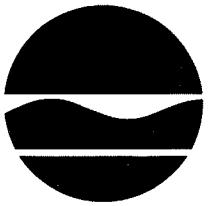
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Hazardous Waste Facilities
50 Wolf Road, Albany, New York 12233-7252
518-457-9236 FAX 518-457-9240



John P. Cahill
Commissioner

M E M O R A N D U M

TO: Paul Counterman, Chief, Bureau of Hazardous Waste Management

FROM: Edwin Dassatti, Chief, Bureau of Hazardous Waste Facilities

SUBJECT: IBM Poughkeepsie Operating Permit

DATE: November 3, 1997

On October 27, 1997 the Division of Environmental Permits, Region 3, issued the Final Part 373 Operating Permit to IBM Poughkeepsie.

Attached for your use, are two copies of the final permit and one copy of the updated permit application with the permit references.

Attachment

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York, 12233-7252
Telephone (518) 457-9255 Fax (518) 457-9240

John P. Cahill
Commissioner

MEMORANDUM

TO: Paul Counterman, Director, Bureau of Hazardous Waste Management, C.O.

FROM: Edwin Dassatti, Director, Bureau of Hazardous Waste Facilities, C.O. VAV FOR E.D.

SUBJECT: IBM Poughkeepsie Operating Permit

DATE: November 3, 1997

On October 27, 1997 the Division of Environmental Permits, Region 3, issued the Final Part 373 Operating Permit to IBM Poughkeepsie.

Attached, for your use, are two copies of the final permit and one copy of the updated permit application which the permit references.

RESPONSE TO COMMENTS
FOR
DEC PERMIT NO. 3-1346-00035/00123
6NYCRR 373 HAZARDOUS WASTE MANAGEMENT PERMIT
ISSUED TO
INTERNATIONAL BUSINESS MACHINES CORPORATION
POUGHKEEPSIE, NEW YORK

The only comments received during the public notice period were from the facility. The following are the Permittee's comments and the responses to these comments:

I. Comments on Draft Permit Cover Pages

Comment 1 - Cover Page 1

Please insert page numbers 1 through 4 on the cover pages of this permit.

Response

Page numbers were inserted on pages 1 through 4 on the cover pages.

Comment 2 - Cover Page 2, Item 10

Please include a date in line 3.

Response

The date of last revision of the Permit Application of August 28, 1997 (as per the comments received from IBM during the public notice period) was inserted in Item 10.

Comment 3 - Cover Page 2 , Item 10, Appendix III-A

Please correct the typographical error - Conservation

Response

Thus typographical error has been corrected.

Comment 4 - Cover Pages 3 and 4, Bottom Left Corner

Please insert the Permit Number and the Facility Number.

Response

The Permit Number and the Facility Number (USEPA I.D. Number) have been inserted on the cover page and pages 3 and 4.

II. Comments on Draft Module I

Comment 1- Page I-1, Section A

Please change the references to 6NYCRR 373 from 373-3.27, 373-3.28 and 373-3.29 to 6NYCRR 373-2.27, 373-2.28 and 373-2.29 respectively.

Response

The permit was not changed in response to this comment. In order to incorporate future changes in regulations that are to go into effect immediately and to be at least as strict as the Federal requirements, the permit follows the Federal practice of citing interim status regulations.

Comment 2 - Page I-2

Please change the Document Name for Appendix 7C to "Building 028 and 034 Evacuation Routes". This change is in accordance with the removal of the tanks in Building 004-3 as requested in the attached changes in the permit application.

Please change Attachment X, Fugitive Emissions Control Program, to Attachment XI and add February 1997 as the corresponding date.

Response

The permit was changed in accordance with this comment.

Comment 3 - Pages I-3 to I-6

Please replace the copyright symbol in sections C.1(b), C.4(c), D.1(b), D.3(c), D.4(c), D.5(c), D.7(c) and D.8(c) with (c).

Response

This typographical error in the permit was corrected.

Comment 4 - Page I-3, Section C.2(d)

Please correct reference to 6NYCRR 373-1.4(g).

Response

This typographical error has been corrected.

Comment 5- Page 1-3, Section C.3

Please correct sections j, k, m, and n by changing (I) to (I).

Response

This typographical error has been corrected.

Comment 6 - Page 1-3, Section C.4(e)

Typographical error - Determinations should be Determination.

Response

This typographical error has been corrected.

Comment 7 - Page I-3, Section D-5, second paragraph.

IBM requests that a third sentence be added to read as follows:

The log itself is not part of the permit, updates do not require approval by the Department, and will not be recorded in the log.

Response

The permit was modified to incorporate the following statement: "The log itself is not part of the permit, updates do not require approval by the Department, however they will be recorded in the log." The recording of updates in the log is necessary so that it can be determined that all copies of the final permit have been revised to incorporate the latest updates.

III. Comments on Draft Module III

Comment 1- Page III-1, Section III-A.2

IBM requests that the summary of corrective action which is attached as Appendix A of these comments be inserted replacing the second paragraph of this section which describes corrective measures that have been performed at the site or are ongoing.

Response

Paragraph two has been replaced by Appendix A; the detailed summary of corrective actions undertaken by the Permittee.

Comment 2- Page III-2, Table III-1

IBM requests that the revised Table III-1 attached as Appendix B be inserted to replace the existing Table III-1. The attached Table III-1 provides an updated status and has added NYSDEC SWMU numbers where none existed. Changes in the list have been highlighted for ease of review. In addition, an expanded Table III-1 has been included in order to clarify the changes made to Table III-1.

Response

The updated status of SWMU's and AOC's in the revised Table III-1 has been placed in the permit. Highlighting has been removed.

Comment 3- Page III-21 to III-26.

IBM requests that the existing table indicating SWMUs requiring no further action be replaced with the table attached as Appendix C.

Response

The permit has been modified by inserting the table (attached as Appendix C) to update the status of the SWMU's requiring no action.

Comment 4 - Page III-27, top of page

IBM requests that Module Conditions III-E.2 and 3 be rewritten as follows:

2. Compliance Schedule for RCRA Facility Assessment ("RFA") Sampling Visit Work Plan

   (a) On the basis of the RCRA Facility Assessment Report dated August 1992, as revised, the Commissioner has determined that RFA sampling or testing must be performed at the following SWMUs and/or AOCs identified in Module Condition A.2, at which the potential exists for release(s) of hazardous waste(s) and/or hazardous constituents to have occurred:

   Please insert table addressed by Comment 5.

   (b) (as proposed in Comment 6)

   (c) Within one hundred twenty (120) calendar days after the effective date of this permit, the Permittee is to submit a RFA-SV Work Plan for assessing the integrity of the SWMU identified in Module Condition E.2.(a) as the Tank Crib Sump (SWMU Number 98).

   The Permittee shall develop the RFA-SV Work Plan in accordance with the RCRA Sampling Visit Work Plan Outline specified in 373 Appendix III-F and the most recent version of the RCRA Quality Assurance Project Plan Guidance.

   (d) Following submission of the RFA-SV Work Plans set forth in Module Condition E.2(b) and (c), subsequent activities for the plans shall proceed in accordance with the following schedule:

   (I) Meeting between the Permittee and the Department to discuss Plan comments,

as appropriate; and

(ii) Submission of revised Plan(s) to the Commissioner for approval within forth-five (45) calendar days of the above-described meeting. If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a Plan(s) to the Commissioner, according to a schedule specified by the Department, not to exceed forth-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner.

3. Compliance Schedule for RFA-SV Work Plan Implementation

The Permittee shall begin implementation of the approved RFA-SV Work Plans for the SWMUs/AOC identified in Module Condition E.2(a), including the approved "RCRA Facility Assessment Sampling Visit Work Plan, IBM Poughkeepsie Main Plant Site," dated May 6, 1997, according to the schedule made part of the approved RFA-SV Work Plans.

Response

This response is indexed to the letter preceding the paragraph being commented on.

2(a) This reworded sentence has been inserted in the permit. The rewording does not change the original meaning of the sentence. The updated table of SWMU's requiring a sampling visit, or integrity testing has been inserted into the permit.

2(b) See response for Comment 6.

2(c) Since this section now references testing the Truck Crib Sump, citing of Appendix III-E has been changed to III-F which is the Sampling Visit Work Plan Outline for the Truck Crib Sump. Appendix III-D has been revised to incorporate the change to one hundred twenty days for submission of the RFA-SV Work Plan.

3. This revised wording has been placed in the permit since the sampling visit work plan for these SWMU's have now been approved.

Comment 5 - Page III-27, Section III-E.2.(a)
IBM requests that the existing table indicating SWMUs requiring a RCRA Facilities Assessment - Sampling Visit (RFA-SV)be replaced by the table attached as page 6 which reflects the current status and additional SWMUs as agreed to by IBM and the NYSDEC.

Response

This revised table has been inserted into the permit.

Comment 6 - Page III-27, Section III-E.2(b)

As requested at the meeting with the NYSDEC and IBM in March 1997, IBM submitted to the NYSDEC in May 1997 a report entitled *Analysis of Sedimentation Characteristics in Areas Identified by the NYSDEC Draft Part 373 Permit Appendix III-F, RFA-SV Work Plan Outline - Sediment Sampling* in order to address a NYSDEC proposed RFA - SV of the Hudson River sediments adjacent to IBM's outfall 003 and the H-107 outfall into the Hudson River.

NYSDEC's objective for proposing this RFA-SV was to determine if sediments in these areas showed evidence of historical contamination from unknown releases from these outfalls.

IBM's submission in May 1997 completed Phase I of the RFA-SV as outlined in 373 APPENDIX III-E which included sampling of the sediments adjacent to the outfalls in order to determine the depth of sediments, provide a visual description of the sediments and to determine the grain size of the sediments present.

The May 1997 report concluded the following:

A. The physical characteristics and observed sediments in the areas around the present and prior entry of H-107 to the Hudson River and Outfall 003 in the River do not indicate the presence of any sediments whose origins can be linked to the outfalls presently or for any historical period.

B. Discharges from these outfalls mix with the main river flows and any fine grained material in the discharges is transported and mixed with the ambient river load of similar fine grained material

C. The fine grained sediments found in these areas are typical of ambient sediments in the river at similar locations.

It was IBM's understanding that the NYSDEC would make a determination regarding the Hudson River RFA-SV prior to the public comment period. IBM respectfully requests that the NYSDEC review the referenced document and provide to IBM notice of whether the RFA-SV will be required. If the RFA-SV for the Hudson River is required, IBM requests the following change to III-E.2(b):

Within one hundred twenty calendar days (120) after receipt of notice from the department that a RFA-SV is required for assessing the release of hazardous waste and/or hazardous constituents at the AOC identified in Module Condition E.2(a) as the adjacent Hudson River sediments, the permittee shall submit a sampling visit work plan.

The permittee shall develop the RFA-SV Work Plan in accordance with the RCRA Sampling Visit Work Plan Outline specified in 373 APPENDIX III-E and the most recent version of the RCRA Quality Assurance Project Plan Guidance.

Response

A final determination has not been made on sampling the Adjacent Hudson River Sediments, therefore the proposed wording in the Permittee's comment has been inserted in Section III-E.2(b) to allow time to write the sampling visit work plan if notified by the Department. In addition, Appendix III-D, Compliance Schedule, Section VI-A has been revised to incorporate the new time frame for submission of the work plan.

Comment 7 - Page III-29, Section III-E.5

IBM requests that Module Condition III-E.5(a) be rewritten as follows:

5. Compliance Schedule for RCRA Facility Investigation ("RFI") Work Plan.

(a) On the basis of the RCRA Facility Assessment-Preliminary Review dated August 1992, as revised, the Commissioner has determined that there has been a release of hazardous waste and/or hazardous constituents from the following SWMU(s) or combinations of SWMU(s) and /or AOC(s) identified in Module Condition A.3 that require the implementation of a RFI:

(insert table attached as page 9.)

The Permittee shall begin implementation of the approved RFI Work Plan for the SWMUs and/or AOCs identified in E.5(a) in accordance with the schedule included in the approved "RCRA Facility Investigation Report for the Former Antenna Area" dated July 23, 1997.

(b) On the basis of the RCRA Facility Assessment-Preliminary Review dated August 1992, as revised, the Commissioner has determined that there has been a release of hazardous waste and/or hazardous constituents from the following SWMU(s) of combinations of SWMU(s) and /or AOC(s) identified in Module Condition A.3 that require the implementation of a RFI:

(insert table attached as page 10).

The Permittee shall include those SWMUs and/or AOCs identified in E.5(b) in the RFI Report on the site-wide groundwater contamination at the facility in accordance with the compliance schedule given in E.7(b).

Please reletter existing Sections E.5(b) through E.5(h) to Sections E.5(c) to E.5.(i).

Response

These changes have been incorporated in the permit to bring the status of sampling at the SWMU's up to date. The revision takes in to account the change in SWMU's that have to undergo sampling, and the approval of the sampling visit work plans for these SWMU's.

Comment 8 - Page III-32, Section III-E.5(g)

The reference on the second line of this section should be to *E.5.(f)* not E.5. (e).

Response

This error has been corrected, however due to changes in response to Comment 7, the correct reference is now E.5(g).

Comment 9 - Page III-33, Section III-E.7(a)

The reference on the fourth line of this section should be to *E.5.(f)* not E.5. (e).

Response

This error has been corrected, however due to changes in response to Comment 7, the correct reference is now E.5(g).

Comment 10 - Page III-36, Section III-E.8(a)(viii)

IBM requests the following change:

(viii) The proposed protocol(s) that will be followed for the decommissioning of groundwater monitoring wells shall be provided in the QAPjP and this protocol shall be referenced in the FGMP.

Response

The proposed change is acceptable and the permit has been changed accordingly.

Comment 11 - pages III-A-3 to III-A-4, Appendix III-A Raw Data Deliverables

This section states that "the raw data submission should contain all the information needed to confirm, recalculate and validate the reported results for the selected samples." Although IBM agrees that upon request, NYSDEC should receive copies of standard laboratory deliverables for the purpose of data validation, certain items in this section relate more to laboratory certification not data validation. While under some circumstances this level of data deliverables might be required (e.g. for termination monitoring), IBM believes that this level of raw data deliverables for routine analysis is not necessary and should be considered for individual work plans not as a general condition for all work conducted under this permit.

Furthermore, it should be noted that the Raw Data Deliverables Section was not included in either the IBM East Fishkill Facility or the IBM Kingston Facility Part 373 Permits.

IBM respectfully requests that the Raw Data Deliverables Section of Appendix III-A be removed from this permit.

Response

The Department agrees that the Raw Data Deliverables section of Appendix III-A should be removed. Such detailed level of data deliverables is not warranted, especially for routine groundwater monitoring. The Department reserves the right to request a complete standard data deliverables package, such as NYSDEC Category B, if significant changes to the groundwater monitoring program occur. This may also be necessary for one time sampling events. The permit has been changed by deleting the entire Raw Data Deliverables section.

Comment 12 - Appendix III-F

In 1996, the underground piping from the Truck Crib Sump located in B/006 to the Industrial Waste Piping System was abandoned and plugged. This below ground piping was replaced with new above ground piping. The plugged, below ground pipeline can not be readily tested as required by Appendix III-F, however, the sump can be tested. IBM requests that the requirement for testing the below ground piping be removed from Appendix III-F.

Response

Integrity testing of the below ground piping has been removed from Appendix III-F. The facility has stated that this pipe has been filled with concrete and is covered by a concrete slab. There is no practical way to evaluate the pipe's integrity.

IV. ADDITIONAL CHANGES MADE TO THE PERMIT

1. In section III-E.1, No Action Requirement, the typographical error reference Module Condition A.3 has been changed to Module Condition A.2.

2. On the cover page of the permit (page 1 of 4), the statement "In addition, two empty 100 gallon capacity former waste xylene system storage tanks are undergoing closure." has been deleted. These tanks have undergone successful closure as per the approved closure plan.

3. In Appendix III-D, SectionVI.A, the wording "unless precluded form doing so in accordance with the requirement of 373 Appendix II-E." has been removed. The requirement for RFA sampling in the Hudson River has been rewritten to require implementation within one hundred twenty (120) calendars after receipt of notice from the Department.

In an effort to improve the readability of this documents, the tables originally included within the text of the facility's comments have been placed below:

Table Originally on Page 6 of 11
Attachment II - Comments

SWMU Number	IBM Number	SWMU Description	Current Investigative Status	Comment	Consolidates Former SWMU Numbers
58	14	Waste Ammonium Persulfate Tank	SV-Soil		
203	7,15	Building 001 Alcove Tanks	SV-Soil	Revised SWMU Description	76,77,78
118	18	Former Equipment Crusher	SV-Soil		
98	None	Truck Crib Sump	Integrity Test		
209	8,9,10,16	Tanks Outside Building 028	SV-Soil	Revised SWMU Description	
120	None	Former Fire Training Area	SV-Soil		
129	22	Former Waste Oil Leachfield	SV-Soil		

190	96	Misc. Waste Storage Area	SV-Soil		
198	97	Old Debris Piles Adjacent to SWMU 96	SV-Soil		
199	98	Old Debris Piles NW of Bulk Oil Storage	SV-Soil		
AOC "A"	None	Adjacent Hudson River Sediments	SV-Sediments		

Table Originally on Page 9 of 11
Attachment II - Comments

SWMU Number	IBM Number	SWMU Description	Current Investigative Status	Comment	Consolidates Former SWMU Numbers
127	21	Former Antenna Drum Storage Area	RFI-Soil		

Table Originally on Page 10 of 11
Attachment II - Comments

SWMU Number	IBM Number	SWMU Description	Current Investigative Status	Comment	Consolidates Former SWMU Numbers
203	7,15	B001 Alcove Tanks	RFI-GW	Revised SWMU Description	76,77,78
115	19	Former Waste Disposal Site	RFI-GW		
116	19B	Former Burn Pit	RFI-GW		
127	21	Former Antenna Drum Storage Area	RFI-GW		
128	95	B077 Container Storage Area	RFI-GW		
129	22	Former Waste Oil Leachfield	RFI-GW		

186	78,50	B025	RFI-GW		
194	None	Former IW Drainage System	RFI-GW		
195	None	Stormwater Sewer System	RFI-GW		
201	None	B003	RFI-GW		32,38
202	None	B004	RFI-GW		59,65
AOC "B"	None	Site Gravel	RFI-GW		

Appendix A

Summary of Corrective Actions Implemented to Date

The IBM Corporation's Groundwater Protection Program began in 1978 as a corporate-wide requirement for characterization and remediation. The groundwater program at the IBM Poughkeepsie facility, therefore, began almost twenty years ago, with the initiation of investigation activities in 1978.

As these investigations identified potential sources of groundwater contamination, corrective actions were implemented, as appropriate, to either remove or mitigate the impact of these sources. The first such corrective action was implemented in 1979 and was followed by several other removal actions and the implementation of groundwater extraction activities, which continue to the present.

The corrective measures that have been implemented at this site fall into three general categories. These are: excavation of soil and debris; extraction of groundwater and non-aqueous phase liquid; and elimination of contaminated groundwater from storm sewers. The following three subsections describe activities that have been performed in each of these three categories.

A. Excavation of Soil and Debris

There have been five excavation projects completed at this site to remove known or potential sources of groundwater contamination. The locations of these and other corrective measures discussed in this summary are presented on Figure 1. These prior projects include the following:

1. Removal of soil and debris from the inactive waste disposal site (IBM SWMU No. 19A).

2. Demolition of Building 025, removal of soil down to bedrock, and installation of a concrete slurry wall (IBM SWMU No. 78).

3. Excavation of soil at the northwest corner of Building 004 (IBM SWMU No. 14).

4. Excavation of soil from the bulk storage tank farm (IBM SWMU No.25).

5. Excavation of soil and removal of a manhole and industrial waste sewer piping from the old industrial waste sewer system (IBM SWMU No. 54).

In total, these excavation activities involved the removal of nearly 40,000 tons of soil and debris, all of which were properly manifested for off-site disposal.

B. Extraction of Groundwater and Non-Aqueous Phase Liquid

Groundwater extraction activities have been performed at this site since 1982. In this regard, from 1982 to 1986, there was an active groundwater recovery operation at extraction well T-58R located in the Former Burn Pit area (IBM SWMU No. 19B). The purpose of this groundwater extraction was to induce the flow of oil present in the ground at this location to well T-58R for removal using an Auto-Skimmer. By the time the recovery operation was shut down in 1986, 550 gallons of oil had been removed along with 138,500 gallons of contaminated water. The oil was manifested off site for incineration and the water was manifested off site for treatment.

Subsequently, monitoring data in the early 1990s indicated that small amounts of recoverable and, therefore, mobile oil might still be present in the Former Burn Pit area. In response to this data, a second groundwater extraction and treatment system was installed at this location, which included four extraction wells (T-58R, T102R, 75B, and 75H) and a groundwater treatment system (as shown on Figure 1). This system was installed in 1994 and started up for pilot operations in 1995. Modifications to this system have been completed since then and IBM is currently preparing to initiate long-term operation.

The second groundwater extraction system operating at this site is associated with a TCE plume in the Site Gravel unit. This plume discharges to the small on-site unnamed tributary to the Hudson River (H-107). This discharge of groundwater flux to H-107 had been determined to result in a TCE concentration in the stream that exceeds a state guidance value for Class D streams. Therefore, a groundwater extraction and treatment operation was begun using two extraction wells at locations T-8SB and T-315S, and the Industrial Waste Treatment Plant (IWTP) for VOC removal (Figure 1). In total these wells pump on the order of 50 -60 gallons per minute. Total groundwater extracted from this system and five extraction wells operating in B003 (discussed below) since operation began in 1991 is 144.5 million gallons and the total pounds of TCE removed is 1350 pounds.

C. Elimination of Contaminated Groundwater from Storm Sewers

Initial site characterization performed in the late 1970s and early 1980s indicated that contaminated groundwater was infiltrating into storm sewer systems which discharged from SPDES-regulated outfalls to H-107. The outfalls are D009 and D013 (Figure 1). In the 1980s, dams were installed in each of the storm sewer systems leading to these outfalls with pumps to divert dry weather contaminated groundwater flow to the IWTP.

Early in the 1990s, several additional measures were taken to eliminate groundwater flux into these sewers. First, at D013, a new pumping station was installed in MH-9 (Figure 1) to improve the effectiveness of this groundwater diversion activity to the IWTP. As a result of this improved pumping system, there is virtually no remaining groundwater chemical flux discharging to H-107 from D013.

At discharge D009, two additional measures were taken. These are the installation and operation of five groundwater extraction wells (T-317SC and SD, T-320SA, T-319SA and T-327SA) adjacent to the storm sewers near the source of groundwater flux beneath Building 003 and the installation of a manhole pumping system immediately upstream from D009 to divert all dry weather flow from this outfall to the IWTP (MH-3080 on Figure 1). The combination of these last two measures greatly reduced the groundwater flux to H-107 via D009; however, this flux was not completely eliminated.

Finally, there is an ongoing project that is nearly complete which involves the rerouting of the storm sewer system feeding D009 such that it no longer passes through the area of groundwater contamination. This entails the diversion of the storm sewer system around the south end of B003, rather than passing through B003 (Figure 1). Once this diversion is completed, D009 should be virtually free of groundwater contaminants and the operation of the five extraction wells inside B003 and the manhole pumping station at MH 3080 will no longer be necessary. However, groundwater chemical flux in the abandoned segment of storm sewer passing through B003 will continue to be collected and diverted to the IWTP at a pumping station located at MH 434 (Figure 1).

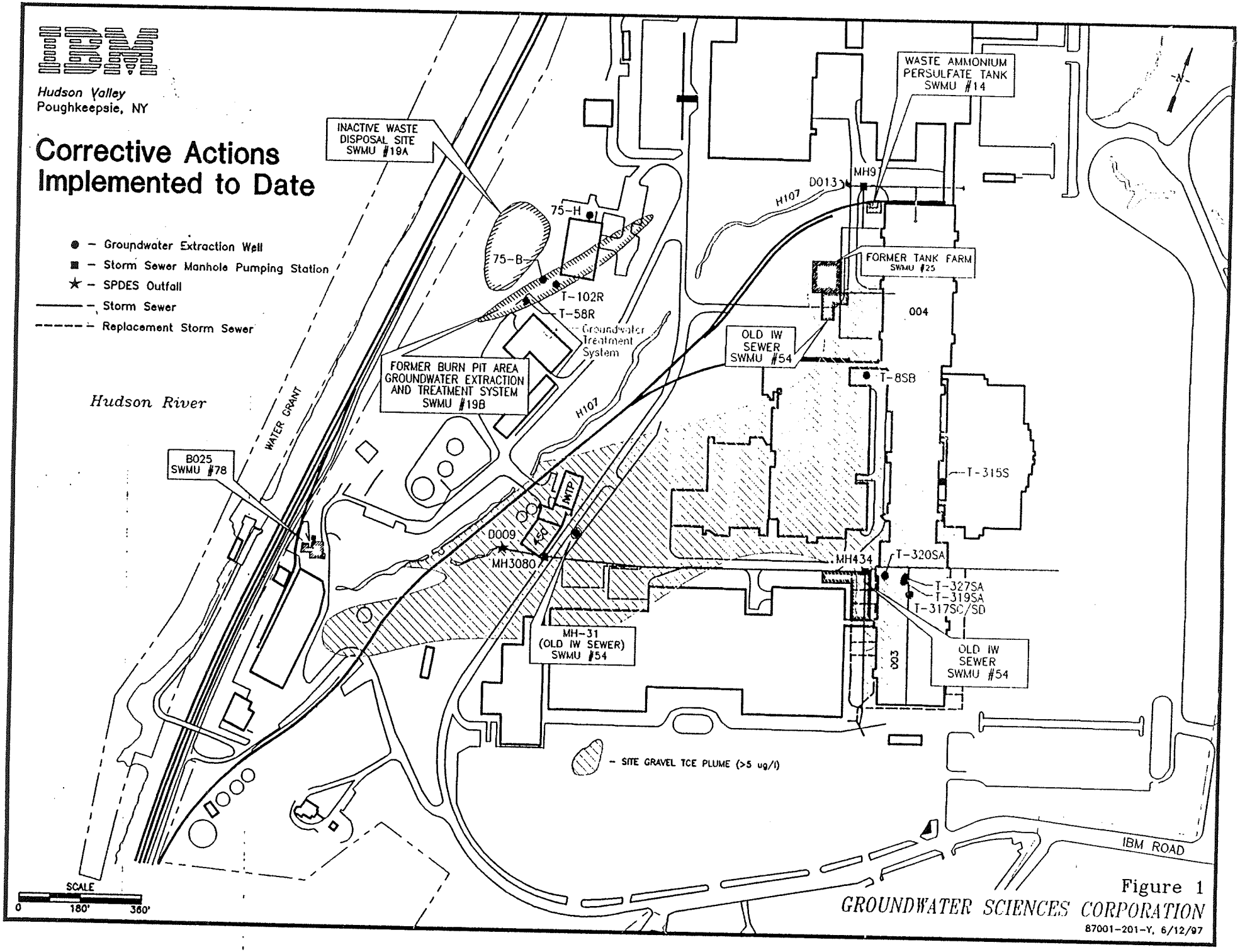


Figure 1

GROUNDWATER SCIENCES CORPORATION

87001-201-Y, 6/12/97

Appendix B

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
1-3	none	Metal Mask Cleaning Waste Accumulation Drums (3)	A
4-6	none	Metal Mask Developer Waste Accumulation Drums (3)	A
7-8	none	Molybdenum Line Tanks (2)	RM
9	none	Molybdenum Line Etch Room Accumulation Drum	A
10	none	Nickel Plating/Electroform Accumulation Drum	A
11	none	Electroform Cleaning Waste Accumulation Drum	A
12	none	Electroform Developer Waste Accumulation Drum	RM
13	42	Former 8003 Ion Exchange System	RM
14-24	none	Ion Exchange System (Existing)	I
25	89	Tin Immersion Area Spill Control Tank	A
26	none	Glycerin/EDTA/Wastewater Storage Tank	A
27	none	Glycerin/EDTA/Wastewater Transport Tank	A
28	91	Hexavalent Chromium Treatment Tank	A
29	none	Hexavalent Chromium Treatment Room Waste Accumulation Area	RM
30	87	Metal Mask 90-day Waste Storage	A
31	88	Clark Board 90-day Waste Storage Area	A
33	12	Plating Waste/Organic Rinsewater Tank	RM
34-35	27	Photographic Waste Tanks (2)	RM
36	65	Air Stripper Waste Tank	RM
37	66	Evaporator	RM
39-45	26,85	Carbon Vessels (7) - Old Carbon Abatement Room	I
46	85	Condenser	I
47	85	Separator	I
48	5	Freon Waste Tank #23	I

