio. IBM is also connected via radio to the Dutchess County Department of Emergency Response. The Mutual Aid System could provide additional manpower and equipment, if required.

The Fire Brigade consists of approximately 8 individuals (total over all shifts) who are readily available to assist Emergency Control in emergency measures and would be paged, if needed. All fire fighting personnel are required to attend a monthly 3-hour training session offered by Emergency Control which covers instructions in firefighting, emergency practices, use of breathing apparatus (air packs) and spill prevention and control.

IBM has contracted with Mobile Life Support Services for medical BLS/ALS calls and transportation. Requests for additional ambulance services are made by contacting the Dutchess County Department of Emergency Response.

If required, outside contractors would be contacted to determine their immediate availability in assisting with clean-up procedures such as removing, treating and disposing of hazardous wastes.

7.7 Evacuation Plan

The IBM East Fishkill Facility Evacuation Plans are developed and maintained by the individual business units/departments located on-site. Evacuation plans are posted in the work areas throughout the buildings on the site, and annual drills are conducted. Each plan contains a building plan showing evacuation routes and assembly areas.

The facility's internal communication network includes a 3-tone alarm with verbal announcement for evacuation of affected areas.

The Emergency Control Department has the authority to initiate evacuation when required. Emergency Control bases the decision for evacuation on the immediacy of the emergency. This decision will be based on the specific problem considering factors such as the chemical(s) involved, their location, their hazardous properties, potential for spreading, potential for exposure, and the potential for fire or explosions. If the emergency situation presents an imminent hazard (less than 5 minutes response time before injury or damage) then the evacuation is started immediately. Evacuation may be delayed when sufficient time exists to evaluate the extent of the emergency response requirements.

If it becomes necessary to evacuate a building, the following rules will apply:

- The primary objective during an emergency evacuation is to leave the building as soon as possible. The closest exit is the primary exit route, the next nearest exit is an alternate route.
- When instructions are given to evacuate the building, employees will not stop for personnel belongings but will leave immediately from their work areas according to the exit route detailed on the evacuation plan.
- Evacuation proceeding will be controlled by the manager or covering manager of the area.
- After leaving the building, all personnel will assemble 250 feet away from the building in the location designated for their department. Department personnel will await further instructions. All roads and walkways will be kept clear.

IBM will request assistance from local authorities in the event that evacuation of areas surrounding the East Fishkill Facility is determined to be necessary.

7.8 Required Reports

If a release, fire or explosion which could threaten human health or the environment outside the facility has occurred, the IBM Emergency Coordinator or his designated representative, will immediately notify the NYSDEC using the New York State 24-hour Oil and Hazardous Material Spill Notification Number (800-457-7362), as well as either the government official designated as the on-scene coordinator for the East Fishkill area or the National Response Center (800-424-8802).

The verbal report to each agency would include:

- Name and telephone number of reporter.
- Name and address of the facility.
- Time and type of incident (e.g., release, fire).
- Name and quantity of material(s) involved, to the extent known.
- The extent of injuries, if any.
- The possible hazards to human health or the environment outside the facility.

The time, date and details of any incident that requires implementing this Hazardous Waste Contingency Plan will be noted in the operating record for each facility in accordance with 6 NYCRR Part 373-2.4(g)(10). Within 15 days after such an incident, a written report describing the incident will be submitted to:

Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7011

The report will include the following:

- Name, address and telephone number of the owner or operator.
- Name, address and telephone number of the facility.
- Date, time and type of incident (e.g., release, fire).
- Name and quantity of material(s) involved.
- The extent of injuries, if any.
- An assessment of actual or potential hazards to human health or the environment, where this is applicable.
- Estimated quantity and disposition of recovered material that resulted from the incident.

7.9 Resumption of Operations

Operations shall not be resumed in the affected areas of the facility until the following conditions are fulfilled:

- The Emergency Coordinator ensures that no waste that may be incompatible with the released material is treated, stored or disposed of until cleanup procedures are complete.
- All emergency equipment listed in this Hazardous Waste Contingency Plan is clean, replenished and fit for its intended use.
- The NYSDEC Regional Director and Regional Hazardous Waste Engineer and appropriate state and local authorities are notified. The Emergency Coordinator or designee will prepare all necessary reports and notify the NYSDEC that the facility has met the above conditions before operations are resumed.

7.10 Regulatory Notification Requirements

As required by federal and state law, IBM is responsible for reporting any spills of oil, toxic or hazardous substances that may endanger public health or result in contamination of the environment to the appropriate federal and state regulatory agencies. These reporting requirements are mandated by regulations issued pursuant to the following laws and regulations:

- Toxic Substance Control Act (TSCA)
- Clean Water Act (CWA)
- Resource Conservation and Recovery Act (RCRA)
- Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
- Emergency Planning and Community Right-to-Know Act (EPCRA)
- New York State Environmental Conservation Law (ECL) and Navigation Law
- State Petroleum Storage, Hazardous Substances, and Sewer Regulations

The federal and state agency contacts as mandated by law will be notified by IBM. When informed of an incident, IBM will immediately initiate notifications of federal, state and local agencies, as described in Section 7.4.1.

7.11 Revision of the Hazardous Waste Contingency Plan

This Hazardous Waste Contingency Plan will be reviewed, and immediately revised, if necessary, whenever:

- The plan fails in an emergency;
- Changes in facility design, construction, operation, maintenance, or other circumstances which materially increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents or cause changes in necessary emergency response;

- The list of Emergency Coordinators changes;
- The list of emergency equipment changes; or,
- Applicable regulations are revised.

Copies of the Hazardous Waste Contingency Plan and any revisions will be sent to the local police and fire departments, and state and local emergency response agencies as noted in the Plan.

EXHIBIT 7A

SPILL EMERGENCY EQUIPMENT AND MATERIALS

Exhibit 7A-1

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(ROOM 2 AT BUILDING 309)

- 2 pairs of eye goggles
- 2 pairs of safety glasses
- 2 full face shields
- 2 chemical resistant aprons
- 2 chemical resistant coats
- 4 pairs trionic gloves (acids)
- 2 pairs of solvex gloves (solvents)
- 1 pair of leather palm work gloves
- Flashlight
- Floor absorbent
  - Speedy Dry
  - Green Stuff
- Absorbent pads
  - Solvents: 5
- Small absorbent pillows
  - Solvents: 10
- Absorbent socks (PIGS)
  - Aggressive Fluids: 4
  - Solvents: 6
- pH strips
- Spark proof shovel
- Plastic dust pan
- Small broom
- Plastic bags (heavy gauge)
- 1 roll hazard tape
- IBM waste chemical labels
  - Hazardous
  - Nonhazardous
- Pen and/or marker

Exhibit 7A-1 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS (ROOM 7 AT BUILDING 309)

- 2 pairs of eye goggles
- 2 pairs of safety glasses
- 2 full face shields
- 2 chemical resistant aprons
- 2 chemical resistant coats
- 4 pairs trionic gloves (acids)
- 2 pairs of solvex gloves (solvents)
- 1 pair of leather palm work gloves
- Flashlight
- Assorted neutralizers
  - Acid
  - Base
- Floor absorbent
  - Speedy Dry
  - Green Stuff
- Absorbent pads
  - Oils: 5
  - Solvents: 5
- Small absorbent pillows
  - Solvents: 6
- Absorbent socks (PIGS)
  - Aggressive Fluids: 4
  - Solvents: 10
- pH strips
- Spark proof shovel
- Plastic dust pan
- Small broom
- Plastic bags (heavy gauge)
- 1 roll hazard tape
- IBM waste chemical labels
  - Hazardous
  - Nonhazardous
- Pen and/or marker