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
49	none	Carbon Abatement Waste Storage Area	I
50-51	85	Waste Xylene Tanks #21 and #22	I, RR
52	85	Drum Fill Station	I
53	none	Waste Xylene Transport Tank	RM
54	17	Current Pollution Abatement Transfer Tank #13A	A
55	none	Surge Tank	A
56	6	Water/IPA Tank #26	RM
57	13	Plating Waste/General Industrial Waste Tank	RM
58	14	Waste Ammonium Persulfate Tank	RM
60	43	B004 Ion Exchange Units	RM
61	none	Core Area #1	RM
62	none	Core Area #2	RM
63	none	Core Area #2 Waste Storage Cabinet	RM
64	none	Core Encapsulation Area	RM
66	17	Former Pollution Abatement Transport Tank #13A	RM
67-75	none	Tool Room Grinding Machine Tanks (9)	RM
79	none	Core Area A	RM
80	none	Core Area A Waste Storage Cabinet	RM
81	none	Core Area B	RM
82	none	Core Area C	A
83	none	Core Area D	A
84	none	Core Area D Waste Storage Cabinet	A
85	none	Core Area E	A
86	none	B600 90-day Waste Storage Area	A

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
87-88	51	B690 Stills (2)	RM
93	90	BCSF Truck Loading Area and Spill Tank	A
94	90	BCSF Waste IPA Tank	A, RR
95	90	BCSF Waste Xylene Tank	A, RR
96	90	BCSF Waste Glycerin/EDTA/Water Tank	A
97	none	BCSF Carbon Cannister System	A
98	none	Truck Crib Sump	A
99	none	Waste Oil Accumulation Drum	A
100	none	Degreaser Tank	RM
101	none	Oily Debris Container	A
102	84	B028 General and RCRA Regulated Waste Storage Room	A, RR
103	84	B028 Caustic Waste Storage Room	A, RR
104	84	B028 Acid Waste Storage Room	A, RR
105	84	B028 Oxidizer Waste Storage Room	A, RR
106	84	B028 Flammable Waste Storage Room	A, RR
107	84	B028 Solvent Dispense Room	A, RR
108-109	none	Flo-Back Parts Washers (2)	I
110	84	Empty Drum and Miscellaneous Waste Storage Room	A
111	84	B028 Loading Dock	A
112	84	Former Steam Clean Room	I
115	19	Former Waste Disposal Site	RM
116	198	Former Burn Pit	RM
117	74	Former Salvage Yard T-58 Drum Storage Area	RM
118	18	Former Crusher	RM

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
119	75	T-58 Groundwater Recovery Area	A
120	none	Former Fire Training Area	RM
121	none	Former B075 Septic Tank Area	I
122-124	20	Fuel Blending B020 Boilers (3)	I
125	86	B030 90-day Waste Storage Area	A
126	none	Boiler Feed Chemical Delivery Containment Pad	A
127	21	Former Antenna Drum Storage Area	I
128	95	B077 Container Storage Area	I
129	22	Former Waste Oil Leach Field	I
130-132	none	IWTP Effluent Holding Tanks (3)	A
133	none	IWTP Effluent Spill Containment Tank	A
134	76	Former Effluent Stabilization Pond	RM, RR
135-136	28,29	Equalization Tanks (2)	A
137	none	First Stage Splitter Box	A
138-139	none	First Stage Primary Mix Flash Tanks (2)	A
140-141	none	First Stage Secondary Flash Mix Tanks (2)	A
142-143	none	Solids Contact Clarifiers (2)	A
144	none	Second Stage Splitter Box	A
145-146	none	Second Stage Primary Flash Tanks (2)	A
147-148	none	Second Stage Secondary Flash Mix Tanks (2)	A
149-150	none	Flocculation Tanks (2)	A
151-152	none	Lamella Separators (2)	A
153	none	Sand Filter Splitter Box	A
154-157	none	Sand Filters (4)	A

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
158	none	Air Stripper Splitter Box	A
159-160	none	Air Stripper Towers (2)	A
161	none	Stripping Tower Effluent Sump	A
162	none	Carbon Prefilter Tank	A
163-165	none	Carbon Absorber Vessels (3)	A
166	none	Spent Carbon Holding Tank	A
167	none	Carbon System Backwash Tank	A
168	none	Final pH Adjustment Tank	A
169	none	Ferric Sludge Thickener	A
170	none	Ferric Sludge Holding Tank	A
171	none	Alum Sludge Thickener	A
172	none	Alum Sludge Holding Tank	A
173	none	Rotary Vacuum Filter	A
174	none	B450 Sludge Storage Area	A
175	none	B450 Sump	A
176	none	IWTP Piping	A
181-182	none	Sludge Tanks (2)	RM
183	none	Spent Carbon Blowcase Tank	RM
184	none	Old IWTP Sump Pit	RM
185	52	B450 Demolition Landfill	I
186	78,50	Former 8025	RM
190	96	Miscellaneous Waste Storage Area	A
191	none	Asbestos Waste Storage Area	A
192	83	North Construction Debris Landfill	I

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
193	62	Current IW Discharge System and Pump Stations	A
194	54	Former IW Drainage System	I
195	none	Stormwater Sewer System	A
197	53	South Site Demolition Landfill	I
198	87	Old Debris Piles Adjacent to SWMU 190	I
199	99	Old Debris Site NW of Bulk Oil Storage Facility	I
200	none	New Carbon Abatement System	A
201	23,46	B003 (Footnote 1)	A
202	24,48	B004 (Footnote 2)	A
203	76,77,78	B001 Above Tanks (Footnote 3)	RM
204	69,70,71,25	BAT Tank Farm (Footnote 4)	RM
205	177-180	Former Sludge Drying Area (Footnote 5)	RM
206	none	Existing Cyanide Treatment System	A
207	none	B-026 Aboveground Spill Containment Tanks (2)	A
208	none	BCSF Spare Tanks (2)	A
209	1, 8, 9, 10, 16	Tanks Outside B029 (Footnote 6)	
AOC A	none	Adjacent Hudson River Sediments	
AOC B	none	Site Gravel	
	A = Active I = Inactive R = Removed RR = RCRA Regulated		
	NA = Not Applicable		

TABLE III-1

NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name	Operating Status NYSDEC
*SWMU designations 187, 188, 189 and 196 have been removed. These units handled domestic sewage exclusively and are therefore not classified as SWMUs. SWMU numbering has not been revised in order to retain continuity with the numbering in the RCRA Facility Assessment Report dated August 1992.			
Footnotes	1	SWMU 201 combines previous SWMU numbers 32 and 38	
	2	SWMU 202 combines previous SWMU numbers 59 and 65	
	3	SWMU 203 combines previous SWMU numbers 76, 77 and 78	
	4	SWMU 204 combines previous SWMU numbers 89, 90, 91 and 92	
	5	SWMU 205 combines previous SWMU numbers 177, 178, 179 and 180	
	6	SWMU 209 combines previous SWMU numbers 113 and 114 - tanks as listed by NYSDEC	

Appendix C

NO ACTION SWMUs		
NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name
1-3	none	Metal Mask Cleaning Waste Accumulation Drums (3)
4-6	none	Metal Mask Developer Waste Accumulation Drums (3)
7-8	none	Molybdenum Line Tanks (2)
9	none	Molybdenum Line Etch Room Accumulation Drum
10	none	Nickel Plating/Electroform Accumulation Drum
11	none	Electroform Cleaning Waste Accumulation Drum
12	none	Electroform Developer Waste Accumulation Drum
13	42	Former B003 Ion Exchange System
14-24	none	Ion Exchange System (Existing)
25	89	Tin Immersion Area Spill Control Tank
26	none	Glycerin/EDTA/Wastewater Storage Tank
27	none	Glycerin/EDTA/Wastewater Transport Tank
28	91	Hexavalent Chromium Treatment Tank
29	none	Hexavalent Chromium Treatment Room Waste Accumulation Area
30	87	Metal Mask 90-day Waste Storage
31	88	Clark Board 90-day Waste Storage Area
33	12	Plating Waste/Organic Rinsewater Tank
34-35	27	Photographic Waste Tanks (2)
36	65	Air Stripper Waste Tank
37	66	Evaporator
39-45	26,85	Carbon Vessels (7) - Old Carbon Abatement Room
46	85	Condenser
47	85	Separator
48	5	Freon Waste Tank #23

NO ACTION SWMUs		
NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name
49	none	Carbon Abatement Waste Storage Area
50-61	65	Waste Xylene Tanks #21 and #22
52	65	Drum Fill Station
53	none	Waste Xylene Transport Tank
54	17	Current Pollution Abatement Transfer Tank #13A
55	none	Surge Tank
56	6	Water/IPA Tank #26
57	13	Plating Waste/General Industrial Waste Tank
60	43	B004 Ion Exchange Units
61	none	Core Area #1
62	none	Core Area #2
63	none	Core Area #2 Waste Storage Cabinet
64	none	Core Encapsulation Area
66	17	Former Pollution Abatement Transport Tank #13A
67-75	none	Tool Room Grinding Machine Tanks (9)
79	none	Core Area A
80	none	Core Area A Waste Storage Cabinet
81	none	Core Area B
82	none	Core Area C
83	none	Core Area D
84	none	Core Area D Waste Storage Cabinet
85	none	Core Area E
86	none	B690 90-day Waste Storage Area
87-88	51	B690 Stills (2)

NO ACTION SWMUs		
NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name
89	69	Former Waste Xylene Tank #18
90	70	Former Waste Xylene Tank #16
91	71	Waste Xylene/IPA Water Tank #17
92	25	Carbon Abatement Waste Tank #13B
93	90	BCSF Truck Loading Area and Spill Tank
94	90	BCSF Waste IPA Tank
95	90	BCSF Waste Xylene Tank
96	90	BCSF Waste Glycerin/EDTA/Water Tank
97	none	BCSF Carbon Cannister System
99	none	Waste Oil Accumulation Drum
100	none	Degreaser Tank
101	none	Oily Debris Container
102	84	B028 General and RCRA Regulated Waste Storage Room
103	84	B028 Caustic Waste Storage Room
104	84	B028 Acid Waste Storage Room
105	84	B028 Oxidizer Waste Storage Room
106	84	B028 Flammable Waste Storage Room
107	84	B028 Solvent Dispense Room
108-109	none	Flo-Back Parts Washers (2)
110	84	Empty Drum and Miscellaneous Waste Storage Room
111	84	B028 Loading Dock
112	84	Former Steam Clean Room
117	74	Former Salvage Yard T-58 Drum Storage Area
119	76	T-58 Groundwater Recovery Area

NO ACTION SWMUs		
NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name
121	none	Former B076 Septic Tank Area
122-124	20	Fuel Blending B020 Boilers (3)
125	86	B030 90-day Waste Storage Area
126	none	Boiler Feed Chemical Delivery Containment Pad
130-132	none	IWTP Effluent Holding Tanks (3)
133	none	IWTP Effluent Spill Containment Tank
134	76	Former Effluent Stabilization Pond
135-136	28,29	Equalization Tanks (2)
137	none	First Stage Splitter Box
138-139	none	First Stage Primary Mix Flash Tanks (2)
140-141	none	First Stage Secondary Flash Mix Tanks (2)
142-143	none	Solids Contact Clarifiers (2)
144	none	Second Stage Splitter Box
145-146	none	Second Stage Primary Flash Tanks (2)
147-148	none	Second Stage Secondary Flash Mix Tanks (2)
149-150	none	Flocculation Tanks (2)
151-152	none	Lamella Separators (2)
153	none	Sand Filter Splitter Box
154-157	none	Sand Filters (4)
158	none	Air Stripper Splitter Box
159-160	none	Air Stripper Towers (2)
161	none	Stripping Tower Effluent Sump
162	none	Carbon Prefilter Tank
163-165	none	Carbon Absorber Vessels (3)

NO ACTION SWMUs		
NYSDEC 373 1994-07	IBM SWMU 1988	SWMU Name
168	none	Spent Carbon Holding Tank
167	none	Carbon System Backwash Tank
188	none	Final pH Adjustment Tank
169	none	Ferric Sludge Thickener
170	none	Ferric Sludge Holding Tank
171	none	Alum Sludge Thickener
172	none	Alum Sludge Holding Tank
173	none	Rotary Vacuum Filter
174	none	B450 Sludge Storage Area
175	none	B450 Sump
176	none	IWTP Piping
181-182	none	Sludge Tanks (2)
183	none	Spent Carbon Blowcase Tank
184	none	Old IWTP Sump Pit
186	52	B450 Demolition Landfill
191	none	Asbestos Waste Storage Area
192	83	North Construction Debris Landfill
193	62	Current IW Discharge System and Pump Stations
197	55	South Site Demolition Landfill
200		New Carbon Abatement System
204	69,70,71,25	BAT Tank Farm (Footnote *)
205	177-180	Former Sludge Drying Area (Footnote 2)
206	none	Existing Cyanide Treatment System
207	none	B-028 Aboveground Spill Containment Tanks (2)

NO ACTION SWMUs		
NYSDEC 373 1994-97	IBM SWMU 1988	SWMU Name
208		BCFS Spare Tanks (2)
Footnotes	1	SWMU 204 combines previousSWMU numbers 89, 90, 91 and 92
	2	SWMU 205 combines previous SWMU numbers 177, 178, 179 and 180

INTERNATIONAL BUSINESS MACHINES CORPORATION

Poughkeepsie, NY

6NYCRR Part 373 HAZARDOUS WASTE MANAGMENT PERMIT

95-20-6 (1/96)—25c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC PERMIT NUMBER
3-1346-00035/00123

FACILITY PROGRAM NUMBER(S)
EPA ID#
NYD 080480734

RECEIVED
OCT 10 1997
ENVIRONMENTAL PERMITS
NYS DEC REGION 3 - NEW PALTZ

EFFECTIVE DATE
October 27, 1997

EXPIRATION DATE
October 27, 2007

PERMIT
Under the Environmental Conservation Law (ECL)

TYPE OF PERMIT (Check All Applicable Boxes)
[X] New [ ] Renewal [ ] Modification [ ] Permit to Construct [X] Permit to Operate

[ ] Article 15, Title 5: Protection of Water
[ ] Article 15, Title 15: Water Supply
[ ] Article 15, Title 15: Water Transport
[ ] Article 15, Title 15: Long Island Wells
[ ] Article 15, Title 27: Wild, Scenic and Recreational Rivers
[ ] 6NYCRR 608: Water Quality Certification
[ ] Article 17, Titles 7, 8: SPDES
[ ] Article 19: Air Pollution Control
[ ] Article 23, Title 27: Mined Land Reclamation
[ ] Article 24: Freshwater Wetlands
[ ] Article 25: Tidal Wetlands
[ ] Article 27, Title 7; 6NYCRR 360: Solid Waste Management
[X] Article 27, Title 9; 6NYCRR 373: Hazardous Waste Management
[ ] Article 34: Coastal Erosion Management
[ ] Articles 1, 3, 17, 19, 27, 37; 6NYCRR 380: Radiation Control
[ ] Other: _____

PERMIT ISSUED TO
International Business Machines Corporation

TELEPHONE NUMBER
( )

ADDRESS OF PERMITTEE
IBM Poughkeepsie, 522 South Road, Poughkeepsie, NY 12601-5400

CONTACT PERSON FOR PERMITTED WORK
Kerry Kiphart

TELEPHONE NUMBER
(914) 433-1765

NAME AND ADDRESS OF PROJECT/FACILITY
IBM Poughkeepsie
522 South Road, Poughkeepsie, NY 12601-5400

LOCATION OF PROJECT/FACILITY
Route 9 and South Road

COUNTY	TOWN/CITY/VILLAGE	WATERCOURSE/WETLAND NO.	NYTM COORDINATES
Dutchess	Poughkeepsie		E:_____ N:_____

DESCRIPTION OF AUTHORIZED ACTIVITY
A permit to store hazardous waste generated on-site by IBM, its contractors, tenants and from off-site IBM facilities. There are two storage areas being permitted: A container storage area with a total capacity of 103,550 gallons; and a tank storage area with one 8,000 gallon capacity tank for the storage of waste xylene and one 8,000 gallon capacity tank for the storage of waste isopropyl alcohol. IBM is also authorized to conduct corrective action and to collect and treat contaminated groundwater. The hazardous wastes authorized to be managed at this facility are identified in Module I.

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified **(See Reverse Side)** and any Special Conditions included as part of this permit.

PERMIT ADMINISTRATOR	ADDRESS	
Margaret E. Duke	21 South Putt Corners Road, New Paltz, NY 12561-1696	
AUTHORIZED SIGNATURE: Margaret E. Duke	DATE: 10/27/97	Page 1 of 4

GENERAL CONDITIONS

Inspections

1. The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3). A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Permit Changes and Renewals

2. The Department reserves the right to modify, suspend or revoke this permit when:
   a) the scope of the permitted activity is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations is found;
   b) the permit was obtained by misrepresentation or failure to disclose relevant facts;
   c) new material information is discovered; or
   d) environmental conditions, relevant technology, or applicable law or regulation have materially changed since the permit was issued.
3. The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.
4. The permittee must submit a renewal application at least:
   a) 180 days before expiration of permits for State Pollutant Discharge Elimination System (SPDES), Hazardous Waste Management Facilities (HWMF), major Air Pollution Control (APC) and Solid Waste Management Facilities (SWMF); and
   b) 30 days before expiration of all other permit types.
5. Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Other Legal Obligations of Permittee

6. The permittee has accepted expressly, by the execution of the application, the full legal responsibility for all damages, direct or indirect, of whatever nature and by whomever suffered, arising out of the project described in this permit and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from this project.
7. This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.
8. The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required for this project.

ADDITIONAL GENERAL CONDITIONS FOR ARTICLE 27 (Title 9 - NYCRR Part 373 Hazardous Waste Management Permit)

9. All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or his agent as part of the permit application.
~~Such approved plans were prepared by~~ _____ ~~or~~ _____.

SPECIAL CONDITIONS

10) This Permit is based on the information provided by the IBM Corporation in their Completed Permit Application dated June 1996 and as modified in subsequent amendments through August 28, 1997. Hazardous waste operations and corrective actions must be conducted in accordance with the information specified in the Permit Application, the modules to this Permit as specified below;

Module I	Regulatory Provisions
Module II	Air Emission Standards for Equipment Leaks
Module III	Corrective Action Requirements for Solid Waste Management Units and Areas of Concern
Appendix III-A	Components Required for RCRA Analytical Data Submitted to New York State Department of Environmental Conservation
Appendix III-B	Scope of Work for a RCRA Facility Investigation
Appendix III-C	Scope of Work for a Corective Measures Study
Appendix III-D	Compliance Schedule
Appendix III-E	RFA Sampling Visit Work Plan Outline: AOC's Undergoing Sediment Sampling
Appendix III-F	RFA Sampling Visit Work Plan Outline: Integrity Test for Truck Crib Sump
Module IV	Storage in Containers
Module V	Storage in Tanks

and the sections of the completed permit application that are made part of this Permit by reference in Module I.

New York State Recycles Printed on Recycled Paper

SPECIAL CONDITIONS

For Article 27 (Title 9 - NYCRR Part 373 ~~Hazardous Waste Management Permit~~)

11) The Permittee is responsible for verifying that the Quality Control/Assurance Program (QA/QC) used by laboratories contracted by the Permittee to carry out analysis of the waste streams conform to the QA/QC procedures approved in this Permit and, thus, ensure the validity of the analytical data provided by these contract laboratories.

12) Only laboratories which are certified by the New York State Department of Health Environmental Approval Program (ELAP) must be used for analysis performed by outside laboratories.

13) The Permittee is authorized to receive waste generated on-site by IBM contractors and tenants and from off-site IBM facilities. The characterization of wastes at these sites must be carried out in accordance with the Waste Analysis Plan (Attachment I of the Completed Permit Application).

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIAL

Module I
Regulatory Provisions
IBM Corporation - Poughkeepsie, N.Y.

A. EFFECT OF PART 373 PERMIT

The Permittee must comply with all terms and conditions of this Permit. This Permit consists of the conditions contained herein; sections of the Completed Permit Application referenced herein, including any subsequent Department approved changes to the referenced sections of that Application; and the applicable regulations cited herein. Pursuant to 6NYCRR 373-1.6(c)(4), the applicable regulations or requirements are those which are in effect prior to final issuance of this Permit. The exceptions are those requirements which become effective by statute, which become effective due to changes in 6NYCRR 376, which become effective due to changes in 6NYCRR 373-1.6, and which become effective due to changes in 6NYCRR 373-3.27, 373-3.28, and 373-3.29.

The Permittee is allowed to store hazardous waste and conduct corrective action in accordance with the conditions of this Permit. Any storage, treatment, or disposal of hazardous waste not authorized in this Permit is prohibited unless exempt from 6NYCRR Part 373. Issuance of this Permit does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of Federal, State or local laws or regulations. The Permittee is authorized to collect and treat contaminated groundwater.

Should the Permittee cease the hazardous waste management activities allowed by this Permit prior to the expiration of this Permit, then, pursuant to 6NYCRR Subpart 373-1.6(d), the Permittee must continue to comply with the applicable corrective action conditions and requirements stipulated in this Permit. In addition, the Permittee shall submit a renewal application pursuant to 6NYCRR Subpart 373-1.8(b) prior to this Permit's expiration unless and until all the Permittee's corrective action obligations have been completed. In the alternative the Permittee may execute an order on consent pursuant to Environmental Conservation Law (ECL) Section 71-2727(3) with the Commissioner at least one hundred and eighty (180) days prior to the expiration of this Permit.

All approved plans, reports, specifications and schedules required by the terms of this Permit and all subsequent amendments to those documents are incorporated by reference into this Permit. Upon incorporation, the provisions of each such document shall be binding upon the Permittee and have the same legal force and effect as the requirements of this Permit.

B. PERMIT APPLICATION

Certain documents in the permit application approved by the Department have been incorporated by reference into this Permit. Upon incorporation, these approved documents shall be binding upon the Permittee and shall have the same legal force and effect as the requirements of this Permit. Subsequent modifications to previously Department approved documents submitted with the permit application shall be addressed according to 6NYCRR Subpart 373-1.7. The approved documents of the permit application made part of this Permit; their respective approval dates; and their location in the permit application are as follows:

Location	Document*	Date of Document
Attachment I	Authorized Hazardous Wastes and Waste Analysis Plan	June, 1996
·pendix 1B	Hazardous Waste Permit Application - Part A	June, 1996
Attachment II	Approved Generator Locations	June, 1996
Attachment III	Security	June, 1996
Attachment IV	Inspections	June, 1996
Attachment V	Personnel Training	June, 1996
Appendix 5A	Job Titles, Duties, and Responsibilities	June, 1996
Attachment VI	Preparedness and Prevention	June, 1996
Attachment VII	Contingency Plan	June, 1996
Appendix 7A	General Information and Floor Plans	June, 1996
Appendix 7C	Building 028,and 034 Evacuation Routes	June, 1996
Attachment VIII	Closure Plan	June, 1996
; endix 8A	Decontamination/Closure Procedures	June, 1996
Appendix 8B	Rinsate Test	June, 1996
Appendix 8C	Financial Assurance Mechanism	June, 1996
Attachment IX	Use and Management of Containers	June, 1996
Appendix 9A	Procedure for Labeling Waste Containers	June, 1996
Appendix 9B	Building 028 Floor Diagram	June, 1996
Attachment X	Use and Management of Tanks	June, 1996
Appendix 10A	Plan and Profiles of BCSF and Longitudual Section of Waste Storage Tank	June, 1996
Attachment XI	Fugitive Emissions Control Program	February, 1997

* Appendix 1B, Hazardous Waste Permit Application - Part A is in Volume 1 of the permit application; the rest of the referenced documents are in Volume II.

C. GENERAL PERMITTING REQUIREMENTS FOR THIS PART 373 PERMIT

The Permittee must comply with 6NYCRR Subpart 373-1 as follows:

1. General (373-1.1)

a) 6NYCRR Subpart 373-1.1(b) - Applicability;
b) 6NYCRR Subpart 373-1.1(c) - Safeguarding Information;
c) 6NYCRR Subpart 373-1.1(f) - Uniform Procedures;
d) 6NYCRR Subpart 373-1.1(g) - Enforcement;
e) 6NYCRR Subpart 373-1.1(h) - Severability; and
f) 6NYCRR Subpart 373-1.1(I) - Terms Used In This Permit Are Defined In Part 370 Of This Title.

2. Permit Application Requirements (373-1.4)

a) 6NYCRR Subpart 373-1.4(a)(5)(ii) - Reports;
b) 6NYCRR Subpart 373-1.4(a)(5)(iii) - Changes To Authorization;
c) 6NYCRR Subpart 373-1.4(a)(5)(iv) - Certification; And
d) 6NYCRR Subpart 373-1.4(g) - Record keeping.

3. Permit Conditions (373-1.6)

a) 6NYCRR Subpart 373-1.6(a) - Conditions Applicable To All Permits;
6NYCRR Subpart 373-1.6(a)(1) - Duty To Comply;
c) 6NYCRR Subpart 373-1.6(a)(2) - Duty To Reapply;
d) 6NYCRR Subpart 373-1.6(a)(3) - Duty To Halt Or Reduce Activity Not A Defense;
e) 6NYCRR Subpart 373-1.6(a)(4) - Duty To Mitigate;
f) 6NYCRR Subpart 373-1.6(a)(5) - Proper Operation And Maintenance;
g) 6NYCRR Subpart 373-1.6(a)(6) - Permit Actions;
h) 6NYCRR Subpart 373-1.6(a)(7) - Property Rights;
i) 6NYCRR Subpart 373-1.6(a)(8) - Duty To Provide Information;
j) 6NYCRR Subpart 373-1.6(a)(9)(i) through (iv) - Inspection And Entry;
k) 6NYCRR Subpart 373-1.6(a)(10)(i) through (iii) - Monitoring And Records;
l) 6NYCRR Subpart 373-1.6(a)(11) - Signatory Requirements;
m) 6NYCRR Subpart 373-1.6(a)(12)(i) through (xi) - Reporting Requirements; And
n) 6NYCRR Subpart 373-1.6(d)(2)(i) through (iv) - Alternative Schedules Of Compliance.

4. Permit Modifications (373-1.7)

a) 6NYCRR Subpart 373-1.7(a) - Transfer Of Permits;
b) 6NYCRR Subpart 373-1.7(b) - Modification Of Permits;
c) 6NYCRR Subpart 373-1.7(c) - Minor Modifications Of RCRA Delegated Permits;
d) 6NYCRR Subpart 373-1.7(d) - Major Modifications;
e) 6NYCRR Subpart 373-1.7(e) - Announcement Of Determination;
f 'NYCRR Subpart 373-1.7(f) - Temporary Authorizations; And
g) 6NYCRR Subpart 373-1.7(g) - Newly Regulated Wastes And Units.

5. Expiration and Continuation of Permits (373-1.8)

a) 6NYCRR Subpart 373-1.8(b) - Renewal Applications.

D. FINAL STATUS STANDARDS FOR THIS PART 373 PERMIT

The Permittee must comply with 6NYCRR Subpart 373-2 as follows:

1. General (373-2.1)

a) 6NYCRR Subpart 373-2.1(a) - Purpose, Scope And Applicability;
b) 6NYCRR Subpart 373-2.1(c) - Imminent Hazard Action.

2. General Facility Standards (373-2.2)

a) 6NYCRR Subpart 373-2.2(a) - Applicability;
b) 6NYCRR Subpart 373-2.2(b) - Facility Ownership Transfer;
c) 6NYCRR Subpart 373-2.2(d) - Required Notices;
d) 6NYCRR Subpart 373-2.2(e) - General Waste Analysis (Attachment I of the Complete Permit Application);
e) 6NYCRR Subpart 373-2.2(f) - Security (Attachment III of the Completed Permit Application);
f) 6NYCRR Subpart 373-2.2(g) - General Inspection Requirements (Attachment IV of the Completed Permit Application);
g) 6NYCRR Subpart 373-2.2(h) - Personnel Training (Attachment V of the Completed Permit Application);
h) 6NYCRR Subpart 373-2.2(I) - General Requirements For Ignitable, Reactive, Or Incompatible Wastes (Attachment VI, Section 6.2 of the Completed Permit Application);

3. Preparedness and Prevention (373-2.3)

a) 6NYCRR Subpart 373-2.3(a) - Applicability;
b) 6NYNRR Subpart 373-2.3(b) - Design And Operation Of Facility (Attachments II, VI, IX, and X of the Completed Permit Application and Modules II, III, and IV);
c) 6NYCRR Subpart 373-2.3(c) - Required Equipment;
d) 6NYCRR Subpart 373-2.3(d) - Testing And Maintenance Of Equipment;
e) 6NYCRR Subpart 373-2.3(e) - Access To Communications Or Alarm System;
f) 6NYCRR Subpart 373-2.3(f) - Required Aisle Space; And
g) 6NYCRR Subpart 373-2.3(g) - Arrangements With Local Authorities.

4. Contingency Plan and Emergency Procedures (373-2.4)

a) 6NYCRR Subpart 373-2.4(a) - Applicability;
b) 6NYCRR Subpart 373-2.4(b) - Purpose And Implementation Of Contingency Plan;
c) 6NYCRR Subpart 373-2.4(c) - Content Of Contingency Plan;
d) 6NYCRR Subpart 373-2.4(d) - Copies Of Contingency Plan (Attachment VII of the Completed Permit Application);
6NYCRR Subpart 373-2.4(e) - Amendment Of Contingency Plan;
f) 6NYCRR Subpart 373-2.4(f) - Emergency Coordinator; and
g) 6NYCRR Subpart 373-2.4(g) - Emergency Procedures.

5. Manifest System, Record keeping and Reporting (373.2.5)

a) 6NYCRR Subpart 373-2.5(a) - Applicability;
b) 6NYCRR Subpart 373-2.5(b) - Manifest Requirements;
c) 6NYCRR Subpart 373-2.5(c) - Operating Record;
6NYCRR Subpart 373-2.5(d) - Availability, Retention, And Disposition Of Records;
e) 6NYCRR Subpart 373-2.5(e) - Annual Report;
f) 6NYCRR Subpart 373-2.5(f) - Unmanifested Waste; And
g) 6NYCRR Subpart 373-2.5(g) - Additional Reports.

The Permittee must retain for inspection by the Department, referenced documents of the Completed Permit Application that are made part of this Permit, and any subsequent Department approved changes to the contents of that Application including the most recently Department approved: waste analysis plan; contingency plan; closure plan(s); closure cost estimate(s); security, inspection, and personnel training requirements; and final engineering documents for all hazardous waste treatment, storage, and disposal units subject to this Permit and for all on-going corrective action remedies pertinent to solid waste management units and areas of concern either remediated or being remediated pursuant to this Permit.

The Permittee must provide and maintain a log of all Department approved modifications made to this Permit, including the modifications made to the completed Permit Application documents that are made part of this Permit. The log itself is not part of the permit, updates do not require approval by the Department, however, they will be recorded in the log. All proposed modifications shall have a revision date placed on the revised pages by the Permittee. The log shall contain at a minimum the following information regarding an approved modification: (1) the name of the specific document being modified (e.g., tingency plan, security requirements, hazardous waste unit operations, etc.); (2) the approval date which will correspond with the date on the approval letter from the Department; (3) the pertinent page(s), section(s), and/or attachment(s) of the permit application documents subject to the approved modification(s); (4) the revision date of the modification(s); and (5) a brief statement regarding the nature of the modification(s). The Permittee shall place the log at the beginning of this Permit along with a copy of the Department's approval letter(s). The Permittee must replace the page(s), section(s), and/or attachment(s) in the permit application with the modified page(s), section(s), and/or attachment(s) approved by the Department.

6. Releases from Solid Waste Management Units (373-2.6)

The Permittee must comply with all the applicable provisions stipulated in 6NYCRR Subpart 373-2.6 (1) for corrective action at solid waste management units; comply with the conditions stipulated in Module III - Corrective Action Requirements for Solid Waste Management Units and Areas of Concern; and comply with the groundwater monitoring plan approved by the Department, including all subsequent revisions approved by the Department that address the means to implement and achieve compliance with the aforementioned conditions for site-wide contaminated groundwater.

7. Closure and Post-Closure (373-2.7)

1 Permittee must comply with 6NYCRR Subpart 373-2.7 for the closure and post- closure care of the hazardous waste management unit(s) (i.e., container storage and tanks) as follows:

a) 6NYCRR Subpart 373-2.7(a) - Applicability;
b) 6NYCRR Subpart 373-2.7(b) - Closure Performance Standard;
c) 6NYCRR Subpart 373-2.7(c) - Closure Plan; Amendment To Plan (Attachment VIII of the Completed Permit Application);
d) 6NYCRR Subpart 373-2.7(d) - Closure; Time Allowed For Closure;
e) 6NYCRR Subpart 373-2.7(e) - Disposal Or Decontamination Of Equipment, Structures And Soils;
f) 6NYCRR Subpart 373-2.7(f) - Certification Of Closure And Survey Plat;

8. Financial Requirements (373-2.8)

The Permittee must comply with 6NYCRR Subpart 373-2.8 for meeting the financial requirements associated with the closure and post-closure care of the hazardous waste management unit(s) (i.e., container storage and tanks)as follows:

a) 6NYCRR Subpart 373-2.8(a) - Applicability
b) 6NYCRR Subpart 373-2.8(b) - Definition Of Terms As Used In This Section;
c) 6NYCRR Subpart 373-2.8(c) - Cost Estimates For Closure (Attachment VIII of the Completed Permit Application);
d) 6NYCRR Subpart 373-2.8(d) - Financial Assurance For Closure (Appendix 8C of the Completed Permit Application);
e) 6NYCRR Subpart 373-2.8(g) - Use Of A Mechanism For Financial Assurance Of Both Closure And Post-Closure Care;
f) 6NYCRR Subpart 373-2.8(h) - Liability Requirements;
g) 6NYCRR Subpart 373-2.8(I) - Incapacity Of Owners Or Operators, Guarantors, Or Financial Institutions; and
6NYCRR Subpart 373-2.8(j) - Wording Of The Instruments.

E. LAND DISPOSAL RESTRICTIONS FOR THIS PART 373 PERMIT

The Permittee must comply with all applicable provisions in 6NYCRR Part 376 for the land disposal of hazardous waste except for hazardous waste generated by remediation or corrective action activities for placement in an on-site corrective action management unit approved by the Commissioner.

F. WASTE REDUCTION REQUIREMENTS FOR THIS PART 373 PERMIT

The Permittee shall comply with the requirements of Article 27, Title 9, Section 27-0908 of the New York State Environmental Conservation Law.

All reports and submittals required by Section 27-0908 to be submitted to the Commissioner shall be sent to the addresses listed below.

Two (2) copies to:

New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-7252
Attention: Chief, Bureau of Waste Reduction & Recycling
Division of Solid & Hazardous Materials

and
One (1) copy to:

New York State Department of Environmental Conservation
`egion 3 Office
⁄1 South Putt Corner Road
New Paltz, NY 12561
Attention: Regional Solid & Hazardous Materials Engineer.

G. ORAL REPORTS

The oral reports required by 6NYCRR Subparts 373-1.6(a)(12)(vi) and 373-2.4(g)(4)(ii) may be made by contacting the National Response Center 24-hour toll free number at (800) 424-8802 and the New York State 24-hour oil and hazardous material spill notification number, (800) 457-7362, or any designated telephone number which may subsequently replace the ones listed above.

H. WASTE ANALYSIS

The methods used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix 19 and Appendix 35 of 6NYCRR Part 371 and 376 respectively or an equivalent method approved by the Commissioner. Laboratory Methods must be those specified in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", EPA Publication SW-846, Third Edition, First Update 1990 or later approved revisions, or an equivalent method approved by the Department.

J QUALITY ASSURANCE

The Permittee shall conduct a quality assurance program to ensure that the monitoring data are technically accurate and statistically valid. The quality assurance program shall be in accordance with Chapter One and applicable subsections of "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", EPA Publication SW-846, Third Edition, First Update, 1990 or later approved revisions, or equivalent methods approved by the Department.

J. ALL PLANS, REPORTS, SPECIFICATIONS, IMPLEMENTATION SCHEDULES AND SUBMITTALS

1. All submittals required by the Permit that do not address waste reduction requirements must be submitted to the Commissioner at the addresses listed below.

Two (2) copies of all corrective action documents and groundwater monitoring plans to:

New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7252

Attention: Chief, Bureau of Hazardous Waste Facilities
Division of Solid & Hazardous Materials.

One (1) copy of all submittals relating to the permitted hazardous waste management units to:

New York State Department of Environmental Conservation
Region 3 Office
21 South Putt Corner Road
New Paltz, NY 12561

Attention: Regional Solid & Hazardous Materials Engineer

All submittals required by the Permit are to be sent to:

Chief, RCRA Programs Branch
Division of Environmental Planning and Protection
U.S. Environmental Protection Agency, Region II
290 Broadway
New York, NY 10007-1866

2. Permittee shall submit plans, reports, specifications, schedules and any subsequent amendments required by this Permit to the Department for review and comment. If the Department determines that any plan, report, specification, schedule or respective amendment required by this Permit is deficient either in whole or in part, the Permittee shall either promptly respond to the comments or make revisions to the submission consistent with the Department's comments. Within a reasonable time frame specified by the Department, a final plan, report, specification schedule or respective amendment shall be submitted to the Department for approval. An extension of the due date for any submittal may be granted by the Department based on the Permittee's documentation that sufficient justification for the extension exists.

K. DEFINITIONS

For the purpose of this Permit, terms used herein shall have the same meaning as those in 6NYCRR 370 through 374 and 376 and the terms defined in this Permit, unless this Permit specifically states otherwise. Where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

1. Action Levels. For purposes of this permit, action levels are hazardous constituent concentrations that are protective of human health and the environment. Where available, action levels are based on appropriate promulgated standards established for a specific environmental medium. When such promulgated standards are not available, action levels can be media-specific hazardous constituent concentrations derived from non-promulgated human health risk data or environmental risk data with the latter levels being protective of aquatic life or wildlife. An action level may be set at the background level for a hazardous constituent for which data are inadequate to set a human health or environmental health-based level.

2. Areas of Concern (AOC). Pursuant to the authority granted by 6NYCRR 373-1.6(c)(2), an area of concern has been defined for purposes of this Permit to mean an area at the

facility, or an off-site area, which is not at this time known to be a solid waste management unit (SWMU), where hazardous waste and/or hazardous constituents are present, or are suspected to be present, as a result of a release from the facility. The term shall include areas of potential or suspected contamination as well as actual contamination. Such area(s) may require study and a determination of what, if any, Corrective Action may be necessary. All permit references to and conditions for SWMUs shall apply to areas of concern.

3. Environment. Pursuant to ECL Article 27, Title 9, Section 27.0901, environment means any water, water vapor, any land including land surface or subsurface, air, fish, wildlife, biota and all the natural resources.

4. Release. For purposes of this Permit, release includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment of any hazardous waste, including hazardous constituents, unless expressly authorized under the terms of this Permit or otherwise permitted under law (e.g., SPDES permitted discharges).

5. Solid Waste Management Unit (SWMU). For purposes of this permit, SWMU includes any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of hazardous or solid wastes. Such units include any area at the facility at which solid wastes have been routinely and systematically released.

6. Hazardous Constituents. Those constituents listed in Appendix 23 to 6NYCRR 371.

MODULE II - AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

IBM Corporation - Poughkeepsie, N.Y.

1. Monitoring and Maintenance of Equipment

The permittee must comply with 6NYCRR 373-2.28-Air Emission Standards for Equipment Leaks for the monitoring and maintenance of equipment as per the following regulations:

a) 6NYCRR Subpart 372-2.28(a) - Applicability
b) 6NYCRR Subpart 372-2.28(b) - Definitions
c) 6NYCRR Subpart 372-2.28(c) - Standards: Pumps in light liquid service
d) 6NYCRR Subpart 372-2.28(f) - Standards: Sampling connecting systems
e) 6NYCRR Subpart 372-2.28(g) - Standards: Open ended valves or lines
f) 6NYCRR Subpart 372-2.28(h) - Standards: Valves in gas/vapor service or in light liquid service
g) 6NYCRR Subpart 372-2.28(i) - Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors
h) 6NYCRR Subpart 372-2.28(j) - Standards: Delay of repair
i) 6NYCRR Subpart 372-2.28(n) - Test methods and procedures
j) 6NYCRR Subpart 372-2.28(o) - Record keeping requirements
k) 6NYCRR Subpart 372-2.28(p) - Reporting requirements

2. Equipment Subject to Standards, Monitoring, and Maintenance

This information is in the following sections of the Completed Permit Application:

Attachment XI - Fugitive Emissions Control Program

MODULE III - CORRECTIVE ACTION REQUIREMENTS FOR SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

IBM Corporation - Poughkeepsie, N.Y.

A. APPLICABILITY

1. Statute and Regulations. Article 27, Title 9, Section 27-0913, and 6NYCRR 373-2.6(l) requires corrective action, including Corrective Action beyond the facility boundary where necessary to protect human health and the environment, for all releases of hazardous wastes, including hazardous constituents, from any solid waste management unit ("SWMU") at a storage, treatment or disposal facility seeking a 6NYCRR Part 373 permit, regardless of the time at which waste was placed in such unit. Pursuant to 6NYCRR 373-1.6(c)(2) the Commissioner may impose permit conditions as the Commissioner determines necessary to protect human health and the environment (i.e., Areas of Concern (AOC(s)).

2. Solid Waste Management Units and Areas of Concern.

   Prior to the issuance of this permit, IBM has performed corrective measures at this site, both on their own initiative and under the direction of other regulatory programs. As a result of these actions, extensive remediation of contaminated media on site has been accomplished.

   The IBM Corporation's Groundwater Protection Program began in 1978 as a corporate-wide requirement for characterization and remediation. The groundwater program at the IBM Poughkeepsie facility, therefore, began almost twenty years ago, with the initiation of investigation activities in 1978.

   As these investigations identified potential sources of groundwater contamination, corrective actions were implemented, as appropriate, to either remove or mitigate the impact of these sources. The first such

corrective action was implemented in 1979 and was followed by several other removal actions and the implementation of groundwater extraction activities, which continue to the present.

The corrective measures that have been implemented at this site fall into three general categories. These are: excavation of soil and debris; extraction of groundwater and non-aqueous phase liquid; and elimination of contaminated groundwater from storm sewers. The following three subsections describe activities that have been performed in each of these three categories.

A. Excavation of Soil and Debris

There have been five excavation projects completed at this site to remove known or potential sources of groundwater contamination. The locations of these and other corrective measures discussed in this summary are presented on Figure 1. These prior projects include the following:

1. Removal of soil and debris from the inactive waste disposal site (IBM SWMU No. 19A).

2. Demolition of Building 025, removal of soil down to bedrock, and installation of a concrete slurry wall (IBM SWMU No. 78).

3. Excavation of soil at the northwest corner of Building 004 (IBM SWMU No. 14).

4. Excavation of soil from the bulk storage tank farm (IBM SWMU No.25).

5. Excavation of soil and removal of a manhole and industrial waste sewer piping from the old industrial waste sewer system (IBM SWMU No. 54).

In total, these excavation activities involved the removal of nearly 40,000 tons of soil and debris, all of which were properly manifested for off-site disposal.

B. Extraction of Groundwater and Non-Aqueous Phase Liquid

Groundwater extraction activities have been performed at this site since 1982. In this regard, from 1982 to 1986, there was an active groundwater recovery operation at extraction well T-58R located in the Former Burn Pit area (IBM SWMU No. 19B). The purpose of this groundwater extraction was to induce the flow of oil present in the ground at this location to well T-58R for removal using an Auto-Skimmer. By the time the recovery operation was shut down in 1986, 550 gallons of oil had been removed along with 138,500 gallons of contaminated water. The oil was manifested off site for incineration and the water was manifested off site for treatment.

Subsequently, monitoring data in the early 1990s indicated that small amounts of recoverable and, therefore, mobile oil might still be present in the Former Burn Pit area. In response to this data, a second groundwater extraction and treatment system was installed at this location, which included four extraction wells (T-58R, T102R, 75B, and 75H) and a groundwater treatment system (as shown on Figure 1). This system was installed in 1994 and started up for pilot operations in 1995. Modifications to this system have been completed since then and IBM is currently preparing to initiate long-term operation.

The second groundwater extraction system operating at this site is associated with a TCE plume in the Site Gravel unit. This plume discharges to the small on-site unnamed tributary to the Hudson River (H-107). This discharge of groundwater flux to H-107 had been determined to result in a TCE concentration in the stream that exceeds a state guidance value for Class D streams. Therefore, a groundwater extraction and treatment operation was begun using two extraction wells at locations T-8SB and T-315S, and the Industrial Waste Treatment Plant (IWTP) for VOC removal (Figure 1). In total these wells pump on the order of 50 - 60 gallons per minute. Total groundwater extracted from this system and five extraction wells operating in B003 (discussed below) since operation began in 1991 is 144.5 million gallons and the total pounds of TCE removed is 1350 pounds.

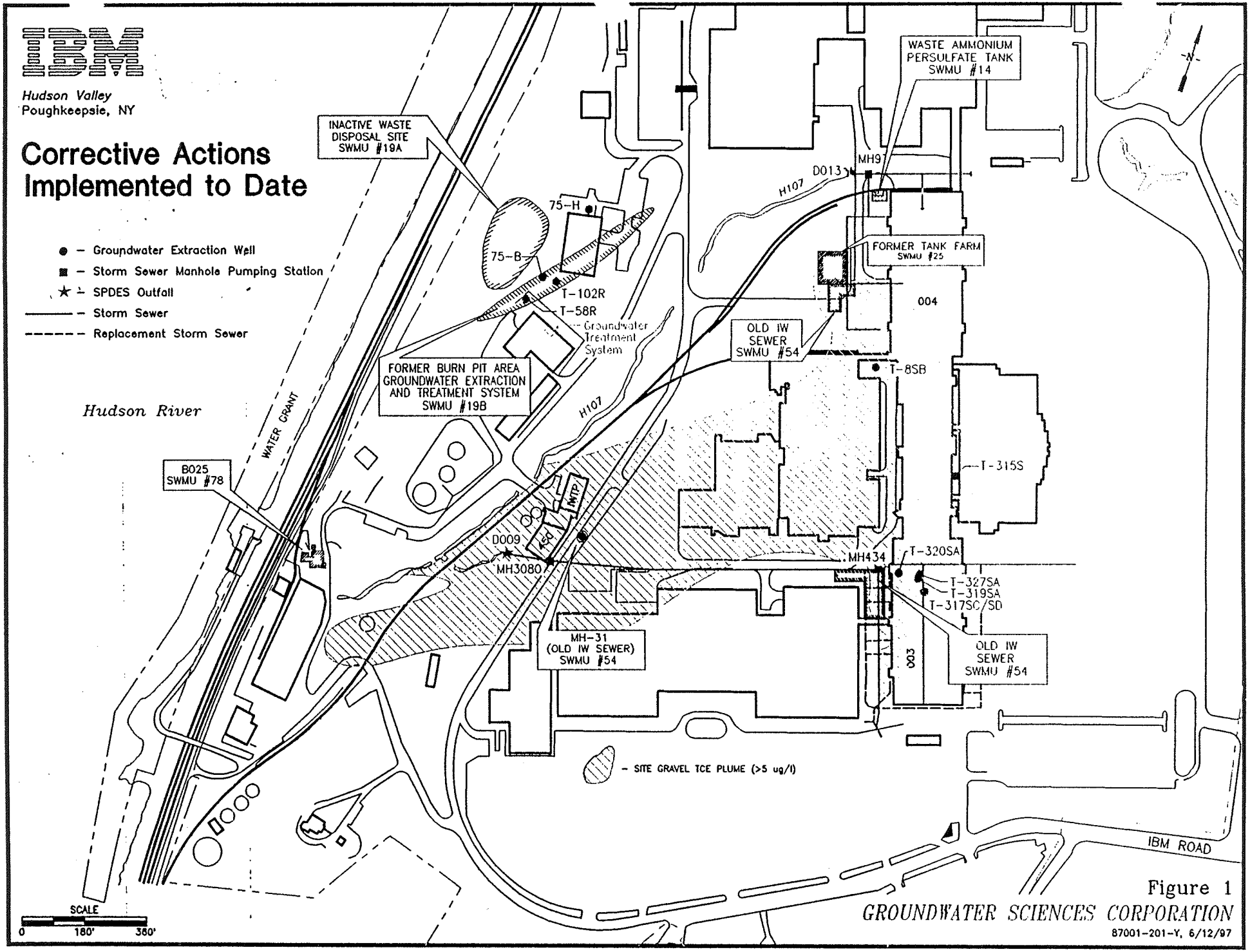
C. Elimination of Contaminated Groundwater from Storm Sewers

Initial site characterization performed in the late 1970s and early 1980s indicated that contaminated groundwater was infiltrating into storm sewer systems which discharged from SPDES-regulated outfalls to H-107. The outfalls are D009 and D013 (Figure 1). In the 1980s, dams were installed in each of the storm sewer systems leading to these outfalls with pumps to divert dry weather contaminated groundwater flow to the IWTP.

Early in the 1990s, several additional measures were taken to eliminate groundwater flux into these sewers. First, at D013, a new pumping station was installed in MH-9 (Figure 1) to improve the effectiveness of this groundwater diversion activity to the IWTP. As a result of this improved pumping system, there is virtually no remaining groundwater chemical flux discharging to H-107 from D013.

At discharge D009, two additional measures were taken. These are the installation and operation of five groundwater extraction wells (T-317SC and SD, T-320SA, T-319SA and T-327SA) adjacent to the storm sewers near the source of groundwater flux beneath Building 003 and the installation of a manhole pumping system immediately upstream from D009 to divert all dry weather flow from this outfall to the IWTP (MH-3080 on Figure 1). The combination of these last two measures greatly reduced the groundwater flux to H-107 via D009; however, this flux was not completely eliminated.

Finally, there is an ongoing project that is nearly complete which involves the rerouting of the storm sewer system feeding D009 such that it no longer passes through the area of groundwater contamination. This entails the diversion of the storm sewer system around the south end of B003, rather than passing through B003 (Figure 1). Once this diversion is completed, D009 should be virtually free of groundwater contaminants and the operation of the five extraction wells inside B003 and the manhole pumping station at MH 3080 will no longer be necessary. However, groundwater chemical flux in the abandoned segment of storm sewer passing through B003 will continue to be collected and diverted to the IWTP at a pumping station located at MH 434 (Figure 1).


IBM
Hudson Valley
Poughkeepsie, NY
Corrective Actions Implemented to Date
● – Groundwater Extraction Well
■ – Storm Sewer Manhole Pumping Station
★ – SPDES Outfall
——— – Storm Sewer
------ – Replacement Storm Sewer
Hudson River
INACTIVE WASTE DISPOSAL SITE SWMU #19A
WASTE AMMONIUM PERSULFATE TANK SWMU #14
MH97
D013
H107
75-H
75-B
T-102R
T-58R
Groundwater Treatment System
FORMER TANK FARM SWMU #25
004
OLD IW SEWER SWMU #54
T-8SB
FORMER BURN PIT AREA GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SWMU #19B
WATER GRANT
B025 SWMU #78
MTP
D009
MH3080
T-315S
MH434
T-320SA
T-327SA
T-319SA
T-317SC/SD
MH-31 (OLD IW SEWER) SWMU #54
003
OLD IW SEWER SWMU #54
– SITE GRAVEL TCE PLUME (>5 ug/l)
IBM ROAD
SCALE
0
180'
360'
Figure 1
GROUNDWATER SCIENCES CORPORATION
87001-201-Y, 6/12/97

It is the intent of the corrective action portion of this permit to determine the effectiveness of the previous soil removal actions and to determine the effectiveness of the groundwater pump and treat systems and the current level of groundwater contamination. In addition, the permit calls for the investigation of certain SWMUs /AOCs to determine if there have been releases of hazardous constituents.

The conditions of this Module apply to:

a. All the SWMUs and AOCs listed in this Module individually or in combinations;

b. Any additional SWMUs and AOCs identified during the course of groundwater monitoring, field investigations, environmental audits, or other means as described in Module Condition C. below; and

c. The following know SWMUs and AOCs located on-site and/or off-site:

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
1-3	none	Metal Mask Cleaning Waste Accumulation Drums (3)	A
4-6	none	Metal Mask Developer Waste Accumulation Drums (3)	A
7-8	none	Molybdenum Line Tanks (2)	RM
9	none	Molybdenum Line Etch Room Accumulation Drum	A
10	none	Nickel Plating/Electroform Accumulation Drum	A
11	none	Electroform Cleaning Waste Accumulation Drum	A
12	none	Electroform Developer Waste Accumulation Drum	RM
13	42	Former B003 Ion Exchange System	RM
14-24	none	Ion Exchange System (Existing)	I
25	89	Tin Immersion Area Spill Control Tank	A

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
26	none	Glycerin/EDTA/Wastewater Storage Tank	A
27	none	Glycerin/EDTA/Wastewater Transport Tank	A
28	91	Hexavalent Chromium Treatment Tank	A
29	none	Hexavalent Chromium Treatment Room Waste Accumulation Area	RM
30	87	Metal Mask 90-day Waste Storage	A
31	88	Clark Board 90-day Waste Storage Area	A
33	12	Plating Waste/Organic Rinsewater Tank	RM
34-35	27	Photographic Waste Tanks (2)	RM
36	65	Air Stripper Waste Tank	RM
37	66	Evaporator	RM
39-45	2685	Carbon Vessels (7) - Old Carbon Abatement Room	I
46	85	Condenser	I
47	85	Separator	I
48	5	Freon Waste Tank #23	I
49	none	Carbon Abatement Waste Storage Area	I
50-51	85	Waste Xylene Tanks #21 and #22	I, RR
52	85	Drum Fill Station	I
53	none	Waste Xylene Transport Tank	RM
54	17	Current Pollution Abatement Transfer Tank #13A	A
55	none	Surge Tank	A
56	6	Water/IPA Tank #26	RM
57	13	Plating Waste/General Industrial Waste Tank	RM
58	14	Waste Ammonium Persulfate Tank	RM
60	43	B004 Ion Exchange Units	RM
61	none	Core Area #1	RM
62	none	Core Area #2	RM

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
63	none	Core Area #2 Waste Storage Cabinet	RM
64	none	Core Encapsulation Area	RM
66	17	Former Pollution Abatement Transport Tank #13A	RM
67-75	none	Tool Room Grinding Machine Tanks (9)	RM
79	none	Core Area A	RM
80	none	Core Area A Waste Storage Cabinet	RM
81	none	Core Area B	RM
82	none	Core Area C	A
83	none	Core Area D	A
84	none	Core Area D Waste Storage Cabinet	A
85	none	Core Area E	A
86	none	B690 90-day Waste Storage Area	A
87-88	51	B690 Stills (2)	RM
93	90	BCSF Truck Loading Area and Spill Tank	A
94	90	BCSF Waste IPA Tank	A, RR
95	90	BCSF Waste Xylene Tank	A, RR
96	90	BCSF Waste Glycerin/EDTA/Water Tank	A
97	none	BCSF Carbon Cannister System	A
98	none	Truck Crib Sump	A
99	none	Waste Oil Accumulation Drum	A
100	none	Degreaser Tank	RM
101	none	Oily Debris Container	A
102	84	B028 General and RCRA Regulated Waste Storage Room	A, RR
103	84	B028 Caustic Waste Storage Room	A, RR
104	84	B028 Acid Waste Storage Room	A, RR
105	84	B028 Oxidizer Waste Storage Room	A, RR

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
106	84	B028 Flammable Waste Storage Room	A, RR
107	84	B028 Solvent Dispense Room	A, RR
108-109	none	Flo-Back Parts Washers (2)	I
110	84	Empty Drum and Miscellaneous Waste Storage Room	A
111	84	B028 Loading Dock	A
112	84	Former Steam Clean Room	I
115	19	Former Waste Disposal Site	RM
116	19B	Former Burn Pit	RM
117	74	Former Salvage Yard T-58 Drum Storage Area	RM
118	18	Former Crusher	RM
119	75	T-58 Groundwater Recovery Area	A
120	none	Former Fire Training Area	RM
121	none	Former B075 Septic Tank Area	I
122-124	20	Fuel Blending B020 Boilers (3)	I
125	86	B030 90-day Waste Storage Area	A
126	none	Boiler Feed Chemical Delivery Containment Pad	A
127	21	Former Antenna Drum Storage Area	I
128	95	B077 Container Storage Area	I
129	22	Former Waste Oil Leach Field	I
130-132	none	IWTP Effluent Holding Tanks (3)	A
133	none	IWTP Effluent Spill Containment Tank	A
134	76	Former Effluent Stabilization Pond	RM, RR
135-136	2829	Equalization Tanks (2)	A
137	none	First Stage Splitter Box	A
138-139	none	First Stage Primary Mix Flash Tanks (2)	A
140-141	none	First Stage Secondary Flash Mix Tanks (2)	A

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
142-143	none	Solids Contact Clarifiers (2)	A
144	none	Second Stage Splitter Box	A
145-146	none	Second Stage Primary Flash Tanks (2)	A
147-148	none	Second Stage Secondary Flash Mix Tanks (2)	A
149-150	none	Flocculation Tanks (2)	A
151-152	none	Lamella Separators (2)	A
153	none	Sand Filter Splitter Box	A
154-157	none	Sand Filters (4)	A
158	none	Air Stripper Splitter Box	A
159-160	none	Air Stripper Towers (2)	A
161	none	Stripping Tower Effluent Sump	A
162	none	Carbon Prefilter Tank	A
163-165	none	Carbon Absorber Vessels (3)	A
166	none	Spent Carbon Holding Tank	A
167	none	Carbon System Backwash Tank	A
168	none	Final pH Adjustment Tank	A
169	none	Ferric Sludge Thickener	A
170	none	Ferric Sludge Holding Tank	A
171	none	Alum Sludge Thickener	A
172	none	Alum Sludge Holding Tank	A
173	none	Rotary Vacuum Filter	A
174	none	B450 Sludge Storage Area	A
175	none	B450 Sump	A
176	none	IWTP Piping	A
181-182	none	Sludge Tanks (2)	RM
183	none	Spent Carbon Blowcase Tank	RM

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
184	none	Old IWTP Sump Pit	RM
185	52	B450 Demolition Landfill	I
186	7850	Former B025	RM
190	96	Miscellaneous Waste Storage Area	A
191	none	Asbestos Waste Storage Area	A
192	83	North Construction Debris Landfill	I
193	62	Current IW Discharge System and Pump Stations	A
194	54	Former IW Drainage System	I
195	none	Stormwater Sewer System	A
197	53	South Site Demolition Landfill	I
198	97	Old Debris Piles Adjacent to SWMU 190	I
199	98	Old Debris Site NW of Bulk Oil Storage Facility	I
200	none	New Carbon Abatement System	A
201	23, 48	B003 (Footnote 1)	A
202	24, 48	B004 (Footnote 2)	A
203	76, 77, 78	B001 Alcove Tanks (Footnote 3)	RM
204	69, 70,71, 25	BAT Tank Farm (Footnote 4)	RM
205	177-180	Former Sludge Drying Area (Footnote 5)	RM
206	none	Existing Cyanide Treatment System	A
207	none	B-028 Aboveground Spill Containment Tanks (2)	A
208	none	BCSF Spare Tanks (2)	A
209	1, 8, 9, 10, 16	Tanks Outside B028 (Footnote 6)	
AOC A	none	Adjacent Hudson River Sediments	
AOC B	none	Site Gravel	

SWMU No.	IBM SWMU No.	SWMU Name	Operating Status
A = Active I = Inactive R = Removed RR = RCRA Regulated			
NA = Not Applicable			
*SWMU designations 187, 188, 189 and 196 have been removed. These units handled domestic sewage exclusively and are therefore not classified as SWMUs. SWMU numbering has not been revised in order to retain continuity with the numbering in the RCRA Facility Assessment Report dated August 1992.			
Footnotes	1	SWMU 201 combines previous SWMU numbers 32 and 38	
	2	SWMU 202 combines previous SWMU numbers 59 and 65	
	3	SWMU 203 combines previous SWMU numbers 76, 77 and 78	
	4	SWMU 204 combines previous SWMU numbers 89, 90, 91 and 92	
	5	SWMU 205 combines previous SWMU numbers 177, 178, 179 and 180	
	6	SWMU 209 combines previous SWMU numbers 113 and 114	

B. STANDARD CONDITIONS FOR CORRECTIVE ACTION

1. Work Plans. All work plans submitted pursuant to this Module shall include:

   (a) Quality Assurance/Quality Control protocols to ensure that data generated is valid and supported by documented procedures;

   (b) Other plans, specifications and protocols, as applicable;

   (c) A schedule for starting specific tasks, completing the work and submitting progress and final reports; and

   (d) Plans for the treatment, storage, discharge or disposal of wastes to be generated by activities described therein.