Exhibit 7A-1 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS (ROOM 8 AT BUILDING 309)

- 2 pairs of eye goggles
- 2 pairs of safety glasses
- 2 full face shields
- 2 chemical resistant aprons
- 2 chemical resistant coats
- 4 pairs trionic gloves (acids)
- 2 pairs of solvex gloves (solvents)
- 1 pair of leather palm work gloves
- Flashlight
- Assorted neutralizers
  - Acid
- Floor absorbent
  - Speedy Dry
  - Green Stuff
- Absorbent pads
  - Aggressive Fluids: 6
- Absorbent socks (PIGS)
  - Aggressive Fluids: 6
- pH strips
- Spark proof shovel
- Plastic dust pan
- Small broom
- Plastic bags (heavy gauge)
- 1 roll hazard tape
- IBM waste chemical labels
  - Hazardous
  - Nonhazardous
- Pen and/or marker
- 2 pairs armshields

Exhibit 7A-1 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS (ROOM 11 AT BUILDING 309)

- 2 pairs of eye goggles
- 2 pairs of safety glasses
- 2 full face shields
- 2 chemical resistant aprons
- 2 chemical resistant coats
- 4 pairs trionic gloves (acids)
- 2 pairs of solvex gloves (solvents)
- 1 pair of leather palm work gloves
- Flashlight
- Assorted neutralizers
  - Solvent
  - Acid
  - Base
- Floor absorbent
  - Green Stuff
- Absorbent pads
  - Oils: 25; Universal Pad
  - Solvents: 25
- Small absorbent pillows
  - Aggressive Fluids: 7
  - Oils: 4
  - Solvents: 4
- pH strips
- Spark proof shovel
- Plastic dust pan
- Small broom
- Plastic bags (heavy gauge)
- 1 roll hazard tape
- IBM waste chemical labels
  - Hazardous
  - Nonhazardous
- Pen and/or marker

Exhibit 7A-2

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(Engine No. 3 at Building 316)

Location	Quantity	Item
Cab	1	Incident Control Board
	3	Pair of short boots
Comp. 1	2	Hard bristle broom
	2	Plastic Squeegee
	2	Flat shovels (long handle)
	1	Long handle spade shovel
	1	Short handle coal shovel
	3	Plastic shovel
	2	Manhole hook
	1	Pick axe
	1	Sledgehammer
	1	24” bolt cutter
Comp. 2	2	25 ft. lengths of 3” hose
	1	Set. Hyd. and spanner wrenches
	1	Soft lengths 1-1/2” hose
	1	4” to 2-1/2” reducer
	2	2-1/2” blind cap
	3	2-1/2” double female
	3	2-1/2” double male
	2	1-1/2” double male
	2	1-1/2” double female
	1	Akron turbojet nozzle (30-125 gpm)
	1	Navy nozzle
	1	2-1/2” gated wye
	1	2-1/2” foam nozzle eductor tube
	1	Hydrant gate
	1	4-1/2” NST - 5” Stort 2 Adapter
Comp. 3	4	Spare 1 hour 4.5 bottles
	2	Grounding rod
	1	Dry chemical ext.
	4	Lite box
	4	4.5 S.C.B.A. w/pass
	2	pH paper test holder

Exhibit 7A-2 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(Engine No. 3 at Building 316)

Location	Quantity	Item
Comp. 4	2	Danger barrier tape roll
Top Shelf	3	Restricted barrier tape roll
	2	Chemical scoop
Lower Shelf	6	Containers of imbiber beads
	1	Can speedy dry
	2	Can acid neutralizer
	2	Can alkaline neutralizer
	1	Bucket Plug ‘N’ dike (dry)
	1	Container for mixing plug and dike at incident scene
Rear Step	2	Class “D” fire extinguisher
	1	CO_2 extinguisher
	1	Dry chemical extinguisher
Rear Comp. 5	1	Roll plastic
Upper	2	Package of plastic bags
	6	Roll duct tape
	1	Box of chemical gloves consisting of solvex (green), trionic (gold) and Fab-Tek (orange)
	1	Box of chemical gloves consisting of neoprene gloves (black) and silver shield gray gloves
	1	Bag of tarps
	2	Encapsulated suits - Yellow - Red bag
	2	Coveralls - Yellow - Red bag
	1	Red bag of chemical boots - smaller size

Exhibit 7A-2 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(Engine No. 3 at Building 316)

Location	Quantity	Item
Comp. 6	1	50’ of nylon rope
Rear Step	1	100’ of nylon rope
Lower Comp.	1	Electric acid pump
	2	Drum chock
	1	Leak and spill kit
	1	4 ton jack
	1	24” pipe wrench
	1	Chain pipe wrench
	4	Bonding strap
	1	Bag of assorted drum plugs
	1	Roll of plastic
	1	Pipe plug kit 3 plugs
Tool Bag	1	18” crescent wrench
	2	10” crescent wrench
	1	6” crescent wrench
	1	10” pipe wrench
	1	Hack saw and assorted blades
	1	Wire brush
	1	Small pipe cutter
	1	Set small files
	1	Phillips screwdriver - 4”
	2	8” pipe wrench
	1	Set drive pin punches
	1	Med. size pipe cutter
	1	Large ball-peen hammer
	1	Small ball-peen hammer
	1	Bronze 3 lb. sledgehammer
	3	Bung wrench
	1	Stanley gray exacto knife w/blades
Comp. 7	1	5 gal. container soapy water
	1	5 gal. container decon water
	2	Scrub brushes
	1	Blanket
		Assorted cribbing
	1	Vetter pipe plug 12”-20”

Exhibit 7A-2 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(Engine No. 3 at Building 316)

Location	Quantity	Item
Comp. 8	1	Vetter leak bandage 2”-8”
	1	Vetter leak bandage 8”-18”
	1	Large vetter tank bandage
	2	Vetter pipe plug
	2	34-ton high pressure lift bag
	2	19-ton high pressure lift bag
	2	10-ton high pressure lift bag
	2	26-ton high pressure lift bag
	1	26-ton long high pressure lift bag
	2	Air equipment cases
		Assorted cribbing
Comp. 9	1	Comb. gas indicator
	1	Mercury spill kit
	1	Resource library
	1	Comb. gas extension tube
	1	Wheel Chock
	1	Box of Tyvek coveralls
Hose Bed	10	5 gal. can speedy-dry
	1	12’-8” dia. PVC pipe
	1	6’-3” dia. PVC pipe
	1	Navy extension applicator nozzle
	1	Bag grey acid pads
	1	Roll of acid absorbent material
	1	Bag oil pad/boom w/pipe attached
	1	Bag yellow booms
	1	Bag red booms
	1	Bag white booms
	2	Bag of spill pads
	1	Bag of all purpose pigs (pink)
	1	Bag of all purpose pillows
	4	Folding chairs
	1	Bale absorbents in tank fill compartment
	1	1/2, 55-gal. drum
	300 ft	3” hose
	3	Foam extinguisher
	5	5 gal. container of AFFF
	1	2” foam nozzle