2. Quality Assurance/Quality Control

   (a) Any laboratory to be used pursuant to such work plans required by this Module must be approved by the Commissioner prior to work plan implementation. Certification by the New York State Department of Health Environmental Laboratory Approval Program in the relevant analytical services is required.

   (b) The minimum Quality Assurance/Quality Control data and information, that shall be delivered with all sample analyses required by this Module, are tabulated in Appendix III-A of this Permit Module.

3. Health/Safety Plans. The Permittee shall develop, according to applicable Federal, State and local requirements, and submit to the Commissioner, health and safety plans that will be implemented to ensure that the health and safety of project personnel, plant personnel and the general public are protected. These plans are not subject to approval by the Commissioner.

4. Guidance Documents. When preparing the submissions described in this Permit Module, the Permittee shall take account of applicable guidance documents issued by the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation in a manner reflecting reasonable technical considerations.

5. Prior Submittals. The Permittee may have already submitted portions of information, plans, or reports required by this Permit Module and its Appendices to the Commissioner pursuant to the terms of previous applications, consent orders, or plans. For those items the Permittee contends were submitted to the Commissioner, the Permittee may cite the specific document(s) and page(s) it believes adequately addresses each of the individual items requested by this Permit Module and its Appendices. The references, by document(s) and page(s), shall be placed in the appropriate sections of the submittals that require the referenced information and data. If the Commissioner, after a file search, determines that it does not possess any of the referenced information, plans, or reports

that the Permittee claims were previously submitted, the Commissioner will notify the Permittee and the Permittee shall submit the referenced documents within the time frame specified within the notification.

6. Compliance Schedule For Interim Corrective Measures.

(a) If at any time it is determined by the Commissioner that a release or, based on site-specific circumstances, a threatened release of hazardous wastes, including hazardous constituents from a SWMU, a combination of SWMUs, or an AOC poses a threat to human health or the environment, or that such condition jeopardizes the Permittee's ability to comply with any governmental permit, a draft interim corrective measures study shall be submitted to the Commissioner for approval within thirty (30) calendar days of notice of such a determination. This study shall consider, among other relevant factors, the character, the extent, direction, the rate of release, the proximity to population, the exposure pathways, the effects of delayed action, and the evaluations of appropriate interim corrective measures. Upon approval of the study by the Commissioner, the Permittee shall implement the required interim corrective measures as specified by the Commissioner. Nothing herein shall preclude the Permittee from taking immediate action to address the conditions described herein and promptly notifying the Commissioner.

(b) In the event the Permittee discovers, a release or, based on site-specific circumstances, a threatened release of hazardous waste, including hazardous constituents, from a SWMU and/or AOC, or a combination of SWMUs and/or AOC, that poses a significant and immediate threat to human health or the environment, the Permittee shall identify interim corrective measures to mitigate this threat. The Permittee shall immediately summarize the nature and magnitude of the actual or potential threat and nature of the interim measures being considered and notify the Commissioner. Within thirty (30) calendar days of notifying the

Commissioner, the Permittee shall submit to the Commissioner, for approval, an interim corrective measures work plan for the interim measures. The Permittee shall implement the measures specified by the Commissioner. Nothing herein shall preclude the Permittee from taking immediate action to address the conditions described herein and promptly notifying the Commissioner. Releases from hazardous waste treatment, storage, and disposal (TSD) units subject to regulation by this Permit shall be initially addressed by the procedures contained in the Permittee's approved Contingency, Preparedness and Prevention Plan incorporated by reference into this Permit. Should the release and the environmental media affected by the release not be adequately addressed by the procedures stipulated in those approved plans, then remediation shall be pursued in accordance with this Permit Module Condition.

(c) The following factors may be considered by the Commissioner or the Permittee in determining the need for interim corrective measures:

(i) Time required to develop and implement a final corrective measure;

(ii) Actual and potential exposure of human and environmental receptors;

(iii) Actual and potential contamination of drinking water supplies and sensitive ecosystems;

(iv) The potential for further degradation of any impacted medium;

(v) Presence of hazardous waste, including hazardous constituents, in containers that may pose a threat of release;

(vi) Presence and concentration of hazardous waste, including hazardous constituents, in soils that have the potential to

migrate to groundwater or surface water;

(vii) Weather conditions that may affect the current levels of contamination;

(viii) Risks of fire, explosion, or potential for exposure to hazardous wastes, including hazardous constituents, as a result of an accident or failure of container or handling system; and

(ix) Other situations that may pose threats to human health and the environment.

7. Determination of No Further Action.

(a) Based on the results of an RFI for a particular SWMU, or combination of SWMUs, and/or AOC, and other relevant information, the Permittee may submit an application to the Commissioner for a permit modification under 6NYCRR 373-1.7(b) and 621.13 to terminate the subsequent corrective action requirements of this Module. This permit modification application must contain information demonstrating no release(s) of hazardous wastes, including hazardous constituents, from the SWMU(s) and/or AOC(s) that pose a threat to human health or the environment based on a site-specific risk assessment, as well as information required in 6NYCRR 373-1 and 621.4(n), which incorporates by reference 6NYCRR 373-1 and 373-2.

If, based upon review of the Permittee's request for a permit modification, the results of the RFI, and other information, including comments received during the forty-five (45) calendar day public comment period required for permit modifications, the Commissioner determines that the release(s) or the suspected release(s) investigated either are non-existent or do not pose a threat to human health or the environment based on site-specific risk assessment, the Commissioner may grant the requested modification.

(b) A determination of no further action shall not preclude the Commissioner from implementing the following actions:

(i) Modifying this Permit at a later date to require the Permittee to perform such investigations as necessary to comply with the requirements of this Permit Module and its Appendices if new information or subsequent analysis indicates that there are, or are likely to be, releases from SWMUs/AOCs that may pose a threat to human health or the environment; and

(ii) Requiring continual or periodic monitoring of air, soil, groundwater, or surface water/sediment or subsurface gas, if necessary, to protect human health and the environment, when site-specific circumstances indicate the release(s) of hazardous waste, including hazardous constituents, are likely to occur from any SWMU(s) and/or AOC(s).

8. Compliance Schedule For Reporting.

(a) The Permittee shall submit, to the Commissioner, signed progress reports, as specified in approved work plans pursuant to this Permit, of all activities (i.e., SWMU Assessment, Interim Measures, RCRA Facility Investigation, Corrective Measures Study) conducted pursuant to the provisions of the Corrective Action Compliance Schedules of this Permit Module, initially beginning no later than thirty (30) calendar days after the Permittee is first required to begin implementation of any requirement herein. These reports shall contain:

(i) A general description of the work completed during the reporting periods;

(ii) Summaries of all findings made during the reporting period, including summaries of

available laboratory data, but excluding groundwater data submitted in semi-annual and annual reports;

(iii) Summaries of all changes made during the reporting period;

(iv) Summaries of all formal contacts made with representatives of the local community and public interest groups relative to the items regulated under Module III of this Permit during the reporting period;

(v) Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems;

(vi) Changes in personnel conducting or managing the corrective action activities during the reporting period;

(vii) Projected work for the next reporting period; and

(viii) Copies of daily reports, inspection reports, laboratory/monitoring data, etc., generated during the reporting period.

(b) Upon request, copies of other relevant reports and/or data not included as part of any other report as required by this Permit Module shall be made available to the Commissioner. The relevant reports and data shall include but not be limited to copies of daily reports, inspection reports, laboratory and monitoring data, etc. and other data not identified in Module Condition B.8.(a).

(c) The Commissioner may require the Permittee to conduct new or more extensive assessments, investigations, or studies, based upon information provided in the progress reports referred to in Module Condition B.8(a) above, or upon other supporting information.

(d) All plans and schedules required by the conditions of this Permit Module and Appendix III-D are upon approval of the Commissioner, incorporated into this Permit by reference and become an enforceable part of this Permit. Any noncompliance with such approved plans and schedules shall constitute noncompliance with this Permit. Extensions of the due dates for submittals may be granted by the Commissioner in accordance with the permit modification processes stipulated in Permit Module I, Condition 4(c).

9. Compliance with Governmental Requirements. During investigative activities, interim corrective measures, and final corrective measures, (including, but not limited to, equipment decommissioning, excavation and unit demolition) required under this Module, the Permittee shall ensure that the transportation, treatment, storage, discharge, and disposal of all contaminated materials generated as a result of such activities (including, but not limited to, soils, sediments, liquids, tanks, pipes, pumps, rubble, debris, and structural materials) are performed in an environmentally sound manner pursuant to all applicable Federal, State and local requirements and that is protective of public health and the environment. Nothing in this Module shall be construed to require the Permittee to proceed in a manner which is in violation of any such requirements.

10. Notifications.

(a) Notification of groundwater contamination. If at any time the Permittee discovers and confirms based upon the approved monitoring system that hazardous constituents in groundwater that may have been released from a solid waste management unit or area of concern at the facility have migrated beyond the facility boundary in concentrations that exceed action levels, the Permittee shall provide written notice to the Commissioner within thirty (30) calendar days of confirmation that the facility releases of hazardous constituents in groundwater have migrated off-site. The written notice to the

Commissioner shall include a proposed plan to notify any person who owns or resides on the land which may overlie the contaminated groundwater.

(b) Notification of air contamination. If at any time the Permittee discovers that hazardous constituents in air that may have been released from a solid waste management unit or area of concern at the facility have or are migrating to areas beyond the facility boundary in concentrations that exceed action levels, and that residences or other places at which continuous, long-term exposure to such constituents might occur are located within such areas, the Permittee shall, within fifteen (15) calendar days of such discovery;

(i) Provide written notification to the Commissioner, and

(ii) Initiate any actions that may be necessary to provide notice to all individuals who have or may have been subject to such exposure.

(c) Notification of residual contamination. If hazardous wastes or hazardous constituents in solid waste management units or areas of concern, or which have been released from solid waste management units or areas of concern, will remain in or on the land, including groundwater, after the term of the permit has expired, the Commissioner may require the Permittee to record, in accordance with State law, a notation in the deed to the facility property or in some other instrument which is normally examined during title search that will, in perpetuity, notify any potential purchaser of the property of the types, concentrations, and locations of such hazardous wastes or hazardous constituents. The Commissioner may require such notice as part of the corrective measures selection process.

C. **COMPLIANCE SCHEDULE FOR ASSESSMENT OF NEWLY IDENTIFIED SWMUS AND AOCS.**

1. Notification of Assessment. The Permittee shall notify the Commissioner, in writing semi-annually, of any additional, newly identified SWMU(s) and/or AOC(s) which were not known prior to the issuance of this Permit. The Permittee shall also notify the Commissioner, in writing semi-annually, of any newly constructed SWMU(s) not listed in this Module.

   In the semi-annual report, the Permittee shall submit a SWMU Assessment set forth in Module Condition C.2. for units which were constructed prior to the issuance of this Permit. Based upon the information provided in the notification, the Commissioner shall determine the need for a further assessment. If the Commissioner determines that such assessments are necessary, the Commissioner shall, by written notification, require the Permittee to prepare and execute a SWMU/AOC Sampling and Analysis Plan in accordance with Module Conditions C.3., C.4., C.5., and C.6..

2. SWMU/AOC Assessment Report. Within thirty (30) calendar days after notifying the Commissioner of a unit existing prior to this Permit, the Permittee shall submit a SWMU/AOC Assessment report that provides the information identified in Module Condition. C.2.(a-c). For newly constructed SWMU(s)not listed in this Module, the Permittee shall provide information pertaining to Module Condition C.2.(a-f) in the semi-annual Report. Based upon the information provided in this assessment, the Commissioner shall determine the need for a further assessment. If the Commissioner determines that additional evaluation is necessary, the Commissioner shall notify the Permittee in writing to prepare and execute a SWMU/AOC Sampling and Analysis Plan in accordance with Module Conditions C.3., C.4., C.5., and C.6.. The SWMU/AOC Assessment Report should address the following information:

   (a) Type of unit/area;

   (b) Location of each unit/area on a topographic map of appropriate scale;

(c) Dimensions, capacities, and structural descriptions of the unit/area (supply available engineering drawings);

(d) Function of unit/area;

(e) Dates that the unit/area was operated;

(f) Description of the wastes that were placed or spilled at the unit/area;

(g) Description of any known releases from the unit/area (to include groundwater data, soil analyses, air monitoring data, and/or surface water/sediment data);

(h) The results of any sampling and analysis required for the purpose of determining whether releases of hazardous wastes, including hazardous constituents, have occurred, are occurring, or are likely to occur from the unit/area; and

(i) Whether this unit/areas, individually or in combination with other units/areas described in Module Condition A.3., is a significant source of contaminant release.

3. SWMU/AOC Sampling and Analysis Plan. Within thirty (30) calendar days after notification by the Commissioner that a SWMU/AOC Sampling and Analysis Plan required as set forth Module Condition C.2., the Permittee shall submit to the Commissioner for approval a Plan in accordance with the most recent version of the NYS RCRA Quality Assurance Project Plan Guidance, for any sampling and analysis of groundwater, land surface and subsurface strata, surface water/sediment or air, as necessary to determine whether a release of hazardous waste, including hazardous constituents, from such unit(s) and/or area(s) has occurred, is likely to have occurred, or is likely to occur. The SWMU/AOC Sampling and Analysis Plan must demonstrate that the sampling and analyses program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste, including hazardous constituents, from the newly-

discovered SWMU(s) and/or AOC(s) to the environment.

4. Subsequent Assessment Actions. Following submission of the SWMU/AOC Assessment Sampling and Analysis Plan set forth in Module Condition C.3., subsequent activities for the Plan shall proceed in accordance with the following schedule:

   (a) Meeting between the Permittee and the New York State Department of Environmental Conservation (Department) to discuss Plan comments, as appropriate; and

   (b) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner); and

   (c) Begin implementation of the SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days following written approval from the Commissioner for the Plan.

5. SWMU/AOC Sampling and Analysis Report. Within sixty (60) calendar days of receipt by the Permittee of complete, validated analytical data generated under the approved SWMU/AOC Sampling and Analysis Plan, the Permittee shall follow reporting requirements in the approved Plan and submit a SWMU/AOC Sampling and Analysis Report to the Commissioner. The Report shall describe all results obtained from the implementation of the approved Plan.

6. Assessment Conclusions. Based on the results of the SWMU/AOC Sampling and Analysis Report, the Commissioner shall determine the need for further investigations at the specific unit(s) covered in the SWMU/AOC Assessment Report. If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare

and submit for approval a RCRA Facility Investigation Work Plan in accordance with Module Condition E.5. et.seq..

D. **COMPLIANCE SCHEDULE AND NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMUS AND AOCS.**

The Permittee shall notify the Commissioner, in writing, of any release(s) of hazardous wastes, including hazardous constituents, from SWMUs and AOCs, discovered during the course of groundwater monitoring, field investigation, environmental auditing, or other activities no later than fifteen (15) calendar days after discovery. Such newly-discovered release(s) may be from the newly-identified unit(s)/area(s), the RFA, the Commissioner had previously determined that no further investigation was necessary, or from the unit(s)/area(s) investigated as part of an RFI. Based on the information provided in the notification, the Commissioner shall determine the need for further investigation of the release(s). If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare a RCRA Facility Investigation Work Plan in accordance with Module Condition E.5. et. seq.. Releases from hazardous waste treatment, storage, and disposal (TSD) units subject to regulation by this Permit shall be initially addressed by the procedures contained in the Permittee's approval Contingency, Preparedness and Prevention Plan incorporated by reference into this Permit. Should the release and the environmental media affected by the release not be adequately addressed by the procedures stipulated in those approved plans, then remediation shall be pursued in accordance with this Permit Module Condition.

E. **CORRECTIVE ACTION REQUIREMENTS.**

1. No Action Requirement.

(a) On the basis of the RCRA Facility Assessment Report dated August 1992, as revised, the Commissioner has determined that there is no evidence at this time of the release(s) of hazardous waste(s) and/or constituent(s) that threaten human health or the environment from the following SWMU(s) and/or AOC(s) identified in Module Condition A.2:

SWMU No.	IBM SWMU No.	SWMU Name
1-3	none	Metal Mask Cleaning Waste Accumulation Drums (3)
4-6	none	Metal Mask Developer Waste Accumulation Drums (3)
7-8	none	Molybdenum Line Tanks (2)
9	none	Molybdenum Line Etch Room Accumulation Drum
10	none	Nickel Plating/Electroform Accumulation Drum
11	none	Electroform Cleaning Waste Accumulation Drum
12	none	Electroform Developer Waste Accumulation Drum
13	42	Former B003 Ion Exchange System
14-24	none	Ion Exchange System (Existing)
25	89	Tin Immersion Area Spill Control Tank
26	none	Glycerin/EDTA/Wastewater Storage Tank
27	none	Glycerin/EDTA/Wastewater Transport Tank
28	91	Hexavalent Chromium Treatment Tank
29	none	Hexavalent Chromium Treatment Room Waste Accumulation
30	87	Metal Mask 90-day Waste Storage
31	88	Clark Board 90-day Waste Storage Area
33	12	Plating Waste/Organic Rinsewater Tank
34-35	27	Photographic Waste Tanks (2)
36	65	Air Stripper Waste Tank
37	66	Evaporator
39-45	26, 85	Carbon Vessels (7) - Old Carbon Abatement Room
46	85	Condenser
47	85	Separator
48	5	Freon Waste Tank #23

SWMU No.	IBM SWMU No.	SWMU Name
49	none	Carbon Abatement Waste Storage Area
50-51	85	Waste Xylene Tanks #21 and #22
52	85	Drum Fill Station
53	none	Waste Xylene Transport Tank
54	17	Current Pollution Abatement Transfer Tank #13A
55	none	Surge Tank
56	6	Water/IPA Tank #26
57	13	Plating Waste/General Industrial Waste Tank
60	43	B004 Ion Exchange Units
61	none	Core Area #1
62	none	Core Area #2
63	none	Core Area #2 Waste Storage Cabinet
64	none	Core Encapsulation Area
66	17	Former Pollution Abatement Transport Tank #13A
67-75	none	Tool Room Grinding Machine Tanks (9)
79	none	Core Area A
80	none	Core Area A Waste Storage Cabinet
81	none	Core Area B
82	none	Core Area C
83	none	Core Area D
84	none	Core Area D Waste Storage Cabinet
85	none	Core Area E
86	none	B690 90-day Waste Storage Area
87-88	51	B690 Stills (2)

SWMU No.	IBM SWMU No.	SWMU Name
89	69	Former Waste Xylene Tank #18
90	70	Former Waste Xylene Tank #19
91	71	Waste Xylene/IPA Water Tank #17
92	25	Carbon Abatement Waste Tank #13B
93	90	BCSF Truck Loading Area and Spill Tank
94	90	BCSF Waste IPA Tank
95	90	BCSF Waste Xylene Tank
96	90	BCSF Waste Glycerin/EDTA/Water Tank
97	none	BCSF Carbon Cannister System
99	none	Waste Oil Accumulation Drum
100	none	Degreaser Tank
101	none	Oily Debris Container
102	84	B028 General and RCRA Regulated Waste Storage Room
103	84	B028 Caustic Waste Storage Room
104	84	B028 Acid Waste Storage Room
105	84	B028 Oxidizer Waste Storage Room
106	84	B028 Flammable Waste Storage Room
107	84	B028 Solvent Dispense Room
108-109	none	Flo-Back Parts Washers (2)
110	84	Empty Drum and Miscellaneous Waste Storage Room
111	84	B028 Loading Dock
112	84	Former Steam Clean Room
117	74	Former Salvage Yard T-58 Drum Storage Area
119	75	T-58 Groundwater Recovery Area

SWMU No.	IBM SWMU No.	SWMU Name
121	none	Former B075 Septic Tank Area
122-124	20	Fuel Blending B020 Boilers (3)
125	86	B030 90-day Waste Storage Area
126	none	Boiler Feed Chemical Delivery Containment Pad
130-132	none	IWTP Effluent Holding Tanks (3)
133	none	IWTP Effluent Spill Containment Tank
134	76	Former Effluent Stabilization Pond
135-136	2829	Equalization Tanks (2)
137	none	First Stage Splitter Box
138-139	none	First Stage Primary Mix Flash Tanks (2)
140-141	none	First Stage Secondary Flash Mix Tanks (2)
142-143	none	Solids Contact Clarifiers (2)
144	none	Second Stage Splitter Box
145-146	none	Second Stage Primary Flash Tanks (2)
147-148	none	Second Stage Secondary Flash Mix Tanks (2)
149-150	none	Flocculation Tanks (2)
151-152	none	Lamella Separators (2)
153	none	Sand Filter Splitter Box
154-157	none	Sand Filters (4)
158	none	Air Stripper Splitter Box
159-160	none	Air Stripper Towers (2)
161	none	Stripping Tower Effluent Sump
162	none	Carbon Prefilter Tank
163-165	none	Carbon Absorber Vessels (3)

SWMU No.	IBM SWMU No.	SWMU Name
166	none	Spent Carbon Holding Tank
167	none	Carbon System Backwash Tank
168	none	Final pH Adjustment Tank
169	none	Ferric Sludge Thickener
170	none	Ferric Sludge Holding Tank
171	none	Alum Sludge Thickener
172	none	Alum Sludge Holding Tank
173	none	Rotary Vacuum Filter
174	none	B450 Sludge Storage Area
175	none	B450 Sump
176	none	IWTP Piping
181-182	none	Sludge Tanks (2)
183	none	Spent Carbon Blowcase Tank
184	none	Old IWTP Sump Pit
185	52	B450 Demolition Landfill
191	none	Asbestos Waste Storage Area
192	83	North Construction Debris Landfill
193	62	Current IW Discharge System and Pump Stations
197	53	South Site Demolition Landfill
200		New Carbon Abatement System
204	69707125	BAT Tank Farm (Footnote 1)
205	177-180	Former Sludge Drying Area (Footnote 2)
206	none	Existing Cyanide Treatment System

SWMU No.	IBM SWMU No.	SWMU Name
207	none	B-028 Aboveground Spill Containment Tanks (2)
208		BCFS Spare Tanks (2)
Footnotes	1	SWMU 204 combines previous SWMU numbers 89, 90, 91 and 92
	2	SWMU 205 combines previous SWMU numbers 177, 178, 179 and 180

(b) The Permittee need not undertake corrective action at any aforementioned SWMU(s) and/or AOC(s) identified in Module Condition E.1.(a) as long as there is no evidence of the release(s) of hazardous waste(s) or constituent(s) from the SWMU(s) and/or AOC(s) threatening human health or the environment. This permit condition does not apply to any other stipulation specified in other Modules or Conditions of this Permit.

(c) A determination of no further action shall not preclude the Commissioner from modifying this Permit at a later date to require further investigations, studies, monitoring, or corrective measures, if new information or subsequent analysis indicates the release(s) or likelihood of release(s) from SWMU(s) and/or AOC(s) identified in Module Condition E.1.(a) that could pose a threat to human health or the environment.

2. Compliance Schedule For RCRA Facility Assessment ("RFA") Sampling Visit Work Plan .

(a) On the basis of the RCRA Facility Assessment Report dated August 1992, as revised, the Commissioner has determined that RFA sampling or testing must be performed at the following SWMU's and/or AOCs identified in Module Condition A.2, at which the potential exists for release(s) of hazardous waste(s) and/or hazardous constituents to have occurred:

SWMU Number	IBM Number	SWMU Description	Current Investigative Status	Comment	Consolidates Former SWMU Numbers
58	14	Waste Ammonium Persulfate Tank	SV-Soil		
203	7,15	Building 001 Alcove Tanks	SV-Soil	Revised SWMU Description	76,77,78
118	18	Former Equipment Crusher	SV-Soil		
98	None	Truck Crib Sump	Integrity Test		
209	8,9,10,16	Tanks Outside Building 028	SV-Soil	Revised SWMU Description	
120	None	Former Fire Training Area	SV-Soil		
129	22	Former Waste Oil Leachfield	SV-Soil		
190	96	Misc. Waste Storage Area	SV-Soil		
198	97	Old Debris Piles Adjacent to SWMU 96	SV-Soil		
199	98	Old Debris Piles NW of Bulk Oil Storage	SV-Soil		
AOC "A"	None	Adjacent Hudson River Sediments	SV-Sediments		

(b) Within one hundred twenty calendar days (120) after receipt of notice from the department that a RFA-SV is required for assessing the release of hazardous waste and/or hazardous constituents at the AOC identified in Module Condition E.2(a) as the adjacent Hudson River sediments, the permittee shall submit a sampling visit workplan.

The permittee shall develop the RFA-SV Work Plan in accordance with the RCRA Sampling Visit Work Plan Outline specified in 373 APPENDIX III-E and the most recent version of the RCRA Quality Assurance Project Plan Guidance.

(c) Within one hundred twenty (120) calendar days after the effective date of this permit, the Permittee is to submit a RFA-SV Work Plan for assessing the integrity of the SWMU identified in Module Conditon E.2.(a) as the Tank Crib Sump (SWMU Number 98).

The Permittee shall develop the RFA-SV Work Plan in accordance with the RCRA Sampling Vist Work Plan Outline specified in 373 Appendix III-F the most recent version of the RCRA Quality Assurance Project Plan Guidance.

(d) Following submission of the RFA-SV Work Plans set forth in Module Condition E.2(b) and (c), subsequent activities for the plans shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of revised Plans(s)to the Commissioner for approval within forty-five (45) calendar days of the above described meeting. If the above referenced meeting is determined not to be necessary, the Permittee shall submit a Plan(s) to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner.

3. Compliance Schedule for RFA-SV Work Plan Implementation

The Permittee shall begin implementation of the approved RFA-SV Work Plans for the SWMUs/AOC identified in Module Condition E.2(a), including the approved "RCRA Facility Assessment Sampling Visit Work Plan, IBM Poughkeepsie Main Plant Site," dated May 6, 1997, according to the schedule made part of the approved RFA-SV Work Plans.