Exhibit 7A-2 (continued)

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(Engine No. 3 at Building 316)

Location	**Quantity**	**Item**
Front Mattydale	200 ft	1-3/4” hose w/akron turbojet nozzle (forward)
	200 ft	1-3/4” hose w/angus foam master nozzle (rear)

Exhibit 7A-3

SPILL EMERGENCY EQUIPMENT AND MATERIALS
(Building 308)

Item	Part Number	Minimum Quantity
Skimmer Boom 5” DIA x 10’	38H8082	8
Skimmer Boom 8” DIA x 10’	38H8083	8
Sorbent Pad 18” x 18” x 3/16”	38H8087	4
Skimming Mat Pad 16.5” x 20”	38H8086	4
Skimming Mat Roll 38” x 144’	38H8085	2
Pig Pillow 17” x 16” x 2” Thick	38H8081	2 Boxes
Absorbent Sock 3” DIA x 46”	38H8079	12

Exhibit 7A-4

ADDITIONAL EMERGENCY EQUIPMENT, MATERIALS AND VEHICLES

Regular Drums - Fenced Area West of Building 310

Salvage Drums - Building 309

1 Utility Vehicle – Building 308

2 Fire Trucks - Buildings 308 and 316

1 Medical Fly Car - Building 308

EXHIBIT 7B

COORDINATION AGREEMENTS

Emergency Control

IBM

Hudson Valley Research Park
2070 Rt. 52
Hopewell Junction, NY 12533 6531

IBM EAST FISHKILL / HUDSON VALLEY RESEARCH PARK

CONTINGENCY PLAN

CONFIRMATION OF RECEIPT

I have received a copy of the IBM East Fishkill / Hudson Valley Research Parks contingency plan dated May 2002.

AGENCY: EAST FISHKILL POLICE DEPART.

DATE RECEIVED: 10/03/02

RECEIVING AGENT: Signature: Diana Klaston P.A.

Print: DIANA KLASTON, P.A.

Emergency Control

IBM

Hudson Valley Research Park
2070 Rt. 52
Hopewell Junction, NY 12533 6531

IBM EAST FISHKILL / HUDSON VALLEY RESEARCH PARK

CONTINGENCY PLAN

CONFIRMATION OF RECEIPT

I have received a copy of the IBM East Fishkill / Hudson Valley Research Parks contingency plan dated May 2002.

AGENCY: EAST FISHKILL FIRE DISTRICT

DATE RECEIVED: 10/3/02

RECEIVING AGENT: Signature: Julie J. Beyer

Print: Julie J. Beyer

Emergency Control

IBM

Hudson Valley Research Park
2070 Rt. 52
Hopewell Junction, NY 12533 6531

IBM EAST FISHKILL / HUDSON VALLEY RESEARCH PARK

CONTINGENCY PLAN

CONFIRMATION OF RECEIPT

I have received a copy of the IBM East Fishkill / Hudson Valley Research Parks contingency plan dated May 2002.

AGENCY: DUTCHESS COUNTY DEPARTMENT OF EMERGENCY RESPONSE

DATE RECEIVED: 1 OCT 2002

RECEIVING AGENT: Signature: K. R. Dawchon

Print: Kenneth R. Dawchon

Emergency Control

IBM

Hudson Valley Research Park
2070 Rt. 52
Hopewell Junction, NY 12533 6531

IBM EAST FISHKILL / HUDSON VALLEY RESEARCH PARK

CONTINGENCY PLAN

CONFIRMATION OF RECEIPT

I have received a copy of the IBM East Fishkill / Hudson Valley Research Parks contingency plan dated May 2002.

AGENCY: DUTCHESS COUNTY SHERIFF'S DEPARTMENT

DATE RECEIVED: 1 OCT 2002

RECEIVING AGENT: Signature: Sgt. B. Fox

Print: B. FOX

8.0 PERSONNEL TRAINING

8.1 Outline of Training Program

IBM is committed to providing a safe work environment for all of its employees. This commitment is demonstrated through the training required for all personnel involved with hazardous waste. Personnel training regarding hazardous waste is the responsibility of individual department managers.

Employees who are directly involved with handling and/or transportation of hazardous waste are trained in a manner that enables them to identify potential chemical safety hazards and prepare them to respond to emergency situations involving the handling and use of chemicals.

The training program consists of a combination of both classroom and on-the-job training and is specifically tailored to convey the roles and responsibilities to be performed by that individual at the facility.

8.1.1 Job Title and Duties

Certain personnel employed at the facility, based on their job titles, are responsible for the proper management, handling and control of hazardous waste.

Typically, certain site personnel have the lead role in spill control and emergency response. Their responsibilities include providing for protection of personnel, company assets and continuity of business operations through the prevention and control of emergencies. An emergency is defined as any circumstance or combination of circumstances that cause a situation that requires immediate action to rectify.

The responsibilities of these personnel include:

1. Inspection and testing program for all Fire Protection Systems to assure proper operation, including maintenance of fixed detection and extinguishing systems.

2. Building inspection program to maintain fire prevention standards and locate possible personnel hazards.

3. Training program for instruction in operating emergency equipment, hazards awareness, and reporting emergency conditions.

4. Providing the equipment and trained personnel necessary to effectively control and respond to emergencies.

5. Implementation of pre-established plans and procedures.

Other site personnel are responsible for receiving, processing, and arranging for the shipment of all hazardous waste at the East Fishkill Facility, including removal of bulk waste solvents. In addition, these personnel are responsible for operating and maintaining certain industrial waste treatment systems and equipment ensuring uninterrupted operation and waste stream integrity. These personnel are also responsible for managing, inspecting and securing the sludge dumpsters maintained in the Building 386 sludge storage area.

Examples of the descriptions of the job titles and responsibilities are provided in Exhibit 8A.

8.1.2 Training Content, Frequency and Techniques

The following three methods of training are used to familiarize personnel working in the hazardous waste management facilities:

1. On-the-job training.

2. Informal training which usually requires a few hours time, with a company employee acting as instructor (e.g., chemical safety seminar, CPR training, various mechanical and electrical safety seminars, first aid training, SPCC training, emergency control training, etc.).

3. Formal training (e.g., attendance and participation in a short course taught by an outside company or school with the subject being hazardous waste management principles).

The emphasis of each method of training is described below.

On-the-job training is conducted within 6 months of employment to familiarize the employee with the operational and maintenance aspects of the facility that are pertinent to the individual's job description and duties. The specific elements of this training program are:

1. Process Description - conducted by a tour of the facility

   - Training shall be provided concerning:

     – Process function
     – Relationship to other facility

2. Waste Management Procedures

3. Process Operation and Control

   - The personnel assigned to a hazardous waste storage facility may be familiar with the following, as applicable:

     – Startup
     – Normal operation - controls and maintenance
     – Shutdown - partial and normal
     – Communication system
     – Hazardous Waste Contingency Plan
     – Emergency shutdown
     – Description of controls
     – Fail-safe features
     – Operating problems and solutions including inspection and corrective measures
     – Flow controls
     – Monitoring
     – Documentation

4. Familiarity with site operating procedures, safety procedures, chemical precaution sheets and other pertinent documents.