4. Compliance Schedule For RFA-Sampling Visit Report.

(a) Within sixty (60) calendar days of receipt by the Permittee of complete, validated data generated under the approved RFA-SV Work Plan submitted pursuant to Module Condition E.2.(d), the Permittee shall submit a final report to the Commissioner on the SV for the AOC(s) identified in Module Condition E.2.(a). The report shall follow reporting requirements in the approved Plan and describe all results obtained from the implementation of the approved Plan.

(b) Based on the results of the RCRA Facility Assessment-Sampling Visit Report submitted pursuant to Module Condition E.4.(a), the Commissioner shall determine the need for further investigations at accessible specific unit(s) and/or area(as) covered in the Reports. If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare and submit for approval a RCRA Facility Investigation Work Plan in accordance with Module Condition E.5. et. seq..

The Commissioner will provide a written determination regarding what actions, if any, shall be required at the SWMUs where removal actions were implemented by the Permittee.

5. Compliance Schedule For RCRA Facility Investigation ("RFI") Work Plan.

(a) On the basis of the RCRA Facility Assessment-Preliminary Review dated August, 1992, as revised, the Commissioner has determined that there has been a release of hazardous waste and/or constituents from the following SWMU(s), or combination of SWMU(s), and/or AOC(s) identified in Module Condition A.3. that require the implementation of an RFI:

SWMU Number	IBM Number	SWMU Description	Current Investigative Status	Comment	Consolidates Former SWMU Numbers
127	21	Former Antenna Drum Storage Area	RFI-Soil		

(b) On the basis of the RCRA Facility Assessment-Preliminary Review dated August 1992, as revised, the Commissioner has determined that there has been a release of hazardous waste and/or hazardous constituents from the following SWMU(s) of combinations of SWMU(s) and/or AOC(s) identified in Module Condition A.3 that require the implementation of a RFI:

SWMU Number	IBM Number	SWMU Description	Current Investigative Status	Comment	Consolidates Former SWMU Numbers
203	7,15	B001 Alcove Tanks	RFI-GW	Revised SWMU Description	76,77,78
115	19	Former Waste Disposal Site	RFI-GW		
116	19B	Former Burn Pit	RFI-GW		
127	21	Former Antenna Drum Storage Area	RFI-GW		
128	95	B077 Container Storage Area	RFI-GW		
129	22	Former Waste Oil Leachfield	RFI-GW		
186	78,50	B025	RFI-GW		
194	None	Former IW Drainage System	RFI-GW		
195	None	Stormwater Sewer System	RFI-GW		
201	None	B003	RFI-GW		32,38
202	None	B004	RFI-GW		59,65
AOC "B"	None	Site Gravel	RFI-GW		

The Permittee shall include those SWMUs and/or AOCs identified in E.5(b) in the RFI Report on the site-wide groundwater contamination oat the facility in accordance with the compliance schedule given in E.7(b).

(c) On the basis of the RCRA Facility Assessment Report dated August 1992, as revised, the Commissioner has determined that there has been a release of hazardous waste and/or constituents from the following inaccessible SWMU(s) and/or AOC(s) identified in Module Condition A.3.:

Building 003
Building 004

(d) The Permittee shall notify the Commissioner, in writing, within thirty (30) calendar days prior to the date when SWMUs and/or AOCs identified in Module Condition E.5.(b) and/or identified pursuant to Module Condition C.6. become accessible. The Permittee shall submit to the Commissioner for approval a RCRA Facility Investigation Task I Report on Current Conditions, a Task II Report on Pre-Investigation Evaluation of Corrective Measures Technologies, and a Work Plan that meets the RFI Guidance included in Appendix III-B for the inaccessible SWMU(s) and/or AOC(s) identified in Module Condition E.5.(b) and/or identified pursuant to Module Condition C.6. no later than one-hundred eighty (180) calendar days after the Permittee's written notification to the Commissioner that the SWMU(s) and/or AOC(s) become accessible for such an investigation. The RFI Work Plan shall be prepared in accordance with the provisions of Module Conditions E.5.(f)(i) through (iv). Accessibility to the SWMU(s) and/or AOC(s) shall be considered achievable when the impediment to the RFI (e.g. building, utilities) is demolished, abandoned, or to be altered in a manner that would allow access to the SWMU(s) and/or AOC(s).

(e) Permittee shall submit to the Commissioner for approval a RCRA Facility Investigation Task I Report on Current Conditions required by the RFI Scope of Work included in Appendix III-B of this Permit Module. A Task I Report shall be submitted for approval within sixty (60) calendar days after the written notification by the Commissioner that an RFI is required pursuant to Module Conditions C.6., D. and/or E.4(b).

(f) Permittee shall submit to the Commissioner for approval a RCRA Facility Investigation Task II Report on the Pre-Investigation Evaluation of Corrective Measures Technologies required by the RFI Scope of Work included in Appendix III-B of this Permit Module. A Task II Report shall be submitted for approval within ninety (90) calendar days after the written notification by the Commissioner that an RFI is required pursuant to Module Conditions C.6, D. and/or E.4.(b).

(g) Permittee shall submit for approval a Work Plan to the Commissioner to address those units, releases of hazardous waste, including hazardous constituents, and media of concern which require the further investigations. A RFI Work Plan shall be submitted within ninety (90) calendar days after written notification by the Commissioner that an RFI is required pursuant to Module Conditions C.6., D., and/or E.4.(b).

(i) The Work Plan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to characterize the nature, direction, rate, movement, and concentration of releases of hazardous waste, including hazardous constituents, from specific units or groups of units and areas, and their actual or potential receptors. The Work Plan shall detail all proposed activities and procedures to be conducted at the facility and/or off-site, the schedule for implementing and completing such investigations, the qualifications of personnel performing or directing the investigations, including contractor personnel, and the overall management of the RFI.

(ii) The Work Plan shall discuss sampling and data collection quality assurance and data management procedures, including formats for documenting and tracking data and other results of investigations, and health and safety procedures.

(iii) The Work Plan must, at a minimum, address all necessary activities or include descriptions to meet the requirements specified in Tasks III through V of the Scope of Work for a RCRA Facility Investigation included in Appendix III-B and its attachments to this Permit Module.

(iv) The Permittee may determine that any of the items required by Tasks III through V of the Scope of Work in Appendix III-B of this Permit Module have already been submitted or completed, and therefore, the resubmittal of those items are not necessary for completing the RFI of this Permit. The Permittee shall request, within thirty (30) calendar days of the effective date of this Permit, and/or within thirty (30) calendar days of any notification by the Commissioner that an RFI is required that the Commissioner review for approval the Permittee's determination. At the time of the request, the Permittee must provide the following information: (1) description of the items and/or summary of findings; (2) description of investigations addressing the items, documents/reports of the investigations with dates, and summary of the findings; and (3) copies of the documents/reports.

Upon the Commissioner's approval of any previously performed items, the Permittee may delete these from the RFI Work Plan. However, upon disapproval of items, all activities necessary for the items must be included in the RFI Work Plan.

(h) Following submission of the RFI Work Plan set forth in Module Condition E.5.(g), subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner).

(i) The Commissioner shall review, for approval as part of the RFI Work Plan, any plans developed pursuant to Module Condition C.6, addressing further investigations of newly-identified SWMUs and/or AOCs, or Module Condition D, addressing newly discovered releases from units and/or areas. The Commissioner shall modify the Compliance Schedule of this Permit Module according to the permit modification procedures stipulated in Module I of this Permit to incorporate these units and areas and releases into the RFI Work Plan.

6. Compliance Schedule For RCRA Facility Investigation Work Plan Implementation No later than thirty (30) calendar days after written notification by the Commissioner approving the RFI Work Plan, the Permittee shall begin implementation of the RFI according to the schedules specified in the RFI Work Plan. The RFI shall be conducted in accordance with the approved RFI Work Plan.

(a) Upon receipt of written notification by the Commissioner approving the RFI Work Plan, the Permittee shall begin implementation of the RFI according to the schedules specified in the RFI Work Plan. The RFI shall be conducted in accordance with the approved RFI Work Plan.

7. Compliance Schedule For RCRA Facility Investigation Final Report And Summary Report

(a) Within sixty (60) calendar days of receipt by the Permittee of complete validated analytical data generated under the approved RFI Work Plan required pursuant to Module Condition E.5.(g), the Permittee shall submit to the Commissioner for approval the RFI and Summary Reports (Task VII of

the Scope of Work for an RFI in Appendix III-B of this Permit Module). The RFI Report must contain adequate information to support further corrective action decisions at the facility and/or off-site, should such actions be necessary. The RFI Report shall describe the procedures, methods, and results of all facility investigations of SWMUs and AOCs and their releases, including information on the type and extent of contamination at the facility and/or off-site, sources and migration pathways, and actual or potential receptors. It shall present all information gathered under the approved RFI Work Plan. The RFI Report will include a comparison of media specific hazardous constituents with their corresponding action levels. The Summary Report shall describe more briefly the procedures, methods, and results of the RFI.

(b) Within ninety (90) calendar days after the effective date of this Permit, the Permittee shall submit to the Commissioner for approval an RFI Report on the site-wide groundwater contamination at the facility. The Report shall address the last eight rounds of groundwater monitoring results and present detailed calculations on the discharge of each hazardous constituent and each class of constituents (e.g., total volatile organic constituents) to the Hudson River by contaminated groundwater at the site.

Calculations should correspond to the same time frame when pressure head and groundwater contamination were measured at appropriate groundwater monitoring wells. Subsequent to the submittal of this Report, the Permittee shall submit for approval by the Commissioner semi-annual and annual groundwater monitoring reports, the contents of which shall conform to the reporting requirements stipulated in the Final Groundwater Monitoring Plan approved by the Commissioner and submitted by the Permittee pursuant to Module Condition E.8 of this Permit.

(c) Following submission of the Reports set forth in Module Condition E.7.(a) and (b), subsequent activities for the Report shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Report comments, as appropriate; and

(ii) Submission of a revised Report to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Report to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Report comments from the Commissioner).

(d) After the Commissioner approves the RFI Report and Summary Report, the Permittee shall mail the approved Summary Report to all individuals on the facility mailing list established by the Permittee, within thirty (30) calendar days of receipt of approval.

8. Compliance Schedule For Groundwater Monitoring Plan and Community Relations Plan

(a) Within one-hundred twenty (120) calendar days after the effective date of this Permit, the Permittee shall submit to the Commissioner for approval a Final Groundwater Monitoring Plan (FGMP) and related Quality Assurance Project Plan (QAPjP) relevant and pertinent to the monitoring, sampling, and analysis of the site-wide groundwater contamination. The FGMP shall address the following:

(i) The boring logs and the construction procedures for those groundwater monitoring wells and borings located at the facility which are used for water quality monitoring and water level

measurement. The boring logs and well logs for the remainder of the groundwater monitoring wells, including those wells which have been abandoned along with the historical well abandonment procedures, shall be submitted concurrently with the FGMP in a separate document.

(ii) The identification and location of all groundwater monitoring wells and borings located at the facility which are used for water quality monitoring and water level measurement. The identification and location for the remainder of the groundwater monitoring wells, including those wells which have been abandoned, shall be submitted concurrently with the FGMP in the separate document required in Paragraph (i).

(iii) The identification of all groundwater monitoring wells proposed for monitoring groundwater contamination and pressure head;

(iv) The identification of all proposed parameters, including hazardous constituents at each groundwater monitoring well to assess the nature of the groundwater contamination;

(v) The proposed frequency of monitoring each groundwater monitoring well;

(vi) The proposed protocol to determine pressure head readings;

(vii) The proposed protocol(s) that will be followed for the decommissioning of groundwater monitoring wells shall be provided in the QAPjP and this protocol shall be referenced in the FGMP.

(viii) The proposed protocol(s) that will be followed for decommissioning groundwater

monitoring wells shall be provided in the QAPjP and this protocol shall be referenced in the FGMP.

(ix) The proposed chain of custody procedures that will be employed to track groundwater samples from the time they are taken in the field to the time they arrive at the laboratory for analysis;

(x) The contents of the semi-annual and annual groundwater monitoring reports.

(xi) The QAPjP shall be prepared in accordance with the relevant and pertinent guidance presented in Appendix III-B of the Permit.

(b) Within one-hundred eighty (180) calendar days after the effective date of this Permit, the Permittee shall submit to the Commissioner for approval, a Community Relations Plan.

9. Compliance Schedule For Corrective Measures Study ("CMS") Scope of Work.

(a) Should a CMS be required, based on an evaluation of data in an RFI Report submitted pursuant to the Module Condition E.7.(d), the Commissioner shall notify the Permittee in writing. This notice shall identify the hazardous constituent(s) which have exceeded the action level(s) as well as those which have been determined to threaten human health and the environment given site-specific exposure conditions or due to additive exposure risk. The notification shall specify target cleanup levels for hazardous constituents detected in each medium of concern, and may also specify corrective measure alternatives to be evaluated by the Permittee during the CMS.

(b) The Commissioner may require a Corrective Measures Study ("CMS") under the following conditions:

(i) If the concentrations of hazardous constituents in groundwater, surface water/sediment, soil, or air exceed their corresponding individual action levels; or

(ii) If the concentrations of hazardous constituents in groundwater, surface water/sediment, soil, or air do not exceed their corresponding individual action levels, but additive exposure risk due to the presence of multiple constituents is not protective of human health; or

(iii) If the concentrations of hazardous constituent in groundwater, surface water/sediment, soil, or air do not exceed corresponding individual action levels, but still pose a threat to human health or the environment, given site-specific exposure conditions.

(c) On the basis of groundwater monitoring information provided to the Commissioner in IBM Poughkeepsie's Groundwater Compliance Report dated March 1989, the Commissioner has determined that a CMS shall be prepared by the Permittee evaluating corrective measure alternatives for remediating dense non-aqueous phase liquids (DNAPL) sources and contaminated groundwater existing in the subsurface at this facility.

(d) The Permittee shall submit for approval a CMS Plan to the Commissioner within sixty (60) calendar days after a notification required by Module Condition E.9.(a) and forty-five (45) calendar days after the effective date of this Permit for the CMS required by Module Condition E.9.c.

(i) The CMS Plan shall provide:

(1) A description of the general approach to investigating and evaluating potential corrective measure;

(2) A definition of the overall objectives of the study;

(3) The specific plans for evaluating corrective measure to ensure compliance with corrective measure standards;

(4) The schedules for conducting the study; and

(5) The proposed format for the presentation of information.

(ii) The CMS Plan must address, at a minimum, all necessary activities to complete Tasks I thru III required by the CMS Scope of Work included in Appendix III-C of this Permit Module.

(e) Following submission of the CMS Plan set forth in Module Condition E.9.(d), subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner).

10. Compliance Schedule For Corrective Measures Study Implementation. No later than thirty (30) calendar days after the Permittee has received written approval from the Commissioner for the CMS Plan, the Permittee

shall begin to implement the CMS according to the schedules specified in the CMS Plan. The CMS shall be conducted in accordance with the approved Plan submitted pursuant to Module Condition E.9..

11. Compliance Schedule For Corrective Measures Study Final Report.

(a) Within forty-five (45) calendar days after the completion of the CMS, the Permittee shall submit for approval a CMS Final Report (Task IV) to the Commissioner. The CMS Final Report shall:

(i) Summarize the results of the investigations and, if applicable, of any bench-scale or pilot tests conducted;

(ii) Provide a detailed description of the corrective measures evaluated and include an evaluation of how each corrective measure alternative meets the standards set forth in Module Condition E.12(a).

(iii) Present all information gathered under the approved CMS Plan; and

(iv) Contain any additional information to support the Commissioner in the corrective measure selection decision-making process, described under Module Condition E.12.

(b) The CMS Final Report (Task IV) must address, at a minimum, all items necessary to demonstrate completion of Tasks I thru III required by the CMS Scope of Work included in Appendix III-C of this Permit Module.

(c) Following submission of the CMS Report set forth in Module Condition E.11(a), subsequent activities for the Report shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss the Report comments, as appropriate; and

(ii) Submission of a revised Report to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above referenced meeting is determined not to be necessary the Permittee shall submit a revised Report to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Report comments from the Commissioner.)

(d) As specified under Module Condition E.9.(a), based on preliminary results and the CMS Final Report, the Commissioner may require the Permittee to evaluate additional corrective measures or particular elements of one or more proposed corrective measures.

12. Corrective Measure(s) Selection.

(a) Based on the results of the documents submitted under Module Condition E.7. for the RFI, under Module Condition E.11. for the CMS, and any further evaluations of additional corrective measures under this study, the Commissioner shall select the corrective measure(s) that at a minimum will meet the following standards:

(i) Be protective of human health and the environment;

(ii) Attain media cleanup standards selected by the Commissioner during the corrective measures selection process;

(iii) Control the source(s) of release(s) so as to reduce or eliminate, to the maximum extent practicable, further releases of hazardous waste, including hazardous constituents, that might pose

a threat to human health and the environment based on site-specific risk assessment; and

(iv) Meet all applicable waste management requirements.

(b) In selecting the corrective measure(s) which meets the standards for corrective measures established under Module Condition E.12.(a), the Commissioner shall consider the following evaluation factors, as appropriate:

(i) Long-term reliability and effectiveness. Any potential corrective measure(s) may be assessed for the long-term reliability and effectiveness it affords, along with the degree of certainty that the corrective measure(s) will prove successful. Factors that shall be considered in this evaluation include:

(1) Magnitude of residual risks in terms of amounts and concentrations of hazardous waste, including hazardous constituents, remaining following implementation of the corrective measure(s), considering the persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous wastes, including hazardous constituents:

(2) The type and degree of long-term management required, including monitoring and operation and maintenance;

(3) Potential for exposure of humans and environmental receptors to remaining hazardous wastes, including hazardous constituents, considering the potential threat to human health and the environment associated with excavation,

transportation, redisposal or containment;

(4) Long-term reliability of the engineering and institutional controls, including uncertainties associated with land disposal of untreated hazardous wastes, including hazardous constituents, and their residuals; and

(5) Potential need for replacement of the corrective measure(s).

(ii) Reduction of toxicity, mobility or volume. A potential corrective measure(s) may be assessed as to the degree to which it employs treatment that reduces toxicity, mobility or volume of hazardous wastes, including hazardous constituents. Factors that shall be considered in such assessments include:

(1) The treatment processes the corrective measure(s) employs and materials it would treat;

(2) The amount of hazardous wastes, including hazardous constituents, that would be destroyed or treated;

(3) The degree to which the treatment is irreversible;

(4) The residuals that will remain following treatment, considering the persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous wastes, including hazardous constituents; and

(5) All concentration levels of hazardous waste, including hazardous constituents, in each medium that the corrective measure(s) must achieve to be

protective of human health and the environment.

(iii) The short-term effectiveness of a potential corrective measure(s) may be assessed considering the following:

(1) Magnitude of reduction of existing risks;

(2) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a corrective measure(s), including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment; and

(3) Time until full protection is achieved.

(iv) Implementability. The ease or difficulty of implementing a potential corrective measure(s) may be assessed by considering the following types of factors:

(1) Degree of difficulty associated with constructing the technology;

(2) Expected operational reliability of the technologies;

(3) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(4) Availability of necessary equipment and specialists;

(5) Available capacity and location of needed treatment, storage and disposal services; and

(6) Requirements for removal, decontamination, closure, or post-closure of units, equipment, devices or structures that will be used to implement the corrective measure(s).

(v) Cost. The types of costs that may be assessed include the following:

(1) Capital costs;

(2) Operation and maintenance costs;

(3) Net present value of capital and operation and maintenance costs; and

(4) Potential future corrective measure costs.

13. Permit Modification for Corrective Measure(s).

(a) Based on information the Permittee submits in the RFI and Summary Reports, under Module Condition E.7, the CMS Final Report under Module Condition E.11., and other information, the Commissioner will select the corrective measure(s) and initiate a permit modification to this Permit, pursuant to 6NYCRR 373-1.7(b) and 6NYCRR 621.14. The modification will specify the selected corrective measure(s) and include, at a minimum the following:

(i) Description of all technical features of the corrective measure(s) that are necessary for achieving the standards for corrective measures established under Module Condition E.12.(a), including length of time for which compliance must be demonstrated at specified points of compliance;

(ii) All media cleanup standards for hazardous constituents, selected by the Commissioner, that the corrective

measure(s) must achieve to be protective of human health and the environment;

(iii) All requirements for achieving compliance with these cleanup standards;

(iv) All requirements for complying with the standards for management of wastes;

(v) Requirements for removal, decontamination, closure or post-closure of units, equipment, devices or structures that will be used to implement the corrective measure(s);

(vi) A schedule for initiating and completing all major technical features and milestones of the corrective measure(s); and

(vii) Requirements for submission of reports and other information.

(b) By April 1 of each year after this Permit has been modified, the Permittee shall demonstrate in writing to the Commissioner financial assurance for completing the approve corrective measures.

373 Appendix III-A

COMPONENTS REQUIRED FOR RCRA ANALYTICAL DATA SUBMITTED TO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

IBM CORPORATION
Poughkeepsie, New York

A Report Narrative should accompany each submission, summarizing the contents, results and all relevant circumstances of the work. It should describe the data validation and explain discrepancies.

A. Parameter requested.

B. Sample Number or Numbers, Matrix, and:

1. Date and time collected;
2. Date extracted and/or digested;
3. Date and time analyzed;
4. Chain of custody report and/or form, including confirmation of unbroken chain of custody, intact sample packaging and container seals and adequate temperature and/or other preservation; and
5. Field Sampling log.

C. Results [b,e,f,]

1. Sample Results;
2. Duplicate;
3. Blanks[a];
4. Matrix Spike; matrix spike duplicate; blank spike;
5. Surrogate recoveries, if applicable;
6. Standard reference materials results; and
7. Low level matrix spike recoveries, to confirm method detection limit (MDL) in the matrix.

D. Supporting QA/QC[b,d]

1. Sample preparation and analysis methods, and sample cleanup procedures;
2. Sample preparation and sample cleanup logs;

3. Analysis run logs;
4. Method detection limits, instrument detection limits[c], method used to determine MDL in the matrix;
5. Calibration data (correlation coefficient or percent relative standard deviation and calibration check sample results);
6. Percent solids for soils, sludges, sediments, and where otherwise applicable;
7. Example calculations;
8. Data validation procedures, results, and completed data validation checklists; and
9. Documentation which illustrates how blank water is determined to be analyte-free.

In addition to submitting the above, all sample data and its QA/QC data as specified in the approved methods and SW-846, 3rd edition (or more current edition), must be maintained accessible to NYSDEC either in hard copy or on magnetic tape or disk (computer data files). The data, if requested by NYSDEC, should be formatted as described in SW-846, 3rd edition, Chapter 1, where applicable. This requirement may be changed in the future to mandate computer data files, accessible to NYSDEC on request.

* If CLP protocols are performed, then CLP deliverables are required, but all of the items listed in this Table must be submitted unless otherwise stated in the approved plan.

[a] The data should include all blanks (trip, equipment rinse, method and instrument blanks) as specified in the sampling and analysis plan, guidance and regulation.

[b] Supporting QA/QC should be specific to the RCRA samples analyzed.

[c] Every effort practicable must be made to achieve detection limits below regulatory limits and comparable to or better than the Practical Quantification Limits specified in the EPA-approved methods. In no case, will reporting limits above the specified PQL's be accepted without extensive and complete documentation to the Department.

[d] The supporting data should be provided to NYSDEC upon request, without restriction. Calibration data must include date and time of analysis.

[e] Frequencies of blanks, duplicates, spikes, surrogates, calibrations, standard reference materials, etc., should be as stated in the approved sampling and analysis plan, the approved analytical methods and the SW-846 3rd edition, Chapter 1, requirements. If there are any perceived conflicts, these should be resolved with NYSDEC in advance of sampling.

[f] Spiking for metals, organics or other parameters must be done before sample preparation (i.e., before digestions, extractions, etc.) unless otherwise stated in the approved plan. Furnace analysis for metals will still require post-digestion spikes on all samples analyzed by this technique.

373 Appendix III-B

Scope of Work For A RCRA Facility Investigation

IBM Corporation Poughkeepsie, New York

I. INTRODUCTION

The Permittee shall undertake a RCRA Facility Investigation ("RFI") that should include the development of several component plans and supporting reports relevant to the specific investigations to be undertaken pursuant to this Permit. Component plans and reports must be prepared and submitted in accordance with the Compliance Schedules in Module Condition III-E. and Appendix III-D of this Permit Module.

The purpose of this RFI is to characterize the nature, extent, direction, rate, movement and concentration of releases of hazardous waste and/or constituents from Solid Waste Management Units and Areas of Concern at the facility including areas off-site impacted by the release(s) from the facility and to gather all necessary data to support the Corrective Measures Study. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA Facility Investigation.

The information presented in this Appendix shall serve as guidance for developing component plans and supporting reports to accomplish the intended purpose. This guidance is comprehensive, but can be tailored to meet site-specific circumstances. The Permittee should consult with the Department on any significant deviations from this guidance prior to implementation.

The RFI Scope of Work includes several tasks:

Task I: A report on the Description of Current Conditions.

Task II: A report on the Pre-Investigation Evaluation of Corrective Measures.

Task III: RFI Management Plans including:

A. The Project Management Plan;
B. The Data Management Plan;
C. The Quality Assurance Project Plan;
D. The Health and Safety Plan; and
E. The Community Relations Plan.

Task IV: The Facility Investigation.

Task V: Investigative Analysis.

Task VI: Laboratory, Bench Scale, and Pilot Studies.

Task VII: Reports.

The report on Description of Current Conditions should comprise all available and relevant information and data on the facility's background, SWMU(s) and AOC(s) characterization, nature and extent of contamination, potential receptors, and prevailing corrective action implementation. Data and information gathered during any previous investigations, remediations, or inspections and other relevant data should be included in the submittal. That information and data may then be used to focus subsequent field investigations and development of the respective work plans for the SWMU(s) and AOC(s) to be investigated as part of this Permit. If the Permittee maintains that relevant information and data has been submitted, the Permittee should cite such submittal(s). The Permittee shall refer to Module Condition III.B.5. on addressing prior submittals.

The report on Pre-Investigation Evaluation of Corrective Measures will identify potential technologies that may be considered by the Permittee for subsequent implementation. These alternative technologies will focus the RFI to collect the necessary data for their proper evaluation.

The RFI Management Plans shall provide the necessary information that will assure that the following objectives are met:

° Proper management of all aspects of the RFI project including tracking of project milestones. Schedules and

tracking methods shall be established for RFI tasks and report submittals (Project Management Plan);

- Satisfactory presentation of data and results developed by the RFI. Data management procedures shall be established to effectively process data such that relevant data descriptions are readily accessible and accurately maintained (Data Management Plan);

- Generation of valid data during the RFI investigation. QA/QC procedures shall be established to describe and document data quality (Quality Assurance Project Plan);

- Implementation of appropriate health and safety measures during the RFI. Health and safety procedures shall be established to ensure the health and safety of the investigative team(s) and the general public during the RFI (Health and Safety Plan); and

- Provision for informing the community of the results of the RFI (Community Relations Plan).

The Facility Investigation shall focus on procedures and techniques that will be utilized during field investigations to characterize the environmental setting and the contaminant release(s) from the SWMU(s) and AOC(s). Characterization of the environmental setting will be necessary to determine monitoring locations and to aid in defining the boundaries of the contaminated unit(s) and area(s). The Permittee shall characterize each environmental media, as deemed necessary by the Department, to provide information that can be used to determine the rate and extent of the contaminant release(s). Characterization of the contaminant release(s) from the SWMU(s) and AOC(s) will be necessary to determine the nature, extent, direction, rate, movement and concentration of the contaminant plume(s).

Since a potentially broad spectrum of situations involving information on a specific release(s) may exist at the beginning of the RFI, a flexible, phased approach for the release investigation may be necessary. The Permittee may begin with an evaluation of existing data and propose the collection of additional data as necessary to characterize the release. The Permittee may consider incorporating

appropriate screening techniques, i.e., soil gas, geophysical methods, as the initial phase of field investigation for the RFI.

Based on existing data and/or data collected by appropriate screening techniques, the Permittee may develop a conceptual model of the release. This model may then be used to plan and develop subsequent investigations. The Permittee shall then develop work plans for the subsequent investigative program(s), as deemed necessary by the Department, utilizing conventional monitoring techniques capable of release(s) verification and/or characterization.

An Investigative Analysis shall be carried-out on the data generated by the Facility Investigation. The analysis shall focus on the quality of data generated and on establishing the nature, extent, direction, rate, movement and concentration of contamination.

Laboratory and/or Bench Scale Studies shall be performed to assess corrective measure technologies that may be applicable for remediating the SWMU(s), the AOC(s), and the environmental contamination investigated by the Permittee. The information gathered from such studies will assist the Permittee in selecting the alternative technologies for evaluation during the Corrective Measures Study.

Progress reports on the Facility Investigation and Laboratory Bench Scale Studies shall be submitted quarterly in addition to a final RFI Report and Summary Report.

II. TASK I: DESCRIPTION OF CURRENT CONDITIONS

The Permittee shall submit a report for Task I containing available and relevant information and data on the facility's background, SWMU(s), AOC(s), contamination, receptors, and remediation undertaken pertinent to the specific SWMU(s) and AOC(s) to be investigated as part of this Permit.

A. Facility Background

The Permittee shall summarize the regional location, pertinent boundary features, general facility physiography, geology, hydrogeology, and historical use

of the facility for the treatment, storage or disposal of solid and hazardous waste. The information shall include:

1. Map(s) depicting the following:

   (a) General geographic location;

   (b) Property lines, with the owners of all adjacent property clearly indicated;

   (c) Topography and surface drainage depicting all waterways, wetlands, floodplains, water features, drainage patterns, and surface-water containment areas;

   (d) All above and underground tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

   (e) All known past and present solid or hazardous waste treatment, storage or disposal areas;

   (f) All process sewers;

   (g) Surrounding land uses (residential, commercial, agricultural, recreational); and

   (h) The locations of all production, withdrawal, and groundwater monitoring wells at the facility and within the vicinity of the facility. These wells shall be clearly labeled and ground and top of casing elevations and construction details included (these elevations and details may be included as an attachment).

All maps shall be consistent with the requirements set forth in 6NYCRR Subpart 373-1.5(a)(2)(xix) and be of sufficient detail and accuracy to locate and report all current and future work performed at the site.

2. A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the facility.

3. Approximate dates or periods and description of past product, raw material, and waste spills; identification of the materials spilled; the amount spilled; the location where spilled; and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response.

B. SWMU and AOC Characterization

The Permittee shall submit available and relevant information that will characterize the wastes, the SWMU(s) and the AOC(s) where wastes have been placed, collected or removed including: type; quantity; physical state; disposition (containment or nature of deposits); and facility characteristics affecting the release(s) (e.g., facility security, and engineered barriers). The information should include:

1. SWMU and AOC Characteristics:

   (a) Location of unit/area (located on facility map);
   (b) Type of unit/area;
   (c) Design features;
   (d) Operating practices (past and present);
   (e) Period of operation;
   (f) Age of unit/area; and
   (g) General physical conditions.

2. Waste Characteristics:

   (a) Type of waste placed in the unit/area:

      (i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);

(ii) Quantity; and

(iii) Chemical composition (e.g., Appendix VIII hazardous constituents).

(b) Physical and chemical characteristics of waste and its constituents:

(i) Physical state (solid, liquid, gas);

(ii) Physical description (e.g., powder, oily sludge);

(iii) Temperature;

(iv) pH;

(v) General chemical class (e.g., acid, base, solvent);

(vi) Molecular weight;

(vii) Density;

(viii) Boiling point;

(ix) Viscosity;

(x) Solubility in water;

(xi) Cohesiveness of the waste;

(xii) Vapor pressure;

(xiii) Flash point; and

(xiv) Other relevant properties.

(c) Migration and dispersal characteristics of the waste constituents and procedures used in making the determination:

(i) Sorption;

(ii) Biodegradability, bioconcentration, biotransformation;

(iii) Photodegradation rates;

(iv) Hydrolysis rates;

(v) Chemical transformations; and

(vi) Volatilization rates.

C. Nature, Extent, Direction, Rate, Movement and Concentration of Contamination

The Permittee shall submit available and relevant information on the nature, extent, direction, rate, movement and concentration of the release(s) from the SWMU(s) and the AOC(s). This information and data should include:

1. Summary of available monitoring data and qualitative information on locations and levels of contamination at the facility and within the vicinity of the facility if contamination has migrated off-site.

2. Summary of all potential contaminant migration pathways including available information on geology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality.

D. Potential Receptors

The Permittee shall submit available and relevant information describing the human populations and environmental systems that are susceptible to exposure by the contaminant release(s) from the SWMU(s) and the AOC(s). Data on observable effects or bioassays for ecosystems should accompany this submittal if available. The information shall include:

1. Local uses and possible future uses of groundwater:

(a) Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial);

(b) Location of groundwater users including wells and discharge areas (identify on a map); and

(c) The well(s) pump rate(s) and the well(s) depth(s).

2. Local uses and possible future uses of surface waters draining from the facility:

(a) Domestic and municipal (e.g. potable and lawn/gardening watering);

(b) Recreational (e.g. swimming, fishing);

(c) Agricultural;

(d) Industrial; and

(e) Environmental (e.g. fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including, but not limited to:

(a) Recreation;

(b) Hunting;

(c) Residential;

(d) Commercial;

(e) Zoning; and

(f) Relationship between population locations and prevailing wind direction.

4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A description of the ecology overlying and adjacent to the facility.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including,

but not limited to: age; sex; and sensitive subgroups.

7. A description of any endangered or threatened species near the facility.

E. Corrective Action Implementation

The Permittee shall submit documentation on corrective measures (remedial measures) undertaken on-site or off-site at the facility. Remedial actions should include any interim corrective measures, RCRA closures, State or Federal Superfund activities. This documentation shall include:

1. Objectives of the remediation and how it is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, construction and monitoring; and

4. Schedule for progress reports.

III. TASK II: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURES

The Permittee shall submit a report for Task II that identifies the potential corrective measure technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability of wastes, etc.).

IV. TASK III: RFI MANAGEMENT PLANS

The Permittee shall submit RFI Management Plans as part of the RFI Work Plan. The Plans shall address the methods and procedures necessary to manage the RFI, to describe data developed by the RFI, to gather and ensure valid RFI data, to protect the health and safety of investigators and the general public, and to keep the community informed about the RFI.

A. Project Management Plan

The Permittee shall prepare a Project Management Plan that shall include a discussion of the management approach, schedules, and personnel utilized during the RFI. That Plan shall include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This Plan shall also document the overall management approach to the RCRA Facility Investigation that will assure adherence to tasks and reporting schedules. The schedule for completing the RFI should reflect the schedules set forth in Module Condition III-E. and Appendix III-D. The schedule shall reflect dates for submittal of various RFI Work Plan components, dates for starting and accomplishing specific tasks associated with the RFI, and dates for reporting information from specific tasks to the Department.

B. Data Management Plan

The Permittee shall prepare a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include, but not be limited to the following:

(a) Unique sample or field measurement code;

(b) Sampling or field measurement location and sample or measurement type;

(c) Sampling or field measurement raw data;

(d) Laboratory analysis ID number;

(e) Property or component measured; and

(f) Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

(a) Unsorted (raw) data;

(b) Results for each medium, or for each constituent monitored;

(c) Data reduction for statistical analysis;

(d) Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

(e) Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

(a) Display sampling location and sampling grid;

(b) Indicated boundaries of sampling area, and areas where more data are required;

(c) Display levels of contamination at each sampling location;

(d) Display geographical extent of contamination;

(e) Display contamination levels, averages, and maxima;

(f) Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

(g) Indicate features affecting intramedia transport and show potential receptors.

C. Quality Assurance Project Plan (QAPjP)

The Permittee shall prepare a QAPjP to document each phase of investigative work and all sampling and monitoring procedures to be implemented during the RFI. The following activities shall be covered in the QAPjP: sampling, field measurements and sample analysis performed during the investigations. This Plan shall ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented. The QAPjP(s) shall be developed in accordance with the following guidance documents, "RCRA Quality Assurance Project Plan Guidance," "SW-846," and "Technical Enforcement Guidance Document." The Plan shall address all of the sixteen (16) essential QA/QC elements stipulated in the "RCRA Quality Assurance Project Plan Guidance." A summary of the QA/QC elements that shall be in the Plan is found in the subsequent paragraphs.

1. Data Quality Objectives

The QAPjP shall include, but not be limited to the following:

(a) Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

(b) Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;

(c) Description of the rational used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition; and

(d) Description of the measures to be taken to assure that data sets can be compared to each other.

2. Sampling and Field Measurements

The QAPjP shall include, but not be limited to the following:

(a) Sampling and field measurement locations, depths, etc.;

(b) Collecting all necessary ancillary data;

(c) Conditions under which sampling and field measurements should be conducted;

(d) Media to be sampled and addressed by field measurements (e.g., groundwater, air, soil, sediment, etc.);

(e) Parameters to be measured and where;

(f) The frequency of sampling and field measurements and length of sampling period;

(g) The types of sample (e.g., composites vs. grabs) and number of samples to be collected;

(h) Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;

(i) Documenting field sampling and measurement operations and procedures, including;

(I) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);

(ii) Procedures and forms for recording raw data and the exact location, time, and specific considerations associated with sample and data acquisition;

(iii) Documentation of specific sample preservation method;

(iv) Calibration of field devices;

(v) Collection of replicate samples and measurements;

(vi) Submission of field-biased blanks, where appropriate;

(vii) Potential interferences present at the facility;

(viii) Construction materials and techniques, associated with monitoring wells and piezometers;

(ix) Field equipment listing and sample containers;

(x) Sampling and field measurement order; and

(xi) Decontamination procedures.

(j) Selecting appropriate sample containers;

(k) Sample preservation; and

(l) Chain-of-Custody, including:

(i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and

(ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Sample Analysis

The QAPjP shall include, but not be limited to the following:

(a) Chain-of-custody procedures, including:

(i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

(ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

(iii) Specification of laboratory sample custody procedures for sample handling, storage, and disbursement for analysis.

(b) Sample storage procedures and storage times;

(c) Sample preparation methods;

(d) Analytical procedures, including:

(i) Scope and application of the procedure;

(ii) Sample matrix;

(iii) Potential interferences;

(iv) Precision and accuracy of the methodology; and

(v) Method detection limits.

(e) Calibration procedures and frequency;

(f) Data reduction, validation and reporting;

(g) Internal quality control checks, laboratory performance and systems audits and frequency, including:

(i) Method blank(s);

(ii) Laboratory control sample(s);

(iii) Calibration check sample(s);

(iv) Replicate sample(s);

(v) Matrix-spikes sample(s);

(vi) "Blind" quality control sample(s);

(vii) Control charts;

(viii) Surrogate samples;

(ix) Zero and span gases; and

(x) Reagent quality control checks.

(h) Preventive maintenance procedures and schedules;

(i) Corrective action (for laboratory problems); and

(j) Turnaround time.

D. Health and Safety Plan

The Permittee shall prepare a Health and Safety Plan for the protection of the investigative team(s), workers, and general public which may be exposed to hazards.

1. The Health and Safety Plan shall include, but not be limited to the following:

   (a) Facility description including availability of resources such as roads, water supply, electricity and telephone service;

   (b) Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

   (c) List key personnel and alternates responsible for site safety, response operations, and for protection of public health;

   (d) Delineate work areas;

   (e) Describe levels of protection to be worn by personnel in work areas;

   (f) Establish procedures to control site access;

   (g) Describe decontamination procedures for personnel and equipment;

   (h) Establish site emergency procedures;

   (i) Address emergency medical care for injuries and toxicological problems;

   (j) Describe requirements for an environmental surveillance program;

   (k) Specify any routine and special training required for responders; and

   (l) Establish procedures for protecting workers from weather-related problems.

2. The Facility Health and Safety Plan shall be consistent with:

(a) NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

(b) EPA Order 1440.1 - Respiratory Protection;

(c) EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

(d) Facility Contingency Plan;

(e) EPA Standard Operating Safety Guide (1984);

(f) OSHA regulations particularly in 29 CFR §§ 1910 and 1926;

(g) State, local, and other federal agency (e.g., DOD, DOE) regulations; and

(h) Other EPA guidance as provided.

E. Community Relations Plan

The Permittee shall prepare a plan on disseminating information to the public regarding investigation activities and results. The plan should identify who will be notified and will receive summary RFI reports.

V. TASK IV: THE FACILITY INVESTIGATION

The Permittee shall submit a workplan that shall address the techniques and procedures necessary to characterize the environmental setting at and within the vicinity of the facility and the media-specific contamination resulting from the release(s) by the SWMU(s) and the AOC(s). The part of the workplan that addresses field sampling and measurement activities shall meet the sampling plan requirements stipulated in the "RCRA Quality Assurance Project Plan Guidance."

A. Environmental Setting

The Permittee shall submit an appropriate plan on collecting information to supplement existing information on the environmental setting at the facility and in the vicinity of the facility. Sufficient information shall be collected by the Permittee to characterize only those environmental media impacted by the release(s) from the SWMU(s) and the AOC(s):

1. Hydrogeology

The Permittee shall conduct a program to characterize the hydrogeologic conditions at the facility and the off-site areas where contamination has migrated. The program shall provide relevant information on geology and hydrogeology that should include, but not be limited to the following facts:

(a) A description of the regional and facility specific geologic and hydrogeologic characteristics which affect groundwater flow both beneath and within the vicinity of the facility, including:

(i) Regional and facility specific geomorphology and stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

(ii) Structural geology: description of local and regional structural features (e.g., folds, faults, joints, and fractures);

(iii) Identification and characterization of areas and amounts of recharge and discharge;

(iv) Regional and facility specific groundwater flow patterns; and

(v) Characterize seasonal variations in the groundwater flow regime.

(b) An analysis of any topographic features that might influence the groundwater flow system.

(c) Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways (i.e., the aquifers and any intervening saturated and unsaturated units), including:

(i) Hydraulic conductivity and porosity (total and effective);

(ii) Lithology, grain size, sorting, degree of cementation;

(iii) An interpretation of hydraulic interconnections between saturated zones; and

(iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

(d) Based on field studies and cores, structural geology and hydrogeologic cross sections, a description of the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways, including:

(i) Sand and gravel deposits in unconsolidated deposits;

(ii) Zones of fracturing or channeling in consolidated or unconsolidated deposits;

(iii) Zones of higher permeability or low permeability that might direct and restrict the flow of contaminants;

(iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs; and

(v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

(e) Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:

(i) Water-level contour and/or potentiometric maps;

(ii) Hydrologic cross sections showing vertical gradients;

(iii) The flow system, including the vertical and horizontal components of flow; and

(iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

(f) A description of man-made influences that may affect the hydrogeology, identifying:

(i) Active and inactive local water-supply and production wells with an approximate schedule of pumping; and

(ii) Man-made hydraulic structures (sewers, pipelines, French drains, ditches, unlined ponds, septic tanks, outfalls, retention areas, etc.).

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). The program shall provide relevant information on soil characterization that should include, but not be limited to the following facts:

(a) SCS soil classification;
(b) Surface soil distribution;
(c) Soil profile, including ASTM classification of soils;
(d) Transects of soil stratigraphy;
(e) Hydraulic conductivity (saturated and unsaturated);
(f) Relative permeability;
(g) Bulk density;
(h) Porosity;
(i) Soil sorptive capacity;
(j) Cation exchange capacity (CEC);
(k) Soil organic content;
(l) Soil pH;
(m) Particle size distribution;
(n) Depth of water table;
(o) Moisture content;
(p) Effect of stratification on unsaturated flow;
(q) Infiltration;
(r) Evapotranspiration;
(s) Storage capacity; and
(t) Mineral content.

3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface-water bodies in the vicinity of the contaminant release(s). The program shall provide relevant information on surface water and sediment characterization that should include, but not be limited to the following facts:

(a) Description of the temporal and permanent surface-water bodies including:

(i) For lakes and estuaries: location, elevation, surface area, inflow-outflow characteristics, depth, temperature stratification, and volume;

(ii) For impoundments: location, elevation, surface area, depth, volume, inflow-outflow characteristics, freeboard, and purpose of impoundment;

(iii) For rivers, streams, ditches, drains, swamps and channels: location, elevation, flow, velocity, depth, width, inflow-outflow characteristics, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);

(iv) Drainage patterns; and

(v) Evapotranspiration.

(b) Description of the chemistry of the surface water. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH_3, NO_3^-/NO_2, PO_4^{-3}), chemical oxygen demand, total organic carbon, and specific contaminant concentrations.

(c) Description of sediment characteristics including:

(i) Deposition area;

(ii) Thickness profile; and

(iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, and pH).

4. Air

The Permittee shall conduct a program to characterize the climate at the facility and in the vicinity of the facility when contamination migrates off-site. The program shall provide relevant information on climatic conditions that should include, but not be limited to the following facts:

(a) A description of the following parameters:

(i) Annual and monthly rainfall averages;

(ii) Monthly temperature averages and extremes;

(iii) Wind speed and direction;

(iv) Relative humidity/dew point;

(v) Atmospheric pressure;

(vi) Evaporation data;

(vii) Development of inversions; and

(viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

(b) A description of topographic and man-made features which affect air flow and emission patterns, including:

(i) Ridges, hills or mountain areas;

(ii) Canyons or valleys;

(iii) Surface-water bodies (e.g., rivers, lakes, bays, etc.);

(iv) Wind breaks and forests;

(v) Buildings; and

(vi) Existing man-made air emission sources (e.g., industrial processes, residences, etc.).

B. Contamination Characterization Plan

The Permittee shall submit a workplan on collecting analytical data to supplement existing data on groundwater, soils, surface water, sediment, air and subsurface gas contamination. This data shall be sufficient to define the nature, extent, origin, direction, and rate of movement of contaminant plume(s) in the environmental medium impacted by the release(s) from the SWMU(s) and AOC(s).

1. Groundwater Contamination

The Permittee shall conduct a program to characterize any plume(s) of contamination at the facility and any plume(s) that have migrated off-site. The program shall provide relevant information on groundwater contamination that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s);

(b) The horizontal and vertical direction of contamination movement;

(c) The velocity of contaminant movement;

(d) The horizontal and vertical concentration profiles of contaminant constituents in the plume(s);

(e) An evaluation of factors influencing the plume movement, specific contaminant movement, and specific contaminant transformation (e.g., physical, chemical, biological, etc.); and

(f) An extrapolation of future contaminant movement.

2. Soil Contamination

The Permittee shall conduct a program to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release(s). The program shall provide relevant information on soil contamination that should include, but not be limited to the following facts:

(a) A description of the vertical and horizontal extent of contamination.

(b) A description of relevant contaminant chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation.

(c) Specific contaminant concentrations.

(d) The velocity and direction of contaminant movement.

(e) An extrapolation of future contaminant movement.

3. Surface-Water and Sediment Contamination

The Permittee shall conduct a program to characterize the contamination in surface-water bodies resulting from the contaminant release(s) at the facility. The program shall provide relevant information on surface water and sediment contamination that shall include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

(b) The horizontal and vertical direction of contaminant movement;

(c) The contaminant velocity;

(d) An evaluation of the physical, biological and chemical factors influencing contaminant movement;

(e) An extrapolation of future contaminant movement; and

(f) The toxicity of the sediment and adjacent water column to aquatic life.

4. Air Contamination

The Permittee shall conduct a program to characterize the particulate and gaseous contaminants released into the atmosphere. The program shall provide relevant information on air emissions that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical direction and velocity of contaminant movement;

(b) The rate and amount of the release; and

(c) The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

5. Subsurface Gas Contamination

The Permittee shall conduct a program to characterize subsurface gas contamination in the soil. The program shall provide relevant information on subsurface gas contamination that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of subsurface gas migration;

(b) The chemical composition of the gases being emitted;

(c) The rate, amount, and density of the gases being emitted; and

(d) Horizontal and vertical concentration profiles of the subsurface gases emitted.

VI. TASK V: INVESTIGATION ANALYSIS

The Permittee shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature, rate, and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

A. Data Analysis

The Permittee shall analyze all facility investigation data outlined in Task IV and prepare a report on the nature, rate, and extent of contamination at the facility including sources and migration pathways. The report shall describe the nature and extent of contamination (qualitative/ quantitative) in relation to background levels indicative for the area.

B. Protection Standards

The Permittee shall identify all relevant and applicable standards and action levels (e.g., health based guidance values) for the protection of human health and the environment.

VII. TASK VI: LABORATORY AND BENCH SCALE STUDIES

The Permittee shall conduct laboratory and/or bench scale studies to determine the applicability of a corrective

measure technology or technologies to facility conditions. The Permittee shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(s), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

VIII. TASK VII: REPORTS

A. Progress Reports

The Permittee shall provide signed progress reports as required by Condition B.8.(a) of Module III of this Permit.

B. Draft and Final Reports

The Permittee shall prepare a RCRA Facility Investigation ("RFI") Report as required by Condition E.7 of Module III of this Permit. The RFI Report shall present all information gathered under the approved RFI Workplan.

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SCOPE OF WORK FOR A CORRECTIVE MEASURE STUDY

IBM Corporation
Poughkeepsie, New York

I. PURPOSE

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken. The Permittee will furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

The information presented in this Appendix shall serve as guidance for developing component plans and supporting reports to accomplish the intended purpose. This guidance is comprehensive, but can be tailored to meet site-specific circumstances. The Permittee should consult with the Department on any significant deviations from this guidance prior to implementation.

II. SCOPE

The Corrective Measure Study consists of four tasks:

Task I: Identification and Development of the Corrective Measure Alternative or Alternatives

- A. Description of Current Situation
- B. Establishment of Corrective Action Objectives
- C. Screening of Corrective Measures Technologies
- D. Identification of the Corrective Measure Alternative or Alternatives

Task II: Evaluation of the Corrective Measure Alternative or Alternatives

A. Technical/Environmental/Human Health/Institutional
B. Cost Estimate

Task III: Justification and Recommendation of the Corrective Measure or Measures

A. Technical
B. Human Health
C. Environmental

Task IV: Reports

A. Progress
B. Final

III. TASK I: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified Preliminary Corrective Measure Technologies (Task II of Appendix III-B), the Permittee shall identify, screen, and develop the alternative or alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. The Permittee shall provide an update to information presented in Task I of the RFI to the Commissioner regarding previous response activities and any interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation ("RFI"). The statement of purpose should identify the

actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the Department, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA and New York State guidance, and the requirements of any applicable federal and state statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 6NYCRR 373-2.6.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and reassess the technologies specified in Task II and identify additional technologies which are applicable at the facility. The Permittee shall screen the preliminary corrective measure technologies identified in Task II of the RFI and any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly

precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternative or Alternatives

The Permittee shall develop the corrective measure alternative or alternatives based on the corrective action objectives and analysis of the Preliminary Corrective Measure Technologies, as presented in Task II of the RFI and as supplemented following the preparation of the RFI Final Report. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a

workable number of option(s) that each appear to adequately address all problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies, identified in Task II, as supplemented in the development of the alternative or alternatives.

IV. TASK II: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Task I of Appendix III-C and evaluate each corrective measure alternative and it's components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes, but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implement ability and safety.

(a) The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

(i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or

treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

(ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

(b) The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

(i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straight forward operation and

maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

(ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes.

(c) The Permittee shall describe the implement ability of each corrective measure including the relative ease of installation (construct ability) and the time required to achieve a given level of response:

(i) Construct ability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth of water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

(ii) Time has two components that shall be addressed: (1) the time it takes to

implement a corrective measure; and (2) the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

(d) The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Among the factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short and long term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

The Permittee shall assess each alternative in terms of the extent to which it mitigates short and long term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of

mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines.

4. Institutional

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital, operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

(a) Direct capital costs include:

(i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure;

(ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

(iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

(iv) Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

(b) Indirect capital costs include:

(i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

(ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

(iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

(iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components;

(a) Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

(b) Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

(c) Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

(d) Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

(e) Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues generated during operations;

(f) Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

(g) Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

(h) Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

(i) Other costs: Items that do not fit any of the above categories.

V. TASK III: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks,

environmental effects, and other pertinent factors shall be highlighted. The Commissioner will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks II and III of Appendix III-C. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implement ability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing EPA and/or State criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

VI. TASK IV: REPORTS

A. Progress Reports

The Permittee shall provide the Commissioner with signed progress reports as required by Condition B.8.(a) of Module III of this Permit.

B. Corrective Measures Study ("CMS") Final Report

The Permittee shall prepare a CMS Final Report as required by Condition E.11. of Module III of this Permit. The CMS Final Report shall include all information gathered under the approved CMS Work plan. The CMS Final Report shall at a minimum include:

1. A description of the facility;

   (a) Site topographic map and preliminary layouts.

2. A summary of the corrective measure or measures;

   (a) Description of the corrective measure or measures and rationale for selection;

   (b) Performance expectations;

   (c) Preliminary design criteria and rationale;

   (d) General operation and maintenance requirements; and

   (e) Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

   (a) Field studies (groundwater, surface-water, soil, air); and

   (b) Laboratory studies (bench scale, pilot scale).

4. Design and Implementation Precautions;

   (a) Special technical problems;

   (b) Additional engineering data required;

   (c) Permits and regulatory requirements;

   (d) Access, easements, right-of-way;

   (e) Health and safety requirements; and

   (f) Community relations activities.

5. Cost Estimates and Schedules;

   (a) Capital cost estimate;

   (b) Operation and maintenance cost estimate; and

   (c) Project schedule (design, construction, operation).

373 Appendix III-D
Compliance Schedule

IBM Corporation
Poughkeepsie, New York

I. Compliance Schedule For Interim Corrective Measures.

A. Pursuant to Module Condition B.6.(a), Permittee shall submit for approval an interim corrective measures study within thirty (30) calendar days following the date of the notification by the Commissioner requiring implementation of interim corrective measures.

B. Pursuant to Module Condition B.6.(b), Permittee shall submit for approval an interim corrective measures work plan within thirty (30) calendar days after notifying the Commissioner of a release or threatened release that poses a significant and immediate threat to human health or the environment.

II. Compliance Schedule For Reporting.

A. Pursuant to Module Condition B.8.(a), Permittee shall submit signed progress reports as specified in approved work plans of all activities conducted in accordance with the provisions of this Permit Module, beginning no later than thirty (30) calendar days after the Permittee is first required to begin implementation of any such requirement.

III. Compliance Schedule for Notification

A. Pursuant to Module III Condition B.10.(a), the Permittee shall provide written notice to the Commissioner within thirty (30) calendar days of confirmation that the facility releases of hazardous

constituents in groundwater have migrated off-site in concentration that exceed action levels. The written notice to the Commissioner shall include a proposed plan to notify any person who owns or resides on the land which may overlie the contaminated groundwater.

B. Pursuant to Module III Condition B.10.(b), Permittee within fifteen (15) calendar days; after discovering facility releases of hazardous constituents in air have or are migrated off-site, exceeding action levels in areas where residences or places at which continuous, long-term exposure to the constituents are located, shall notify the Commissioner and initiate any actions that may be necessary to provide notice to all individuals who have or may have been subject to such exposure.

IV. Compliance Schedule For Assessment of Newly Identified SWMUs and AOCs.

A. Pursuant to Module Condition C.1., Permittee shall notify the Commissioner, semi-annually in writing, of any additional, newly identified SWMU(s) and/or AOC(s) not known prior to the issuance of this Permit. In addition, pursuant to Module Condition C.1., Permittee shall notify the Commissioner, in writing, semi-annually, of any newly constructed SWMU(s) not listed in this Permit.

B. Pursuance to Module Condition C.2., Permittee shall submit a SWMU/AOC Assessment Report within thirty (30) calendar days after notifying the Commissioner of any additional SWMU(s) or AOC(s) which existed prior to this Permit.

C. Pursuant to Module Condition C.3., Permittee shall submit for approval a SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days after written

notification by the Commissioner that a SWMU/AOC Sampling and Analysis Plan is necessary.

D. Pursuant to Module Condition C.4.(b), Permittee shall submit for approval revisions of the SWMU/AOC Sampling and Analysis Plan within forty-five (45) calendar days after meeting with the Department to discuss Plan comments or within forty-five (45) calendar days after Permittee's receipt of Plan comments when no meeting is scheduled.

E. Pursuant to Module Condition C.4.(c), Permittee shall begin to implement the SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days following written approval of the Plan.

F. Pursuant to Module Condition C.5., Permittee shall submit a SWMU/AOC Sampling and Analysis Report within sixty (60) calendar days of receipt by the Permittee of complete, validated analytical data generated under in the approved SWMU/AOC Sampling and Analysis Plan.

V. Compliance Schedule And Notification Requirements For Newly-Discovered Releases At SWMUs and AOCs.

A. Pursuant to Module Condition D., Permittee shall notify the Commissioner, in writing, of any newly-discovered releases at SWMUs and/or AOCs, no later than fifteen (15) calendar days after such discovery.

VI. Compliance Schedule For RFA-Sampling Visit (SV) Work Plan.

A. Pursuant to Module Condition E.2.(b), Permittee shall submit for approval a RFA-Sampling Visit Work Plan for the Adjacent Hudson River Sediments (AOC(s)) identified in Module Condition E.2.(a) within one hundred twenty (120) calendar days after receipt of notice from the Department.

B. Pursuant to Module Condition E.2.(c) , Permittee shall submit for approval a RFA-Sampling Visit Work Plan for assessing the integrity of the Truck Crib Sump SWMU identified in Module Condition E.2.(a) within one hundred twenty (120) calendar days after the effective date of this Permit.