5. Equipment Safety

    - Electrical equipment
    - Mechanical equipment
    - Explosion and fire hazards
    - Materials handling
    - Tank hazards - confined space entry procedures
    - Safety equipment

6. Maintaining Documentation

    - Personnel responsible for hazardous waste management should be familiar with the following elements of reporting and record keeping:

        – Use of manifest system
        – Labeling
        – Incident reporting
        – Developing and maintaining training records
        – Personnel training records
        – Hazardous Waste Contingency Plan records
        – Inspection and operating records

7. Personnel Safety

    - Every person handling hazardous waste or working in a hazardous waste facility must be familiar with:

        – Materials handled at the facility
        – Location of emergency showers, communication systems, fire fighting equipment, evacuation procedures, chemical safety procedures, etc.
        – Personal hygiene
        – Personnel decontamination procedure

This on-the-job training must be completed within 6 months of employment or assignment to a hazardous waste storage facility or to any new position at the hazardous waste storage facility.

Informal training is conducted to reinforce the on-the-job training. This informal training must be completed within 6 months of employment or assignment to a hazardous waste storage facility. One or more of the training programs listed below must be completed by facility personnel, depending upon job descriptions and duties:

- Process Safety Management
- Lead Safety
- Portable Fire Extinguisher
- Protective Apparel
- Power Vehicle Safety
- Other pertinent available seminars

Formal training is adopted on an "as needed" basis pertaining to job description and duties performed by facility personnel.

The manager in charge of the hazardous waste storage facility is responsible for ensuring adherence to the above training plan.

Examples of hazardous waste training certificates for employees engaged in hazardous waste management are provided in Exhibit 8B.

8.1.3 Training Director

In lieu of a training director, administration of the personnel training program is the responsibility of the individual managers who are in charge of staff requiring training in hazardous waste management. These individuals are responsible for providing professional leadership to ensure proper waste handling. Exhibit 8B includes examples of hazardous waste training certificates for employees responsible for managing hazardous waste at the B/309 hazardous waste storage facility. In addition, outside training professionals are periodically brought in to refresh the training staff in the fundamentals of each topic.

8.1.4 Relevance of Training to Job Position

Individual department managers are responsible for providing all waste handling personnel with instruction commensurate with their positions and responsibilities. Operators, for instance, receive training in the materials handling, inspection and labeling practices, but not in the federal and state permitting requirements. All employees are instructed in procedures to be followed in the event of an emergency; the details of this instruction are provided in the following subsection.

8.1.5 Training for Emergency Response

The safety training program for site employees specifically addresses the appropriate actions personnel should take in response to an emergency situation pursuant to the Occupational Safety and Health Administration (OSHA). In the event of an emergency, all employees are instructed to contact the Emergency Services (by contacting the Facility Protection Dispatcher). Facility personnel are instructed that, in an emergency, they should follow the instructions of Emergency Control personnel or responding local authorities. It is emphasized that an individual should not attempt a response action if he or she is not certain of the properties of the material involved and the hazards associated with it, is not equipped with the proper personal protective equipment (PPE), or if they do not have appropriate training.

The facility also undertakes informal training of appropriate personnel. An informal aspect of the training and education of the Emergency Control personnel is the communication that takes place among department personnel. Informal reviews and critiques are routinely held to discuss incident responses with the goal of increasing the effectiveness/efficiency of the responses and disseminating information. The response situations discussed are not only those occurring at the facility, but also at other locations through the exchange of videotapes and information regarding incidents involving local fire departments and fire rescue companies of which Emergency Control department personnel are members. In addition, discussions and training sessions are conducted on new equipment or equipment available at the local fire departments/fire rescue companies.

In order to gain additional experience and insight into various emergency response situations and response methods, Emergency Control personnel have cross-trained with other fire districts (e.g., NYC Hazmat Team). This training is in addition to the volunteer work many Emergency Control personnel are involved in with local fire departments/fire rescue companies.

Personnel designated to respond to emergencies have received training which enables them to act in a manner which is protective of themselves, others and the environment. Personnel with responsibility during an emergency situation have been fully trained in and are familiar with the East Fishkill Facility Hazardous Waste Contingency Plan, which details the required response procedures for emergency situations.

8.2 Implementation of the Training Program

All current employees of the facility have been fully trained. All future employees will complete their training within 6 months of their employment or assignment to any hazardous waste emergency response function or hazardous waste management activity. New employees are not permitted to work unsupervised until they have completed the training program.

The facility maintains records of employees attending hazardous waste management and associated safety training courses. The facility complies with state and federal regulations stipulating that records on current employees must be maintained until facility closure. In addition, training records for former employees are maintained for 3 years following termination of the individual's employment.

EXHIBIT 8A

JOB TITLES AND DESCRIPTIONS

Keith Hedgecock

Job Title: Waste Management Program Coordinator

I. RCRA RELATED JOB DUTIES

A. B/309 Dock Inspection

B. Receive Waste

C. Check Waste Containers

1. Proper label completion / waste classification
2. Proper UN P.O.P. And general condition of container

D. Make Waste Storage Determinations

E. Apply Appropriate Labels

1. Hazardous Waste Accumulation Label if necessary
2. D.O.T. Class/ Non-Hazardous Labels are necessary

F. Store Containers Appropriately

1. Consolidate if applicable

G. Complete the Daily Operating Record

H. Complete the Waste Chemical Warehouse Weekly Inspection

I. Schedule Shipments to Authorized TSDF's

J. Prepare EPA / DOT Hazardous Waste Shipping Labels for Containers

K. Prepare Drums for Final Shipping

1. Closures, condition, label, etc.
2. Tanker inspection checklist if bulk shipment

L. Notify Environmental Lab for Sampling

M. Load Waste onto Approved Hazardous Waste Transporters

N. Prepare Manifests / Bill of Ladings and Associated Documents for Shipping

O. Make Copies and File Originals where Appropriate

1. State copies to be mailed, generator copy on file with LDR copy
2. Emergency Control copy to be placed in 309 book in control center

P. Complete all Associated RCRA Record Log Books

1. 80 day tank removal log
2. Operating Record

II. SKILL AND TRAINING REQUIREMENTS

A. RCRA Hazardous Waste Regulations

B. D.O.T. (49 CFR) Highway Transportation of Hazardous Materials

C. OSHA (29 CFR) 1910.120 HAZWOPER

D. Annual Contingency Plan Training

John F. Barden III

Job Title: Waste Warehouse Lead

I. RCRA RELATED JOB DUTIES

A. B/309 Dock Inspection

B. Receive Waste

C. Check Waste Containers

1. Proper label completion / waste classification
2. Proper UN P.O.P. And general condition of container

D. Make Waste Storage Determinations

E. Apply Appropriate Labels

1. Hazardous Waste Accumulation Label if necessary
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H. Complete the Waste Chemical Warehouse Weekly Inspection

I. Schedule Shipments to Authorized TSDF's

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II. SKILL AND TRAINING REQUIREMENTS

A. RCRA Hazardous Waste Regulations

B. D.O.T. (49 CFR) Highway Transportation of Hazardous Materials

C. OSHA (29 CFR) 1910.120 HAZWOPER

D. Annual Contingency Plan Training

Francis P. Lapi

Job Title: Waste Warehouse Attendant

I. RCRA RELATED JOB DUTIES

A. B/309 Dock Inspection

B. Receive Waste

C. Check Waste Containers

1. Proper label completion / waste classification
2. Proper UN P.O.P. And general condition of container

D. Make Waste Storage Determinations

E. Apply Appropriate Labels

1. Hazardous Waste Accumulation Label if necessary
2. D.O.T. Class/ Non-Hazardous Labels are necessary

F. Store Containers Appropriately

1. Consolidate if applicable

G. Complete the Daily Operating Record

H. Complete the Waste Chemical Warehouse Weekly Inspection

I. Schedule Shipments to Authorized TSDF's

J. Prepare EPA / DOT Hazardous Waste Shipping Labels for Containers

K. Prepare Drums for Final Shipping

1. Closures, condition, label, etc.
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2. Emergency Control copy to be placed in 309 book in control center

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2. Operating Record

II. SKILL AND TRAINING REQUIREMENTS

A. RCRA Hazardous Waste Regulations

B. D.O.T. (49 CFR) Highway Transportation of Hazardous Materials

C. OSHA (29 CFR) 1910.120 HAZWOPER

D. Annual Contingency Plan Training

EXHIBIT 8B

EXAMPLES OF HAZARDOUS WASTE TRAINING CERTIFICATES

IBM EAST FISHKILL

Certificate of Training

KEITH HEDGECOCK

On 04/29/2010 has completed the class

HAZWOPER REFRESHER

In accordance with the requirements of OSHA Standard 29CFR 1910.120

Instructor: _____

Richard J. Carroll, CFPS

Form Date: 07/11/02 Form ID: ENV-001-B
Form Owner: 92DA Form Pages: 1 Retention: S + 10 Years
IBM East Fishkill NYD000707901

Employee Statement of Understanding

I have read and reviewed the Hazardous Waste Contingency Plan and Emergency Procedures, and have had it explained in detail by my manager.

Employee Name: KEITH HEDGECOCK

Department No.: 77DA

Employee's Signature: Keith Hedgecock Date: 12/14/2010

Manager's Signature: Keith Hedgecock Date: 12/14/10

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

CERTIFICATE OF ATTENDANCE

For

Keith Hedgecock

Who attended two days of regulatory training in

ADVANCED RCRA COMPLIANCE FOR GENERATORS

September 22 & 23, 2010

Instructor:
Jeffrey J. Wells, CHMM
HazMat Environmental Group, Inc.
60 Commerce Drive, Buffalo, NY 14218
(716) 748-8288

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

Certificate of Completion

40/49 CFR Computer Based Training

GSI Computer Services, Inc.
822 State Hwy T
Branson, MO 65616

This Certifies that Keith J. Hedgecock
has successfully completed the course in

40/49 CFR HIGHWAY TRANSPORTATION OF HAZARDOUS MATERIALS/WASTE TRAINING ON 4/2/2009

This course includes: Organization/Introduction of 40/49 CFR; Classification and Packing Group Determination; How to use Hazardous Materials Table; Proper Shipping Name determination; Marine Pollutants, PIH's and Hazardous Substance Determination; Performance Oriented Packaging (POP) packaging selection and specification marks; Marking and Labeling requirements; Use of DOT's ERG for Safety and Emergency Response Information; DOT's requirements for basic description, additional descriptions, and certification of shipping papers; Placarding requirements and exceptions; Applicable 40 CFR regulations that apply to the transportation of hazardous wastes; and General Awareness Security Training.They were trained and tested in the following modules of the GSI Computer Services 40/49 CFR Transportation of Hazardous Materials/Waste Course Computer Based Training System.

Introduction 100%
Hazardous Materials Table 90%
Hazardous Substances 90%
Marking & Labeling 100%
Shipping Papers 90%

Classification 100%
Proper Shipping Name 90%
Packaging 90%
ERG & Security Awareness 100%
Placarding 80%

GSI certifies that the Hazmat Employee indicated above has received the training & testing described herein, which meets or exceeds the requirements of Subpart H of Part 172 of 49 CFR. Specific course material will be kept on file by GSI.

By authorization of signatures below this employee is a certified IBM hazmat employee who can perform all functions for hazardous material/waste shipments under 40/49 CFR.

Signed _____ IBM Hazmat Coordinator

Signed _____ IBM Hazmat Employee Manager

IBM EAST FISHKILL

Certificate of Training

JOHN BARDEN III

On 04/29/2010 has completed the class

HAZWOPER REFRESHER

In accordance with the requirements of OSHA Standard 29CFR 1910.120

Instructor: _____

Richard J. Carroll, CFPS

Form Date: 07/11/02 Form ID: ENV-001-B
Form Owner: 92DA Form Pages: 1 Retention: S + 10 Years
IBM East Fishkill NYD000707901

Employee Statement of Understanding

I have read and reviewed the Hazardous Waste Contingency Plan and Emergency Procedures, and have had it explained in detail by my manager.

Employee Name: JOHN F. BARDEN III

Department No.: 77DA

Employee's Signature: [signature] Date: 12/10/10

Manager's Signature: [signature] Date: 12/10/10

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

CERTIFICATE OF ATTENDANCE

For

John Barden

Who attended two days of regulatory training in

ADVANCED RCRA COMPLIANCE FOR GENERATORS

September 22 & 23, 2010

Instructor:
Jeffrey J. Wells, CHMM
HazMat Environmental Group, Inc.
60 Commerce Drive, Buffalo, NY 14218
(716) 748-8288

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

Certificate of Completion

40/49 CFR Computer Based Training

GSI Computer Services, Inc.
822 State Hwy T
Branson, MO 65616

This Certifies that John F. Barden
has successfully completed the course in

40/49 CFR HIGHWAY TRANSPORTATION OF HAZARDOUS MATERIALS/WASTE TRAINING ON 4/2/2009

This course includes: Organization/Introduction of 40/49 CFR; Classification and Packing Group Determination; How to use Hazardous Materials Table; Proper Shipping Name determination; Marine Pollutants, PIH's and Hazardous Substance Determination; Performance Oriented Packaging (POP) packaging selection and specification marks; Marking and Labeling requirements; Use of DOT's ERG for Safety and Emergency Response Information; DOT's requirements for basic description, additional descriptions, and certification of shipping papers; Placarding requirements and exceptions; Applicable 40 CFR regulations that apply to the transportation of hazardous wastes; and General Awareness Security Training.They were trained and tested in the following modules of the GSI Computer Services 40/49 CFR Transportation of Hazardous Materials/Waste Course Computer Based Training System.

Introduction 100%
Hazardous Materials Table 100%
Hazardous Substances 90%
Marking & Labeling 90%
Shipping Papers 100%

Classification 80%
Proper Shipping Name 80%
Packaging 100%
ERG & Security Awareness 100%
Placarding 100%

GSI certifies that the Hazmat Employee indicated above has received the training & testing described herein, which meets or exceeds the requirements of Subpart H of Part 172 of 49 CFR. Specific course material will be kept on file by GSI.

By authorization of signatures below this employee is a certified IBM hazmat employee who can perform all functions for hazardous material/waste shipments under 40/49 CFR.