C. Pursuant to Module Condition E.2.(c)(ii), Permittee shall submit for approval revisions to the RFA-SV Work Plan within forty-five (45) calendar days after meeting with the Department to discuss Plan comments, or within forty-five (45) calendar days after Permittee's receipt of Plan comments when no meeting is scheduled.

VII. Compliance Schedule For RFA-SV Work Plan Implementation.

A. Pursuant to Module Condition E.3., Permittee shall begin to implement the RFA-SV Work Plan according to the schedule made part of the approved RFA-SV Work Plan.

VIII. Compliance Schedule For RFA-SV Report.

A. Pursuant to Module Condition E.4.(a)., Permittee shall submit a report on the SV within sixty (60) calendar days of receipt by the Permittee of complete, validated analytical data generated under the approved RFA-SV Work Plan.

IX. Compliance Schedule For RCRA Facility Investigation ("RFI") Work Plan.

A. Pursuant to Module Condition E.5.(c)., the Permittee shall notify the Commissioner, in writing, within thirty (30) calendar days prior to the date when SWMU(s) and/or AOC(s) identified in Module Condition E.5.(b) and/or identified pursuant to Module Condition C.6. become accessible, Permittee shall submit for approval a RFI Task I and II reports and a Work Plan

for the inaccessible SWMU(s) identified in Module Condition E.5.(b) and/or Module Condition C.6. no later than one-hundred eighty (180) calendar days after the Permittee's written notification to the Commissioner that the SWMU(s) become accessible for such an investigation.

B. Pursuant to Module Condition E.5.(d)., Permittee shall submit for approval a RFI Task I Report within sixty (60) calendar days after written notification by the Commissioner than an RFI is required pursuant to Module Condition C.6, D., and/or E.4(b).

C. Pursuant to Module Condition E.5.(e)., Permittee shall submit for approval a RFI Task II Report within ninety (90) calendar days after the effective date of this Permit, if applicable, and within ninety (90) days after written notification by the Commissioner than an RFI is required pursuant to Module Condition C.6., D., and/or E.4(b).

D. Pursuant to Module Condition E.5.(f)., Permittee shall submit for approval a RFI Work Plan within ninety (90) days after written notification by the Commissioner than an RFI is required pursuant to Module Condition C.6., D., and/or E.4(b).

E. Pursuant to Module Condition E.5(f)(iv), if the Permittee determines any items of Tasks III through V of the RFI Scope of Work have been submitted, the Permittee shall request within thirty (30) calendar days of the effective date of the Permit, and/or within thirty (30) calendar days of notification by the Commissioner, that the Commissioner review for approval the Permittee's determination.

F. Pursuant to Module Condition E.5.(g)(ii)., Permittee shall submit for approval revisions to the RFI Work Plan within forty-five (45) calendar days after meeting with the Department to discuss Plan comments, or within

forty-five (45) calendar days after Permittee's receipt of Plan comments when no meeting is scheduled.

X. Compliance Schedule For RFI Work Plan Implementation.

A. Pursuant to Module Condition E.6., Permittee shall begin to implement the RFI Work Plan within thirty (30) calendar days following written approval of the Plan.

XI. Compliance Schedule For RFI Final And Summary Report.

A. Pursuant to Module Condition E.7.(a)., Permittee shall submit for approval the RFI and Summary Reports within sixty (60) calendar days after receipt by the Permittee of validated analytical data generated under the approved work plan.

B. Pursuant to Module Condition E.7.(b), Permittee shall submit for approval the RFI Report on site-wide groundwater contamination within ninety (90) calendar days after the effective date of this Permit. Thereafter, the Permittee shall submit semi-annual and annual groundwater monitoring reports to the Commissioner for approval.

C. Pursuant to Module Condition E.7.(c)(ii), Permittee shall submit for approval revisions to the RFI and Summary Reports within forty-five (45) calendar days after meeting with the Department to discuss Report comments, or within forty-five (45) calendar days when no meeting is scheduled.

D. Pursuant to Module Condition E.7.(d), Permittee shall mail the approved Summary Report to all individuals on the facility mailing list within thirty (30) calendar days of receipt of Report approval.

XII. Compliance Schedule For Groundwater Monitoring Plan and Community Relations Plan

A. Pursuant to Module Condition E.8, Permittee shall submit for approval a Final Groundwater Monitoring Plan and Quality Assurance Project Plan one-hundred twenty (120) calendar days after the effective date of this Permit. Permittee shall submit for approval a Community Relations Plan one-hundred eighty (180) calendar days after the effective date of this permit.

XIII. Compliance Schedule For Corrective Measures Study ("CMS") Scope of Work.

A. Pursuant to Module Condition E.9.(d), Permittee shall submit for approval a CMS Plan within sixty (60) calendar days after the written notification by the Commissioner for a CMS and within forty-five (45) calendar days of the effective date of this Permit for the on-site groundwater contamination and DNAPL sources required by Module Condition E.9.(c).

B. Pursuant to Module Condition E.9.(e)(ii), Permittee shall submit for approval revisions to the CMS Plan within forty-five (45) calendar days after meeting with the Department to discuss Plan comments, or within forty-five (45) calendar days when no meeting is scheduled.

XIV. Compliance Schedule For CMS Implementation.

A. Pursuant to Module Condition E.10., Permittee shall begin to implement the CMS Plan within thirty (30) calendar days following written approval of the Plan.

XV. Compliance Schedule For CMS Final Report.

A. Pursuant to Module Condition E.11.(a), Permittee shall submit for approval a CMS Final Report within forty-five (45) calendar days after completion of the CMS.

B. Pursuant to Module Condition E.11.(c)(ii), Permittee shall submit for approval revisions to the CMS Final Report within forty-five (45) calendar days after meeting with the Department to discuss Report comments or within forty-five (45) calendar days when no meeting is scheduled.

XVI. Compliance Schedule For Financial Assurance for Corrective Measure(s)

A. Pursuant to Module Condition E.13.(b)., Permittee shall demonstrate financial assurance for completing the approved corrective measure(s) by April 1 of each year after this Permit has been modified.

373 APPENDIX III-E

RFA SAMPLING VISIT WORK PLAN OUTLINE

AOC's UNDERGOING SEDIMENT SAMPLING

IBM CORPORATION
POUGHKEEPSIE, NEW YORK

It is the intent of this RFA sampling visit work plan to require bottom sediment sampling in the Hudson River near and adjacent to the plant site if there is the likelihood of depositional areas in this section of the river. It is the facility's contention that due to tidal motion and the velocity of the river currents, there are no depositional areas to be sampled. To support this position, the facility is to submit a report to the Commissioner, within fifteen calendar days of permit issuance, which provides information and calculations supporting this contention. If after a review of this report, the Commissioner agrees that there is little likelihood of depositional areas, the facility will not be required to conduct bottom sediment sampling in the Hudson River. If the Department's review concludes that there is the likelihood of depositional areas in the Hudson River near and adjacent to the plant site, the facility will be required to comply with the requirements of this sampling visit work plan outline.

If the Commissioner determines that there is the likelihood of depositional areas, the Permittee will be given written notification to develop a sampling visit work plan in accordance with this RCRA Facility Assessment Work Plan Outline. This work plan after approval by the Commissioner, will be implemented to evaluate releases of hazardous constituents to the bottom sediments of the Hudson River near and adjacent to the plant site.

A. Hudson River

Two possible sources of contamination of the Hudson River bottom sediments are of interest. They are Outfall 003, (Treated Industrial Waste Water Discharge) and historic releases from Spring Brook.

The Hudson River, in the vicinity of the facility experiences tidal motion. Due to this effect, contaminated bottom sediments may exist both upstream and downstream of Outfall 003 and the entry of Spring Brook into the River.

The evaluation of bottom sediments in the Hudson River will be conducted in two phases. Phase 1 will be the location of the sediment deposits. Phase 2 will be the sampling of these deposits.

1. Phase 1

A Work Plan shall be submitted to:

a. Locate, determine the depth of and visually classify the depositional areas of Spring Brook and Outfall 003. The depositional area is defined as those areas containing predominately fine grained bottom sediments (grain size less than .062mm) originating from Spring Brook and Outfall 003.

b. In order to establish "background levels", the facility is to propose a bottom sediment sampling location containing predominately fine grained bottom sediments (grain size less than .062mm), which is located upstream of influences from the plant site.

2. Phase 2

The Phase 1 Report shall present the data in a concise, logical manner using text, graphics and charts as necessary. The Phase 1 Report shall include the proposed Work Plan for Phase 2; the sampling and subsequent analysis of the bottom sediment deposits located in Phase 1. This work plan shall include the following:

a. Proposed bottom sediment sampling locations within the depositional areas. A minimum of three separate locations shall be sampled in the background area and each depositional area.

b. Provided the sediment deposits are of an adequate thickness, samples shall be obtained through the use of a core sampler. Sub samples are to be taken along obvious strata changes. If inadequate sample thickness precludes use of a coring device, an alternate sampling method shall be proposed.

c. All field notes generated during the sampling process are to be submitted as part of the Phase 2 Report.

d. Analysis of sediment samples shall be as per Paragraph C of this Appendix.

C. Analytical Parameters

All sediment samples are to undergo the following analysis:

Parameters	Laboratory Preparation Method	Laboratory Analytical Method
Volatile Organics	SW-846-5030	SW-846-8240 or 8260

Semivolatile Organics	SW-846-3540 or 3550	SW-846-8270
Trace Metals	SW-846-3050	SW-846-6010
PCBs	SW-846-3540 or 3550	SW-846-8080
Cyanide	SW-846-9011	SW-846-9010 or 9012
Total Organic Carbon		Thermal Conductivity or Combustion
Total Volatile Solids		Standard Methods 2540G
Sediment Classification		ASTM 248-7 ASTM 248-8

373 APPENDIX III-F

RFA SAMPLING VISIT WORK PLAN OUTLINE

INTEGRITY TEST FOR TRUCK CRIB SUMP

IBM CORPORATION
POUGHKEEPSIE, NEW YORK

The Permittee is required to develop a sampling visit work plan in accordance with this RCRA Facility Assessment Work Plan Outline. This work plan after approval by the Commissioner will be implemented to evaluate releases from the Truck Crib Sump.

1. The structure undergoing this testing is the Truck Crib Sump.

2. The structure undergoing testing shall be cleaned prior to testing.

3. After cleaning, an exfiltration test shall be performed on the structure by filling the sump with water.

4. The water shall remain in the sump at least one hour in order to allow conditions to stabilize.

5. After stabilization, if necessary, the sump shall be topped off with water.

6. The rate of water loss, if any, shall be recorded by observing the drop of water surface elevation in the pit for a minimum of one hour.

7. Upon completion of testing, a report shall be submitted to the Department which:

    a. Describes the actual testing activities
    b. Describes any leaks found
    c. For any leaks found, gives the calculations and leakage rate in gallons per 24 hours

It is the intent of this Appendix to evaluate the integrity of this structure in the most efficient and cost effective manner. Therefore, if the Permittee believes that the procedures outlined above are inappropriate or may be improved, revisions may be proposed in the work plan.

MODULE IV - STORAGE IN CONTAINERS

IBM Corporation - Poughkeepsie, N.Y.

1. Use and Management of Containers (373-2.9):

The Permittee must comply with 6NYCRR 373-2.9 for the use and management of containers within the hazardous waste management unit (i.e., container storage unit) as follows:

a) 6NYCRR Subpart 373-2.9(a) - Applicability;
b) 6NYCRR Subpart 373-2.9(b) - Condition Of Containers;
c) 6NYCRR Subpart 373-2.9(c) - Compatibility Of Waste With Containers;
d) 6NYCRR Subpart 373-2.9(d) - Management Of Containers;
e) 6NYCRR Subpart 373-2.9(e) - Inspections;
f) 6NYCRR Subpart 373-2.9(f) - Containment;
g) 6NYCRR Subpart 373-2.9(g) - Special Requirements For Ignitable Or Reactive Waste;
h) 6NYCRR Subpart 373-2.9(h) - Special Requirements For Incompatible Waste;
i) 6NYCRR Subpart 373-2.9(I) - Closure;

2. Authorized Storage Area, Waste Types, and Volume:

This information is in the following sections of the Completed Permit Application:

Attachment I - Authorized Hazardous Waste And Waste Analysis Plan

Appendix 1B - Hazardous Waste Permit Application - Part A

Attachment IX - Use And Management Of Containers

MODULE V - STORAGE IN TANKS

IBM Corporation - Poughkeepsie, N.Y.

1. Use and Management of Tanks (373-2.10)

The Permittee must comply with 6NYCRR 373-2.10 for the storage and management of hazardous waste within tanks as per the following regulations:

a) 6NYCRR Subpart 373-2.10(a) - Applicability
b) 6NYCRR Subpart 373-2.10(e) - General operating requirements
c) 6NYCRR Subpart 373-2.10(f) - Inspections
d) 6NYCRR Subpart 373-2.10(g) - Response to leaks or spills and disposition of leaking or unfit-for-use tank systems
e) 6NYCRR Subpart 373-2.10(h) - Closure and post-closure care
f) 6NYCRR Subpart 373-2.10(i) - Special requirements for ignitable or reactive wastes
g) 6NYCRR Subpart 373-2.10(j) - Special requirements for incompatible wastes

2. Authorized Storage Area, Waste Types and Volume:

This information is in the following sections of the Completed Permit Application:

Attachment I - Authorized Hazardous Waste And Waste Analysis Plan

Appendix 1B - Hazardous Waste Permit Application - Part A

Attachment X - Use And Management Of Tanks

IBM CORPORATION
POUGHKEEPSIE, NEW YORK 12602

EPA I.D. NUMBER NYD 080480734

6NYCRR PART 373 PERMIT APPLICATION

VOLUME II

IBM POUGHKEEPSIE
6NYCRR PART 373 PERMIT APPLICATION

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15.1.3	General Tank Operating Requirements	15-3
15.1.4	Requirements for Ignitable or Reactive Waste (Tanks)	15-3
15.1.5	Requirements for Incompatible Wastes (Tanks)	15-4
15.1.6	Tank Inspections	15-4
15.1.7	Tank Spills and Leakage	15-4
15.1.7	Tank Spills and Leakage	15-4
15.1.8	Closure and Post-Closure	15-4
15.2	WASTE XYLENE AND WASTE IPA STORAGE TANKS (BCSF)	15-4
15.2.1	Description	15-4
15.2.2	Secondary Containment for Tank Systems	15-5
15.2.3	General Tank Operating Requirements	15-6
15.2.4	Requirements for Ignitable or Reactive Waste (Tanks)	15-7
15.2.5	Requirements for Incompatible Wastes (Tanks)	15-8
15.2.6	Tank Inspections	15-8
15.2.7	Tank Spills and Leakage	15-8
15.2.8	Closure and Post-Closure	15-9

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TABLE 15-1

EXISTING HAZARDOUS WASTE STORAGE TANKS

General Description	Location	Size	U/A*	Stored Material (EPA I.D. No.)
1. Carbon Abatement System				
a. Tank No. 21	B/004, 3rd Floor	100 gal.	A	Waste Xylene (F003)
b. Tank No. 22	B/004, 3rd Floor	100 gal.	A	Waste Xylene (F003)
2. Bulk Chemical Storage Facility				
a. Waste Xylene	B/034	8,000 gal.	A	Waste Xylene (F003)
b. Waste IPA	B/034	8,000 gal.	A	Waste IPA (D001)

U = Underground
A = Aboveground

15.0 TANKS

IBM Poughkeepsie operates a total of four hazardous waste storage tanks subject to the 6 NYCRR Part 373 permit requirements. The following existing storage tank systems will be described in this section:

- Carbon Abatement System (Waste Xylene) Storage Tanks - (2)
- Waste Xylene Storage Tank (BCSF) - (1)
- Waste IPA Storage Tank (BCSF) - (1)

Table 15-1 provides general information regarding the existing hazardous waste storage tank systems. Following is a description of each system.

15.1 CARBON ABATEMENT SYSTEM (WASTE XYLENE) STORAGE TANKS

15.1.1 Description

The Carbon Abatement System Storage Tanks consist of two 100-gallon tanks, designated as Tanks 21 and 22, which provide storage for waste xylene. The tanks are located in a secure area inside Building 004 on the third floor. These tanks are double-walled stainless steel.

15.1.2 Secondary Containment

The two xylene tanks are located in a separate room within the Carbon Abatement area. A six-inch high stainless steel pan provides secondary containment for these tanks. Stainless steel is an acceptable material of construction for exposure to xylene (Chemical Engineers Handbook, 3rd Ed. McGraw-Hill, 1950. Table 1: Chemical Resistance of Construction Materials). The containment pan is free of cracks and gaps and is inspected for integrity each operating day (see Appendix 5B - Inspections). The pan is constructed of welded overlapping stainless steel plates which are welded to create an impermeable liner. The only operational stresses that this containment pan is exposed to is from personnel walking on it. As the pan is

mounted on the concrete floor slab, it can easily withstand this stress without compromising its integrity. Although the containment pan has a holding capacity of 560 gallons (greater than 110 percent of combined tank volume), National Fire Prevention Association (NFPA) rules require this type of flammable chemical spill to be piped outside the building. Therefore, piping is in place to automatically transfer any spilled xylene from the spill containment pan to the spill containment Tank 45, located outside at the Northwest corner of Building B004. The main function of Tank 45 is to accumulate a non-hazardous aqueous waste stream that is ultimately sent to the local POTW. In the unlikely event that xylene spilled out of Tanks 47A and 47B due to overfilling, a high level capacitance probe in each tank would automatically send an alarm to the site 24-hour Emergency Response Center personnel, who would dispatch personnel to the area. The xylene would flow down piping leading into the top of Tank 45. A vapor detector at the top of Tank 45 would detect the presence of xylene and send another alarm to the Emergency Response Center (indicating this condition). It would take approximately 20 minutes for Tank 45 to empty into the 600 gallon holding tank inside B/004. Since the xylene would have been floating on the top of the liquid in Tank 45, (i.e., Xylene has lower Specific Gravity than non-hazardous liquid in 45) it would be the last liquid to go into the inside holding tank (as the discharge piping is located at the bottom of Tank 45). The holding tank also has a vapor detector which would be activated by the presence of xylene and would automatically send an additional alarm to the Emergency Response Center, indicating this condition. It would take approximately 12 more hours to empty the contents of the holding tank into the POTW system. This time interval would be more than sufficient for emergency response personnel to manually shut down the system and remove the waste for disposal at an off-site vendor, even in the unlikely event that the first two alarms failed. Therefore, although the spill containment for xylene Tanks 47A and 47B is ultimately connected to the POTW (sanitary sewer), there are adequate safeguards in place to prevent any xylene spill from reaching the POTW system. All ancillary equipment has adequate secondary containment; the pumps are in a pan, and remaining piping is in

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rooms that are bermed. Appendix 15A provides the design features of Tanks 47A and 47B, as well as drawings detailing the piping leading from the containment pan to Tank 45.

15.1.3 General Tank Operating Requirements

Tanks 47A and 47B are connected together and thus they fill up concurrently. Bypass valves are present in order to stop flow to one or both tanks. The waste xylene is emptied from the tanks by connecting a mobile pump unit via steel piping which discharges to a 260-gallon stainless steel portable container. The tanks are emptied several times per week, and are inspected daily to determine general conditions and fluid levels. During unloading of Tanks 47A and 47B, the 260-gallon portable container is grounded and exhausted. Tank unloading is performed manually by trained personnel from the Chemical Distribution Department by opening 3 valves leading to a compressed air pump which discharges to the portable container. Chemical Distribution personnel remain in the carbon abatement area during unloading so they can immediately access the manual shut-off pump switch, if necessary. Tanks 47A and 47B are clearly marked with the words "Hazardous Waste".

15.1.4 Requirements for Ignitable or Reactive Waste (Tanks)

As required by 6 NYCRR, Part 373-2.2(i), proper precautions were and are taken regarding the design and operation of the waste xylene tanks to prevent accidental ignition of ignitable waste. The precautions are as follows: only spark-proof tools are used in the Carbon Abatement Area; no sources of ignition are allowed in this area (e.g., "no smoking signs" are posted conspicuously); compressed air rather than electrical pumps are used; all tanks and containers holding ignitable liquid are properly grounded; tanks are located in a limited access room; the room is equipped with a carbon dioxide inundation system with ultraviolet detection; flame arresters are installed in fill lines, vents, and discharge lines. The exhaust system in the xylene tank room exhausts 1.8 cmf per square foot of floor space, exceeding the minimum requirement of 1 cfm per square foot.

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15.1.5 Requirements for Incompatible Wastes (Tanks)

Xylene Tanks 47A and 47B are dedicated use tanks. They are connected solely to the Carbon Abatement system and, as such, are designed to receive xylene only. Any process change that could impact this dedicated use would be prohibited until all implications were determined.

15.1.6 Tank Inspections

Section 5 (Inspections) deals with inspection requirements for the xylene tanks. In December 1988, an independent, certified professional engineer determined by internal visual inspection, that these tanks are in excellent condition. Visual internal tank inspections for Tanks 47A and 47B will be completed once every two years.

15.1.7 Tank Spills and Leakage

Detailed spill response procedures for Tanks 21 and 22 are included in Section 7 - The Contingency Plan. A high level capacitance probe is installed in each tank. Activation of the high level alarm sends a signal to emergency personnel (via the Centrex Control Center) who would dispatch immediately to inspect the xylene tank area. Note that any spill event from these tanks would be followed by an immediate cleanup and a full investigation as to the cause of the spill and the required remedy.

15.1.8 Closure and Post-Closure

Detailed closure plans for Tanks 47A and 47B are included in Section 9 - Closure Plan.

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15.2 WASTE XYLENE AND WASTE IPA STORAGE TANKS (BCSF)

15.2.1 Description

The waste xylene and waste IPA tanks are 8,000-gallon, prime-grade, Type 304L stainless steel tanks. They are located inside the Bulk Chemical Storage Facility (BCSF) and are thus protected from atmospheric conditions. Each tank has a diameter of 9 feet, is 18 feet x 4 inches long and has a

minimum shell thickness of 1/4-inch. These tanks are supported by 3/8-inch x 4-inch stainless steel hangar straps fastened to structural steel berms specifically positioned and designed for that purpose. The stainless steel tanks are passivated with an oxidizer layer, and grounded to provide corrosion control.

Each tank is equipped with two 18-inch manholes, an 8-inch emergency pressure/vacuum relief valve, a 4-inch rupture disc, 1-1/2 inch chemical inlet(s), and a 2-1/2 inch outlet pipe. Each tank has an inerting nitrogen blanket system for the space above the liquid surface within the tank. The rupture disc and pressure vacuum relief valve vents outside the building. The nitrogen outlet vents through a carbon filter. The tanks have two sets of liquid level instrumentation: one set for normal operation and sequencing of pumps and to provide alarms, and one set to act as a back-up device and to provide alarms.

The BCSF is an existing system as installation commenced (August 1984). Appendix 15B contains plan and profile sketches of the BCSF as well as a sketch of a longitudinal section of a waste storage tank (Figures 15B-1, 15B-2, 15B-3, and 15B-4). Figures 15B-5, 15B-6, 15B-7, and 15B-8, also in Appendix 15B, are detailed design drawings showing tank cross-section, waste xylene system, waste IPA system, and tank specifications respectively.

One (1) solvent waste pump is provided for each tank. The pumps are air-operated, double-diaphragm type (Wilden Pump & Engineering Company, Warren Rupp Company, or equal) for emptying the tanks.

15.2.2 Secondary Containment for Tank Systems

Each tank is spill-contained by means of a leak detected painted carbon steel pan, sized to contain the entire contents of the tank (8,000 gallons) plus 20 minutes of fire-protection water (1,700 gallons). Steel is an acceptable material of construction for exposure to xylene and IPA (Chemical Engineers Handbook, 3rd Ed. McGraw-Hill, 1950. Table 1: Chemical Resistance of Construction Materials).

The spill containment pan is constructed of coated welded structural steel plate with a minimum thickness of 1/4-inch. The steel plates are

welded to create an impermeable liner. Each pan has a sloping floor and a small sump on the corridor side to facilitate the removal of spilled fluids. Each containment pan is supported on metal decking which is 18 gauge galvanized steel decking, 3 inches high and supported directly on the concrete floor. The only operational stress that these containment pans are exposed to are from personnel walking on them. As the pans are mounted on the metal decking, which are mounted on the concrete slab, they can easily withstand this stress without compromising their integrity. Each containment pan is equipped with a spill detection sensor that would immediately alert personnel at the BCSF control building and as appropriate, the Chemical Distribution Center (CDC) (B028). In the unlikely event of a spill of either waste xylene or waste IPA, the spilled fluid would be removed from secondary containment either within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment, if the owner or operator can demonstrate to the commissioner the removal cannot be accomplished within 24 hours. The containment pans are free of cracks and gaps and are inspected daily for integrity (see Section 5 - Inspections).

All piping within the building is spill-contained except over tank containment areas at pumps and tank connections. Spill containment is accomplished by means of a tray hung below the piping. Outside piping is spill-contained by a leak detected and nitrogen blanketed pipe-within-a-pipe system that are heat traced and insulated as required.

15.2.3 General Tank Operating Requirements

Wastes enter the tanks through 1-1/2-inch diameter pipelines from the manufacturing buildings on site. When the tanks are filled to approximately 5,000 gallons, the wastes are pumped to tank trucks staged in the Truck Bay. Procedures taken to prevent tanker truck overflow are illustrated in Appendix 15C (Figure 15C-1). The chemicals are then transported to a licensed recycling facility. Any spills within the Truck Bay are collected in a stainless steel containment pan which is pitched to a single spill-contained drain pipe. The drain pipe flows to the 10,000 gallon spill containment tank by way of the small settling chamber. No valves are placed on the drain pipe,

such that the line is open at all times. The spill containment tank is equipped with two sets of liquid level instrumentation, one set for normal operation and sequencing of pumps and to provide alarms, and one set to act as a back-up to provide alarms. Both the xylene and IPA waste storage tanks are equipped with high level and high high level controls. The waste tank feed pump would be shut down and the sample inlet valve would be closed if the high level alarm is triggered. If the high high level control is activated, a local alarm would be sounded as well as a remote alarm, and the tank feed pump would shut down. IBM site security would initiate action plans as described in Section 7. See Appendix 15B (Figure 15B-9) for leak detection details of the truck bay area and spill tank.

Design and site operational features help ensure that accidents involving BCSF wastes are minimized if not eliminated. No wastes stored at the BCSF are incompatible with any other waste stored there. The waste xylene and waste IPA tanks are clearly marked with the words "Hazardous Waste".

15.2.4 Requirements for Ignitable or Reactive Waste (Tanks)

As required by 6 NYCRR, Part 373-2.2(i)(1), proper precautions were and are taken regarding the design and operation of the waste xylene and waste IPA tanks to prevent accidental ignition of ignitable waste. Only spark-proof tools are used in the BCSF. No sources of ignition are allowed in this area; "No Smoking" signs are posted conspicuously, compressed air double diaphragm pumps are used, and all tanks holding ignitable liquids are properly grounded. An ultraviolet flame detection and fire suppressant low expansion foam and "Purple K" system are installed, and all inflowing and outflowing lines as well as vents to the waste tanks are equipped with flame arresters. The "Purple K" automatic chemical fire extinguishing system is installed in the truck bay. The valve/sample room and the truck bay are protected by standard automatic sprinklers on a dry pipe or pre-action system. A low expansion foam fire protection system in conjunction with a water sprinkler system will be automatically controlled by ultraviolet flame detectors, heat detectors, and deluge valves for the storage tank area.

The storage of ignitable xylene and IPA wastes at the BCSF is conducted in accordance with buffer zone requirements and all other requirements of the National Fire Prevention Associations "Flammable and Combustible Code" (1987 Edition). No wastes stored at the BCSF are incompatible with any other wastes stored there. See Waste Stream 46 and 47 (Waste IPA and Waste Xylene) in Section 17 (Waste Analysis Plan) for general and compatability characteristics of these wastes.

In accordance with 373-2.2(i)(2), all wastes are compatible and thus would not generate any extreme heat or pressure, fire or exposions, or violent reactions. Vapors and fumes are controlled by nitrogen blankets over the liquid in the tank system. The rupture disc and pressure relief valve vents outside the building through a carbon filter. Additionally, all pumps are double diaphragmed. All areas of the BCSF (enclosed truck bay, valve/sample room and tank storage area) have forced ventilation at 6 air changes per hour for normal conditions and 12 air changes per hour for emergency conditions.

15.2.5 Requirements for Incompatible Wastes (Tanks)

The waste xylene and waste IPA tanks are dedicated use tanks. The waste xylene tank receives only waste xylene and the waste IPA tank receives only waste IPA. Any process change that could impact this dedicated use would be prohibited until all implications were determined.