Signed _____
IBM Hazmat Coordinator

Signed _____
IBM Hazmat Employee Manager

IBM EAST FISHKILL

Certificate of Training

FRAN LAPI

On 01/22/2010 has completed the class

40 HOUR HAZWOPER

In accordance with the requirements of OSHA Standard 29CFR 1910.120

Instructor: _____

Richard J. Carroll, CFPS

Form Date: 07/11/02 Form ID: ENV-001-B
Form Owner: 92DA Form Pages: 1 Retention: S + 10 Years
IBM East Fishkill NYD000707901

Employee Statement of Understanding

I have read and reviewed the Hazardous Waste Contingency Plan and Emergency Procedures, and have had it explained in detail by my manager.

Employee Name: FRAN LAPI

Department No.: 77D

Employee's Signature: _____ Date: 12-14-10

Manager's Signature: _____ Date: 12-14-10

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

CERTIFICATE OF ATTENDANCE

For

Francis Lapi

Who attended two days of regulatory training in

ADVANCED RCRA COMPLIANCE FOR GENERATORS

January 12 & 13, 2010

Instructor:
Jeffrey J. Wells, CHMM
HazMat Environmental Group, Inc.
60 Commerce Drive, Buffalo, NY 14218
(716) 827-7200

HAZMAT
ENVIRONMENTAL GROUP INC.
BUFFALO, N.Y.

9.0 CLOSURE PLAN AND FINANCIAL REQUIREMENTS

9.1 Closure Plan

The following plan was developed by IBM for the closure of the permitted hazardous waste storage rooms within Building 309 located at the East Fishkill Facility. This plan provides the blueprint for the closure of the hazardous waste storage units subject to closure requirements and ensures the proper disposal of hazardous waste, which could be harmful to human health or the environment if not properly disposed of as a result of facility closure. The measures presented in this section will provide the means for implementing proper facility closure while minimizing the risk of possible release(s) of hazardous waste or hazardous waste constituents to the environment during and after facility closure. In addition, this section will provide the basis for presenting the closure cost estimate, as well as documentation of financial assurance for the East Fishkill Facility.

IBM will propose amendments to this Closure Plan whenever significant changes occur in the operations at Building 309 or modifications to the design of the facility affect the implementation of the Closure Plan. Also, as required pursuant to 373-2.7(c)(3), the Closure Plan will also be amended when there is a change to the expected year of closure.

9.1.1 Closure Performance Standard

The East Fishkill Facility generates and stores hazardous waste. The Closure Plan developed for Building 309 includes:

- Cessation of associated hazardous waste receipt.
- Disposal of remaining hazardous waste.
- Decontamination of facility equipment.

These procedures meet the Closure Performance Standard which requires closure that:

- minimizes the need for further maintenance.
- minimizes or eliminates releases of hazardous wastes, hazardous waste constituents, leachate, and contained runoff to groundwater, surface water, or to the atmosphere.

9.1.2 Content of the Plan

There are currently no definite plans to close the facility (or any portion thereof) in the near future. Since the facility is a production facility, hazardous waste associated with that production is continuously generated. These wastes are also continuously removed for treatment or disposal. As a result of the inspection and testing program, tanks and transfer lines are identified for replacement (or abandonment) when such inspections indicate their service life is limited.

9.1.2.1 - Notification of Closure

IBM shall notify the Commissioner of the NYSDEC at least 45 days prior to the date that closure of any permitted hazardous waste storage unit is anticipated to initiate.

9.1.2.2 - Decontamination Procedures

Decontamination procedures for the permitted Building 309 hazardous waste storage rooms will consist of the following:

- All hazardous waste will be removed for proper off-site disposal by a licensed waste hauler in accordance with all applicable federal, state and local regulations. The maximum inventory at the time of closure is presented in Table 4-1 of this document.
- All employees and contractors are required to wear appropriate personal protection equipment while performing the decontamination of Building 309.
- The floors, metal grating, floor drains and spill trenches will be thoroughly cleaned utilizing an appropriate cleaning agent to remove residual contaminants.

- Initial decontamination of the permitted rooms within Building 309 will include cleaning of the floors, metal grating, floor drains and spill trenches with hot water/steam and appropriate detergent. This will be followed by a triple rinse of the entire area using pressure spray equipment.

- The loading/unloading area will be thoroughly cleaned by utilizing an appropriate detergent to remove residual contamination. The loading/unloading area will be thoroughly washed utilizing a steam cleaner or pressure spray equipment.

- Waste cleaning solutions, decontamination and rinse water generated during the closure activities will be collected and pumped into tank trucks or drums for either off-site disposal or treatment at the on-site Industrial Wastewater Treatment Plant. Otherwise, IBM will dispose of the wash waters off-site as hazardous waste.

9.1.2.3 - Verification of Decontamination

Upon completion of the decontamination activities, the effectiveness of the decontamination procedure will be determined by collecting rinse water, wipe, and/or core samples from Building 309 load/unload areas and concrete sumps located within Building 309. The rinse water samples will be analyzed for the constituents of the waste previously stored in the associated room in accordance with the IBM East Fishkill Facility Waste Analysis Plan (Exhibit 3A of this document).

9.1.3 Time Allowed for Closure

With the exception of decontaminating hazardous waste facilities, the closure procedures (i.e., final disposal of hazardous wastes) are identical to normal operating practices and will not require special handling or disposal facilities.

All hazardous wastes will be removed from any permitted hazardous waste storage room in Building 309 that is to be closed within 90 days of receipt of the final volume of waste. All closure activities will be completed within 180 days of this receipt date or following approval of the Closure Plan, if that is later.

9.1.3.1 - Extension for Closure Time

At the time of closure, if an extension is required, all applicable procedures will be followed in requesting such an extension.

9.1.4 Certification of Closure

Within 60 days of completion of final or partial closure of the facility or any hazardous waste management unit, IBM will submit to the NYSDEC a certification of closure stipulating that the unit/facility was closed in accordance with the approved Closure Plan, as required under 373-2.7(f). The certification will be signed by IBM and by an independent professional engineer registered in New York State.

9.2 Closure Cost Estimate

The closure cost estimate for the IBM East Fishkill Facility is provided in Exhibit 9A at the end of this section. The closure cost estimate is based on the point in the East Fishkill Facility's operating life when the extent and manner of operation would make closure most expensive and is based upon third party contractor costs. The closure cost estimate does not include any salvage value that may be realized by the sale of hazardous waste, facility structures, equipment, or other facility assets at the time of final closure. The itemized costs are specified in 2011 dollars and will be adjusted annually, within 30 days of the close of its fiscal year, using the most recent Implicit Price Deflater for Gross National Product published by the U.S. Department of Commerce. The closure cost estimate will also be revised whenever a change in the closure plan affects the cost of closure.

The closure cost estimate includes provision for the removal of hazardous waste, decontamination of facility structures, disposal of wash solvents, sampling surrounding soil and solid surfaces to verify decontamination, and closure certification. The total closure cost estimate includes 15 percent administrative and 20 percent contingency costs.

9.3 Financial Assurance for Closure

The financial assurance mechanism used to assure sufficient resources for closure is the corporate financial test specified in 6 NYCRR 373-2. Documentation of this mechanism is submitted annually by the IBM Corporate Environmental Affairs office and is included as Exhibit 9B of this document. This documentation includes a letter from the Chief Financial Officer using the wording specified in 6 NYCRR 373-2, as well as an auditors report confirming the results of the test.

9.4 Liability Requirements

IBM has sudden and non-sudden accidental coverage as described in Exhibit 9B of this document.

EXHIBIT 9A

CLOSURE COST ESTIMATE

EXHIBIT 9A
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
CONTAINER STORAGE AREAS
CLOSURE COST ESTIMATE

Task	Room 2 Closure Cost Estimate	Room 7 Closure Cost Estimate	Room 8 Closure Cost Estimate	Total Closure Cost Estimate
Room Decontamination and Closure				
Removal of Remaining Hazardous Waste	$270,000	$446,200	$66,000	$782,200
Room Decontamination	$27,500	$30,000	$7,000	$64,500
Equipment Decontamination	$1,000	$1,000	$1,000	$3,000
Transportation/Disposal of Decontamination Waste Generated during Closure Activities	$14,900	$19,800	$2,400	$37,100
Subtotal Room Decontamination and Closure	$313,400	$497,000	$76,400	$886,800
Verification of Decontamination	$3,100	$3,200	$2,900	$9,200
Certification of Closure	$9,700	$10,000	$9,200	$28,900
Subtotal Closure Costs	**$326,200**	**$510,200**	**$88,500**	**$924,900**
Administrative Charges (15%)	$49,000	$76,600	$13,300	$138,900
Subtotal	**$375,200**	**$586,800**	**$101,800**	**$1,063,800**
Contingency (20%)	$75,100	$117,400	$20,400	$212,900
Grand Total Container Storage Areas (2011 dollars)	**$450,300**	**$704,200**	**$122,200**	**$1,276,700**

EXHIBIT 9B

DOCUMENTATION OF FINANCIAL ASSURANCE

IBM

8976 Wellington Road
Manassas, VA 20109

March 28, 2011

Mr. Dale A. Desnoyers
Director
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7011

Subject: RCRA Financial Assurance
IBM East Fishkill NYD000707901
IBM Kingston NYD001359694
IBM Owego NYD986874501
IBM Poughkeepsie NYD080480734
IBM Yorktown NYD084006741

Dear Mr. Desnoyers:

Please find enclosed the following items:

1. An amended Irrevocable Standby Letter of Credit for IBM's facilities in East Fishkill, Kingston, Owego, Poughkeepsie and Yorktown, New York (L/C 093127-793) issued by Intesa SanPaolo, dated March 2011. The value of the Letter of Credit has been increased from one hundred three million, three hundred twenty nine thousand dollars ($103,329,000 USD) to one hundred six million, three hundred seventy five thousand dollars ($106,375,000 USD). This represents an increase in value of three million, forty six thousand dollars ($3,046,000). These values are allocated as follows:

IBM FACILITY	ADDRESS	
East Fishkill	Route 52 Hopewell Junction, NY 12533	Closure - $1,276,700 Corrective Action - $51,602,100
Kingston	Neighborhood Road Kingston, NY 12401	Post Closure - $2,582,900 Corrective Action - $17,240,000
Owego	Route 17C East Owego, NY 13827	Corrective Action - $7,349,000
Poughkeepsie	South Road Poughkeepsie, NY 12602	Closure - $1,184,300 Corrective Action - $24,558,000
Yorktown	Route 134 Yorktown Hgts, NY 10598	Closure - $582,000

2. An amended Schedule A of the Standby Trust Agreement issued by Wells Fargo Bank. The remaining portions of the original Standby Trust Agreement remain valid.

3. A current Hazardous Waste Facility Certificate of Liability Insurance.

If you have any questions regarding IBM's submission, please contact Michael Kominek of my staff at 703-257-2586.

Very truly yours,

Edan Dionne
Director
Corporate Environmental Affairs

Enc.

cc: Mr. Michael Kominek - IBM Manassas

Mr. Michael Galligan - IBM Somers

Ms. Monica Baccari - IBM Armonk

Ms. Jacqueline Braungart - IBM East Fishkill

Mr. Kevin Whalen - IBM Manassas

Mr. Frank Langone - IBM Yorktown

Mr. Dean Chartrand - IBM Manassas

Ms. Angela Chieco
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7011

AMENDED SCHEDULE A
MARCH 2011

IBM FACILITY	ADDRESS	
East Fishkill	Route 52 Hopewell Junction, NY 12533	Closure - $1,276,700 Corrective Action - $51,602,100
Kingston	Neighborhood Road Kingston, NY 12401	Post Closure - $2,582,900 Corrective Action - $17,240,000
Owego	Route 17C East Owego, NY 13827	Corrective Action - $7,349,000
Poughkeepsie	South Road Poughkeepsie, NY 12602	Closure - $1,184,300 Corrective Action - $24,558,000
Yorktown	Route 134 Yorktown Hgts, NY 10598	Closure - $582,000

Hazardous Waste Facility Certificate of Liability Insurance

1. **Illinois Union Insurance Company** (the "Insurer"), of **P.O. Box 1000, 436 Walnut Street, Philadelphia, PA 19106**, hereby certifies that it has issued a policy of liability insurance (the "Policy") covering bodily injury and property damage to **IBM Corporation**, (the "insured"), of **1 New Orchard Road, Armonk, New York 10504-1722** in connection with insured's obligation to demonstrate financial responsibility under **6 NYCRR Part 370 et seq.**

The coverage applies at:

EPA ID Number	FACILITY NAME	FACILITY ADDRESS
NYD000707901	IBM Corporation	2070 Route 52, Hopewell Junction, NY 12533
NYD986874501	IBM Corporation	1801 Route 17C East, Owego, NY 13827
NYD080480734	IBM Corporation	2455 South Road, Poughkeepsie, NY 12602
NYD084006741	IBM Corporation	1101 Route 134, Yorktown Hgts, NY 10598

for insert **sudden accidental** occurrences. The limits of liability are **$1,000,000** each occurrence and **$2,000,000** annual aggregate, exclusive of legal defense costs. The coverage is provided under policy number **PPL G24883942 002**, issued on **09 October 2010**.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

a. Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy

b. The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with the right of reimbursement from the insured for any such payment made by the Insurer. This provision does not apply with respect to the amount of any deductible for which coverage is demonstrated by virtue of the Insured's satisfying the financial test for liability coverage as established by the New York Sate Department of Environmental Conservation (hereinafter "NYSDEC") or by the Commissioner of NYSDEC (hereinafter referred to as the "Commissioner,") as specified in 6 NYCRR Part 370 et seq.

c. Whenever requested by the Commissioner, the Insurer agrees to furnish to the Commissioner a signed duplicate original of the policy and all endorsements.

d. Cancellation of the insurance, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice certified mail, return receipt requested, and only after the expiration of 60 days after a copy of such written notice is received by the Commissioner.

e. Any other termination of the insurance will be effective only upon written notice, certified mail, return receipt requested, and only after the expiration of thirty (30) days after a copy of such written notice is received by the Commissioner.

I hereby certify that the wording of this instrument is identical to the wording specified in 6 NYCRR 373-2.8(j) as such regulation was constituted on the date first above written, and that the Insurer is authorized by the Superintendent of the New York State Department of Insurance to conduct the business of an Insurer or is eligible to provide insurance as an excess or surplus lines insurer in the State of New York.

William P. Hazelton
Senior Vice President, ACE Environmental Risk
Authorized Representative of Illinois Union Insurance Company
436 Walnut Street, WA07A
Philadelphia, PA 19106
Date: 09 October 2010

Hazardous Waste Facility Certificate of Liability Insurance

1. **Illinois Union Insurance Company** (the "Insurer"), of **P.O. Box 1000, 436 Walnut Street, Philadelphia, PA 19106**, hereby certifies that it has issued a policy of liability insurance (the "Policy") covering bodily injury and property damage to **IBM Corporation**, (the "insured"), of **1 New Orchard Road, Armonk, New York 10504-1722** in connection with insured's obligation to demonstrate financial responsibility under **6 NYCRR Part 370 et seq.**

The coverage applies at:

EPA ID Number: NYD001359694
FACILITY NAME: IBM Corporation
FACILITY ADDRESS: 300 Enterprise Drive, Kingston, NY 12401

for insert **sudden and non-sudden accidental** occurrences. The limits of liability are **$5,500,000** each occurrence and **$11,000,000** annual aggregate, exclusive of legal defense costs. The coverage is provided under policy number **PPL G24883942 002**, issued on **09 October 2010**.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

a. Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

b. The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with the right of reimbursement from the insured for any such payment made by the Insurer. This provision does not apply with respect to the amount of any deductible for which coverage is demonstrated by virtue of the Insured's satisfying the financial test for liability coverage as established by the New York Sate Department of Environmental Conservation (hereinafter "NYSDEC") or by the Commissioner of NYSDEC (hereinafter referred to as the "Commissioner,") as specified in 6 NYCRR Part 370 et seq.

c. Whenever requested by the Commissioner, the Insurer agrees to furnish to the Commissioner a signed duplicate original of the policy and all endorsements.

d. Cancellation of the insurance, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice certified mail, return receipt requested, and only after the expiration of 60 days after a copy of such written notice is received by the Commissioner.

e. Any other termination of the insurance will be effective only upon written notice, certified mail, return receipt requested, and only after the expiration of thirty (30) days after a copy of such written notice is received by the Commissioner.

I hereby certify that the wording of this instrument is identical to the wording specified in 6 NYCRR 373-2.8(j) as such regulation was constituted on the date first above written, and that the Insurer is authorized by the Superintendent of the New York State Department of Insurance to conduct the business of an Insurer or is eligible to provide insurance as an excess or surplus lines insurer in the State of New York

William P. Hazelton
Senior Vice President, ACE Environmental Risk
Authorized Representative of Illinois Union Insurance Company
436 Walnut Street, WA07A
Philadelphia, PA 19106
Date: 09 October 2010

INTESA SANPAOLO

Intesa Sanpaolo S.p.A.
One William Street
New York, NY 10004

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SWIFT BCITUS33

Page: 1/1 Place and date of issue: NEW YORK 3/15/2011 Date and place of expiry: 3/25/2012 NEW YORK	Irrevocable Letter of Credit L/C Number: 093127-793
Applicant: INTERNATIONAL BUSINESS MACHINES CORPORATION ONE NEW ORCHARD ROAD ARMONK, NY 10504	Beneficiary: SEE BELOW

BENEFICIARY:
MR. PETER GRANNIS COMMISSIONER
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NEW YORK 12233-1011
ATTN: DIVISION OF SOLID & HAZARDOUS MATERIALS 625 BROADWAY ALBANY, NEW YORK 12233-7250

WE HEREBY AMEND OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. 093127-793 IN YOUR FAVOR AS FOLLOWS:

NO.1-CREDIT AMOUNT INCREASED BY US$ 3,046,000.00
BALANCE NOW TO READ AS US$ 106,375,000.00

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

KINDLY ACKNOWLEDGE RECEIPT BY MAIL.

KENNETH LEISENRING
ASST. VICE PRESIDENT

DANIEL BRUNO
FIRST VICE PRESIDENT

MARCH 15, 2011

10.0 OTHER STATE AND FEDERAL LAWS

This section is presented to demonstrate compliance with 6 NYCRR 373-2.5 entitled, "Manifest System, Record Keeping and Reporting," as well as annual generator and hazardous waste reduction reporting requirements.

10.1 Manifest Requirements

As discussed in previous sections of this Part 373 Permit Renewal Application, the IBM East Fishkill Facility manages hazardous waste under the following scenarios:

- generates hazardous waste for on-site storage prior to off-site treatment and disposal.
- receives hazardous waste from its tenants of the IBM East Fishkill Facility/Hudson Valley Research Park for on-site storage prior to off-site treatment and disposal.

As a result, the manifest requirements applicable to generators of hazardous waste pursuant to Section 372.2(b) are complied with by IBM and its tenants for hazardous waste transported from Building 309 for off-site treatment and disposal. In addition, as required by the Land Disposal Restrictions, the required record keeping in accordance with 6 NYCRR 376.1(g) is maintained.

10.2 Operating Record

In accordance with 6 NYCRR 373-2.5(c), the IBM East Fishkill Facility is required to maintain an operating record at the facility. A description of the items included in the operating record follows:

- Date, type, location and quantity of hazardous waste stored
- Date, type, location and quantity of hazardous waste generated
- Records and results of waste analyses

- Summary reports and details of all incidents requiring implementation of the IBM East Fishkill Facility Hazardous Waste Contingency Plan
- Records and results of inspections (only required to be maintained for 3 years)
- Monitoring, testing or analytical data and corrective action where required
- For off-site facilities, notices to generators as specified in Section 373-2.2(d)(2)
- Manifests (only required to be maintained for 3 years)
- Closure plan and closure cost estimates.

In addition, as required by 6 NYCRR 373-2.5(c)(2)(ix), a certification is made, no less often than annually, that a program is in place to reduce the volume and toxicity of hazardous waste that is generated to the degree determined by IBM to be economically practicable. Further, IBM certifies that the method of storage, treatment and disposal is the most practicable method currently available to the permittee, which minimizes the present and future threat to human health and environment.

10.3 Availability, Retention and Disposition of Records

In accordance with 6 NYCRR 373-2.5(d), operating records listed in the previous section will be retained until facility closure and will be available for inspection at all reasonable times by a representative of the NYSDEC.

10.4 Annual Report

As a generator of hazardous waste within the State of New York, IBM is required to comply with the annual reporting requirements specified in 6 NYCRR 373-2.5(e). The Hazardous Waste Report is prepared annually by IBM for the East Fishkill Facility and submitted to the Commissioner of the NYSDEC by March 1st for the preceding calendar year.

10.5 Hazardous Waste Reduction Plans

Since the IBM East Fishkill Facility generated more than 25 tons of hazardous waste per year and had received a Part 373 Permit from the NYSDEC, it was required to develop and submit a Hazardous Waste Reduction Plan (HWRP) by July 1, 1991. In subsequent years, Annual Status Reports and Biennial Updates to the HWRP have been prepared and submitted in accordance with the provisions of the Hazardous Waste Reduction Act.

IBM is strongly committed to reducing the volume of hazardous waste generated at the East Fishkill Facility and will continue to comply with the applicable requirements of the Hazardous Waste Reduction Act including the submittal of Annual Status and Biennial Update reports.

11.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner:

Signature: Rachel Shatz

Name: Rachel Shatz

Title: Vice President, Planning and Environmental Review

Company: New York State Urban Development Corp.
d/b/a Empire State Development Corporation

Date: 6/21/11

Operator:

Signature: H A Dimarco

Name: Henry Dimarco, Jr.

Title: Director MHV Packaging & Test
EF Senior Location Executive

Company: International Business Machines Corporation

Date: 6/20/11