15.2.6 Tank Inspections

Section 5 (Inspections) deals specifically with inspection requirements and practices for the waste xylene and waste IPA tanks. These tanks are inspected for the required items on a daily basis. An ultrasonic test of the waste xylene and waste IPA tanks was performed prior to their use in October 1985. Tests indicated that the nominal shell and head thicknesses were met.

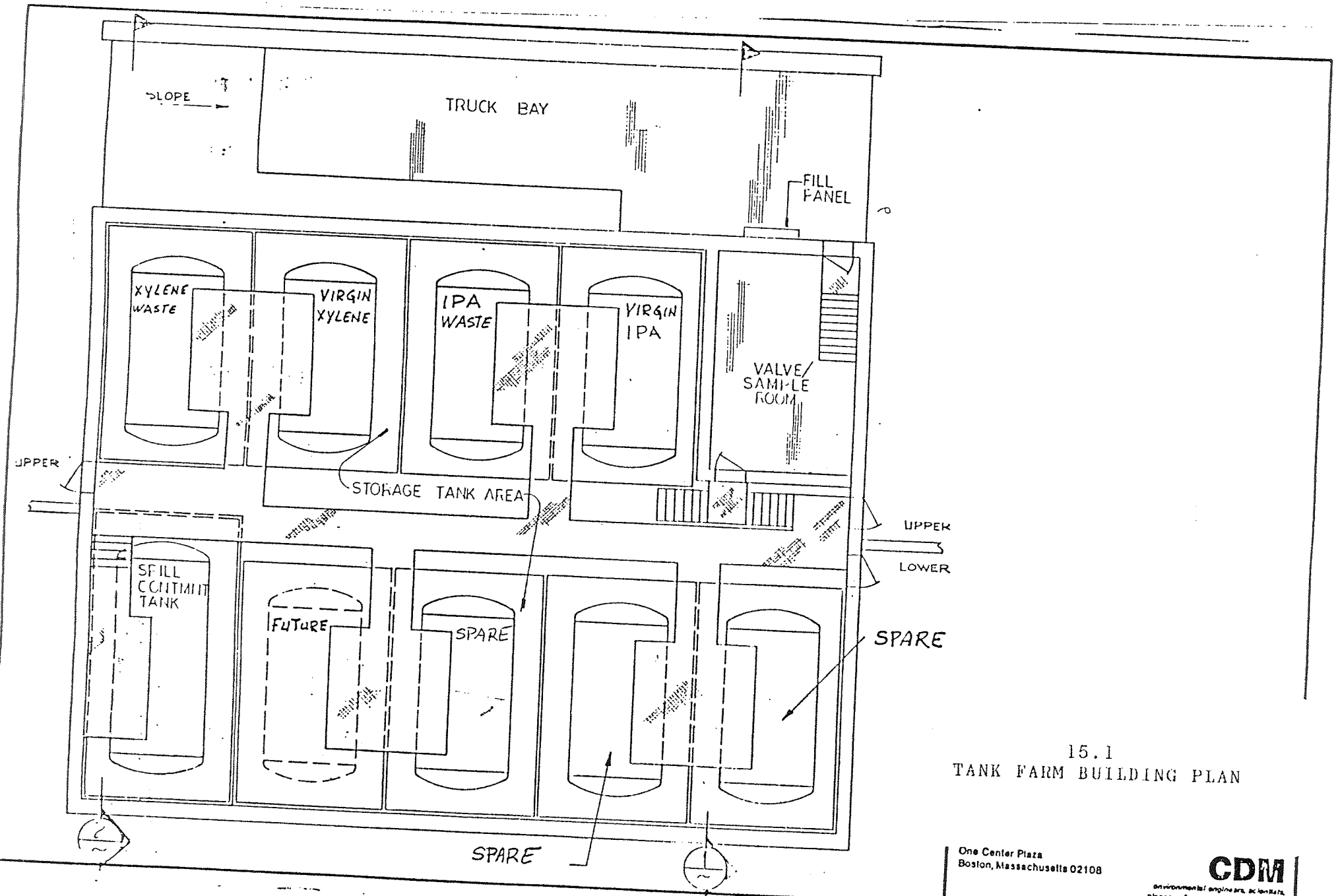
15.2.7 Tank Spills and Leakage

Detailed spill response procedures for the waste IPA and waste xylene tanks are included in Section 7 - The Contingency Plan. Note that any spill

event from these tanks would be followed by an immediate cleanup and a full investigation as to the cause of the spill and the required remedy.

15.2.8 Closure and Post-Closure

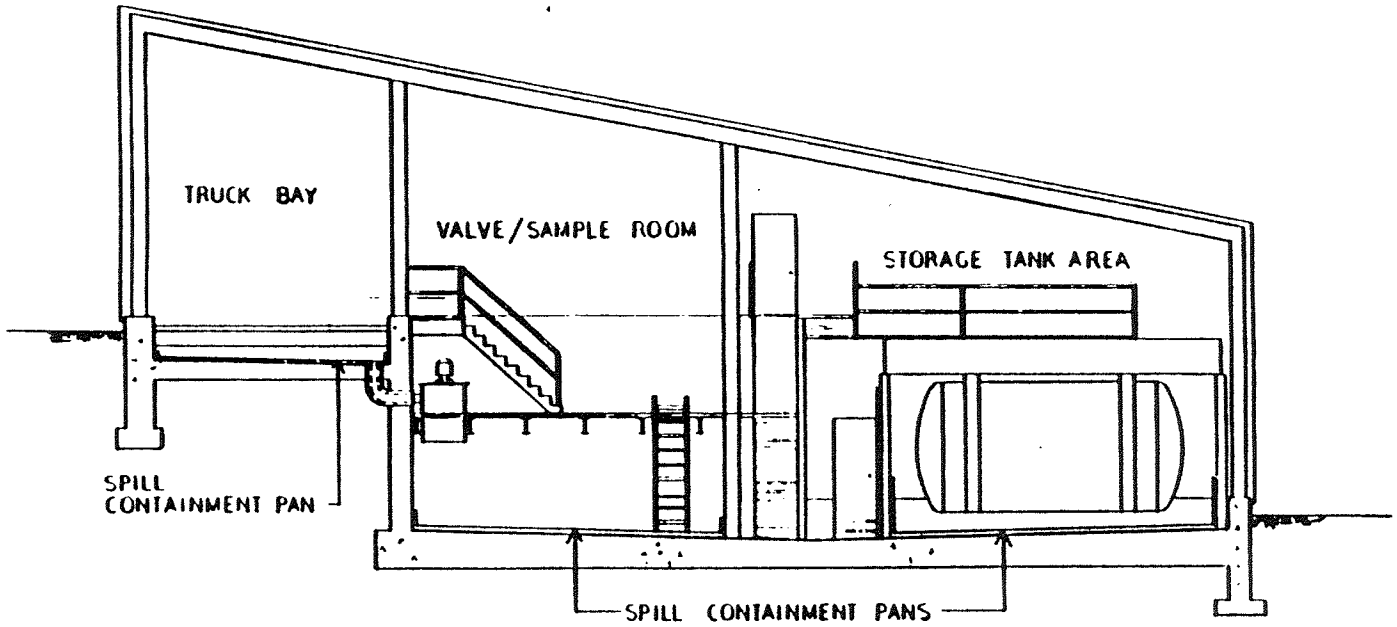
Detailed closure plans for the waste IPA and waste xylene tanks are included in Section 9 - Closure Plan.



15.1
TANK FARM BUILDING PLAN

One Center Plaza
Boston, Massachusetts 02108

CDM
environmental engineers, scientists, planners, & management consultants

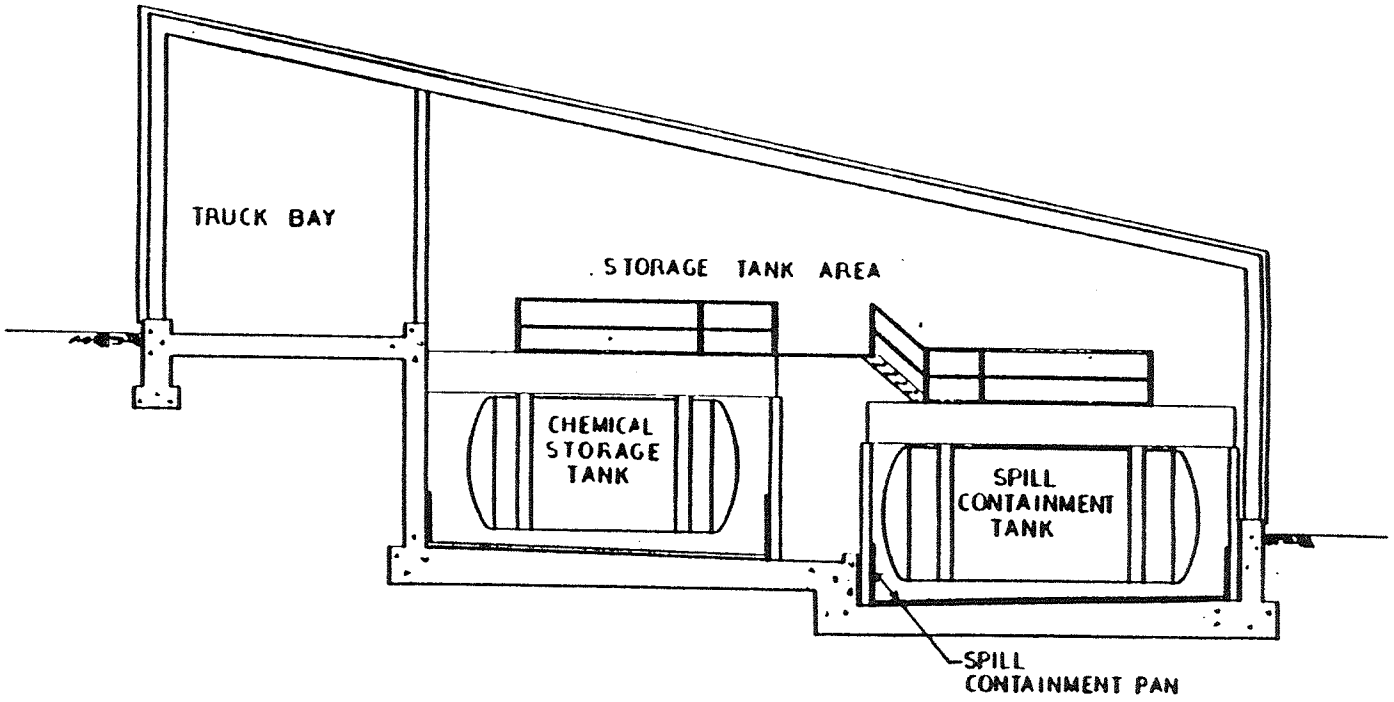


BULK CHEMICAL STORAGE FACILITY
IBM - Poughkeepsie New York

FEBRUARY 1985

CROSS SECTION 1 OF BCSF

FIGURE 15.2

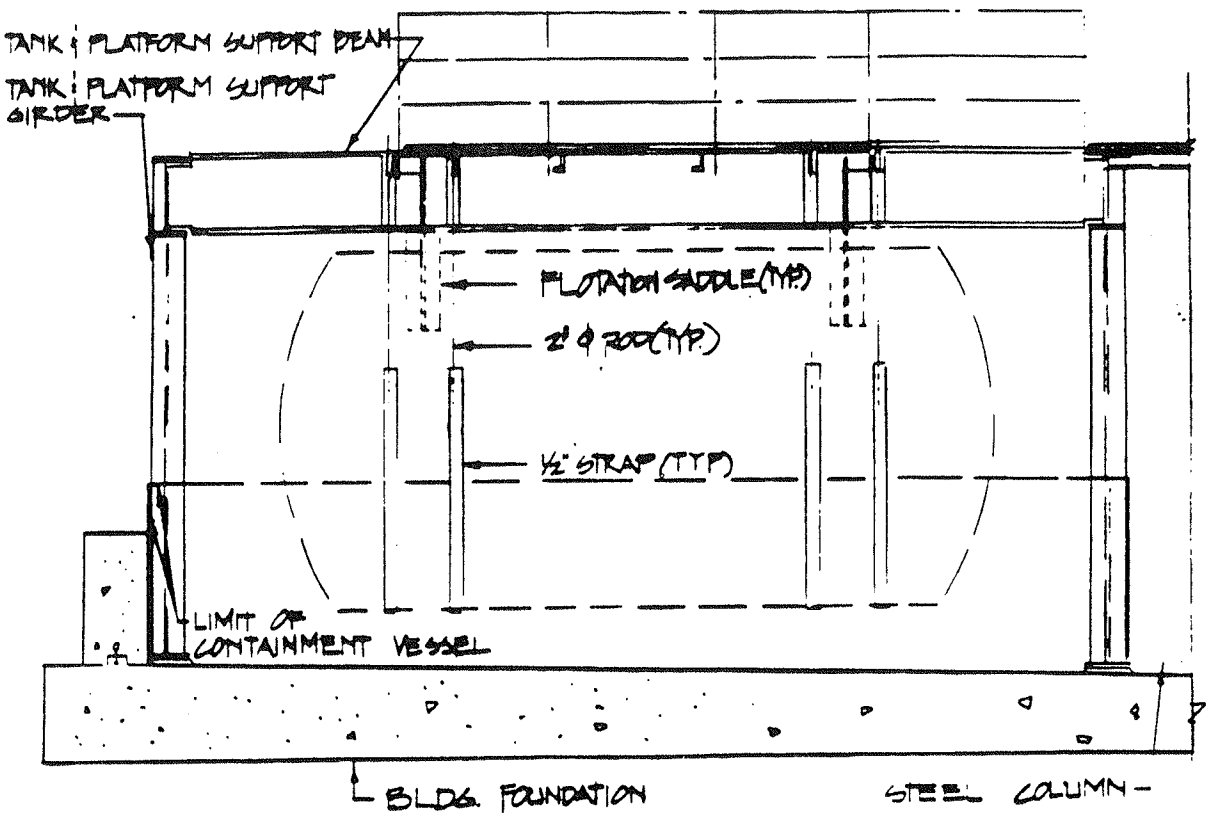


BULK CHEMICAL STORAGE FACILITY
IBM - Poughkeepsie New York

FEBRUARY 1985

CROSS SECTION 2 OF BCSF

FIGURE 15.3



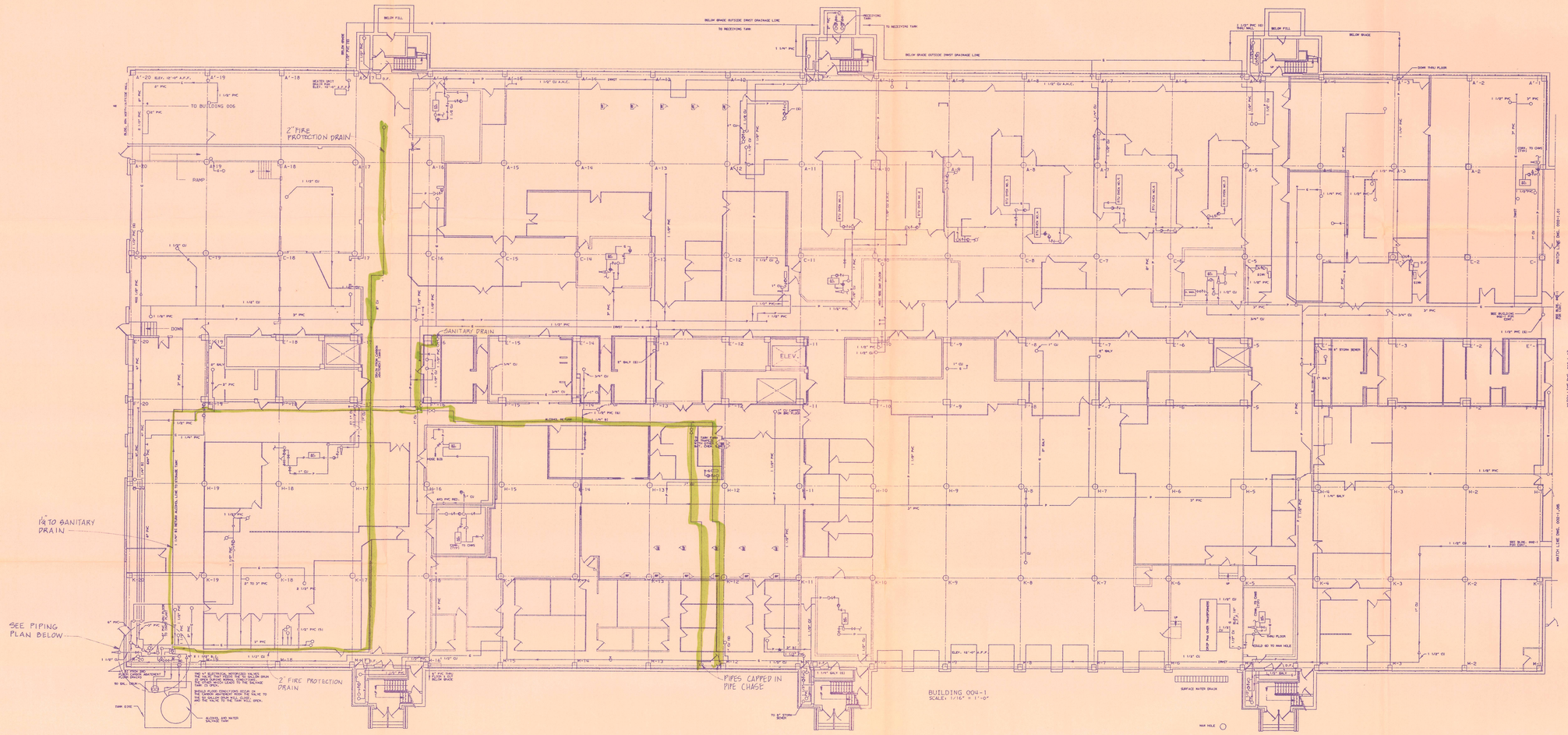
BULK CHEMICAL STORAGE FACILITY
IBM - Poughkeepsie New York

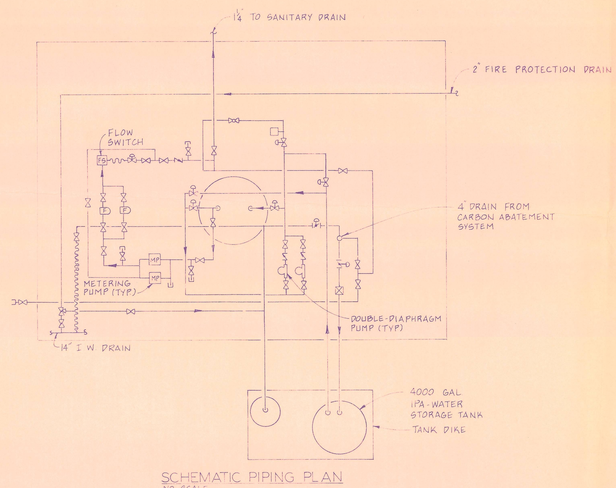
FEBRUARY 1985

STORAGE TANK
LONGITUDINAL SECTION

FIGURE 15.4

APPENDIX 15A
DESIGN AND CONTAINMENT FEATURES OF TANKS 21 AND 22
(In Plastic Pocket)





SCHEMATIC PIPING PLAN
NO SCALE

NOT TO BE USED FOR CONSTRUCTION

DATE OF ISSUE

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SCALE:

DEPT HEAD	
DES ENGR	
CHECKED	
DRAWN	

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF

SIGNED

DATE REG. NO.

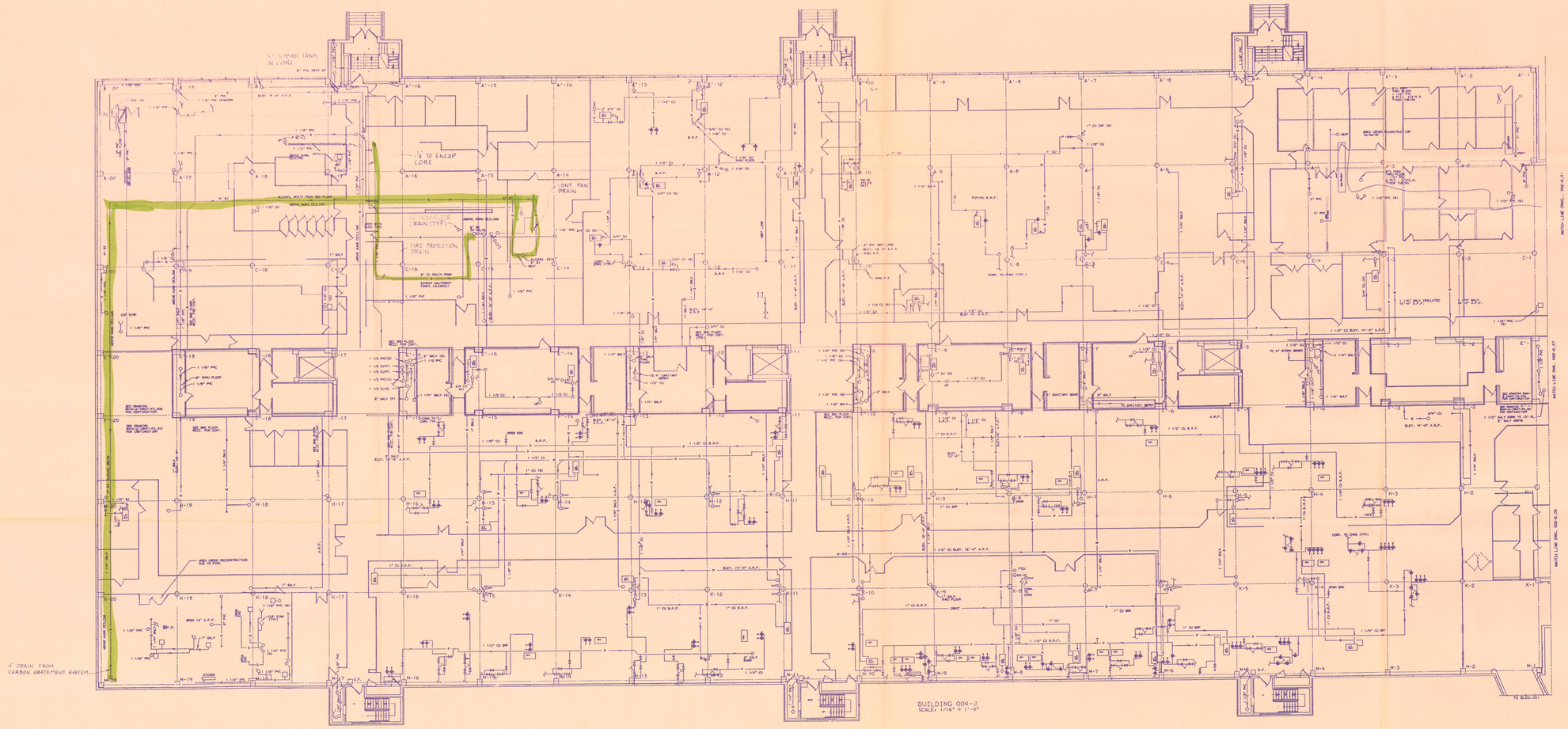
IBM Poughkeepsie, N.Y.

CARBON ABATEMENT SYSTEM DRAIN
BUILDING 004, 1ST. FLOOR
PIPING PLANS

Project	Design	Check	Approval
Date	Scale	1	2

BLACK & VEATCH
ENGINEERS-ARCHITECTS
KANSAS CITY, MISSOURI

B & V DWG NO. M-1



NOT TO BE USED FOR CONSTRUCTION

DATE OF ISSUE

CARBON ABATEMENT SYSTEM DRAINS
BUILDING 004 2ND FLOOR
PIPING PLANS

IBM Poughkeepsie, N.Y.

BLACK & VEATCH
ENGINEERS-ARCHITECTS
KANSAS CITY, MISSOURI

B & V DWG NO. M-2

Pro. Design Check Approval
Date Scale

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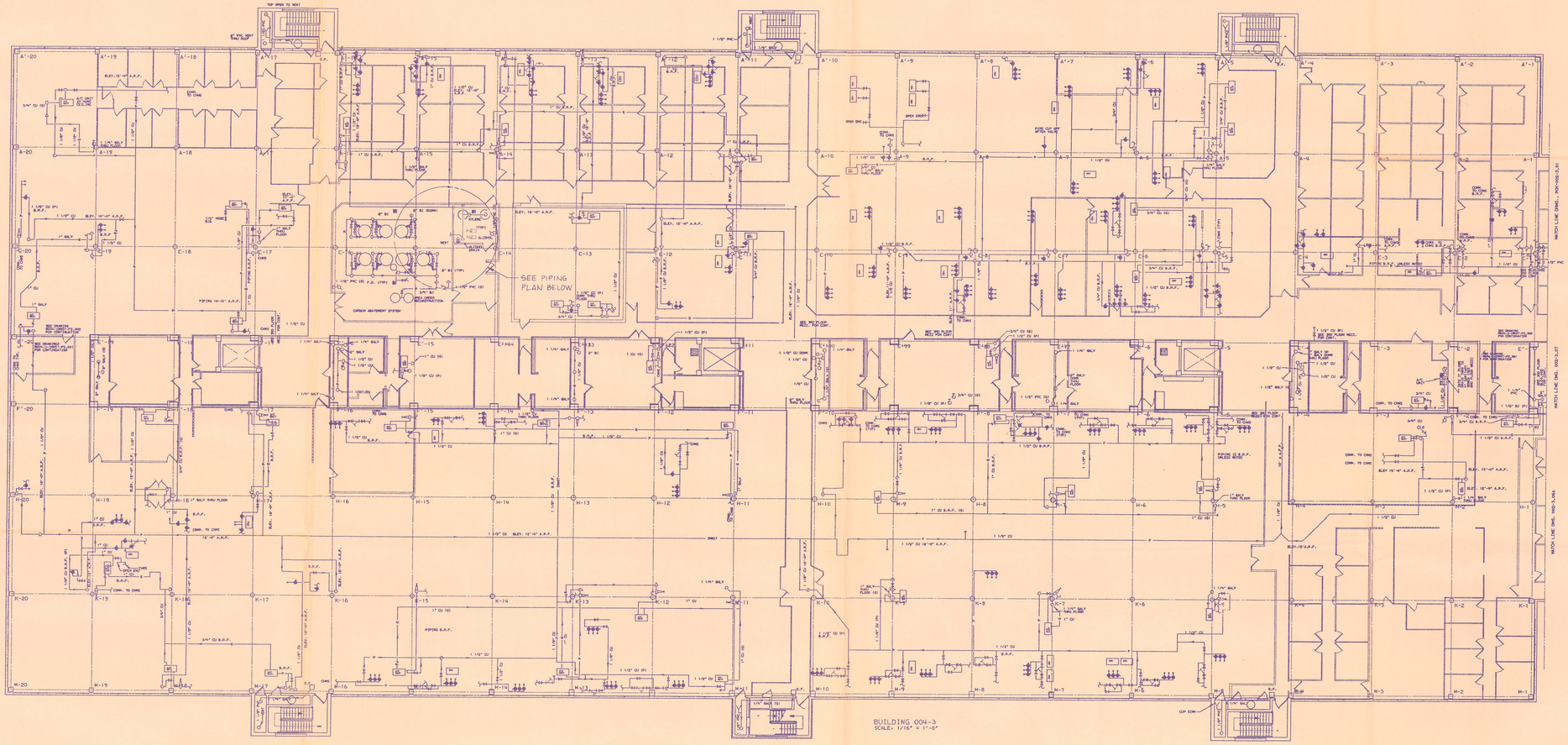
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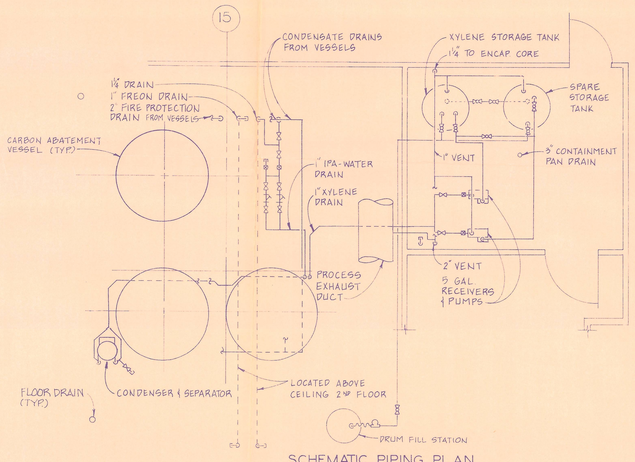
DATE REG. NO.

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DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP



BUILDING 004-3
SCALE: 1/16" = 1'-0"



SCHEMATIC PIPING PLAN
NO SCALE

NOT TO BE USED FOR CONSTRUCTION

DATE OF ISSUE

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SCALE:

DEPT HEAD
DES ENGR
CHECKED
DRAWN

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF

SIGNED

DATE REG. NO.

IBM Poughkeepsie, N.Y.

CARBON ABATEMENT SYSTEM DRAINS
BUILDING 004, 3RD FLOOR
PIPING PLANS

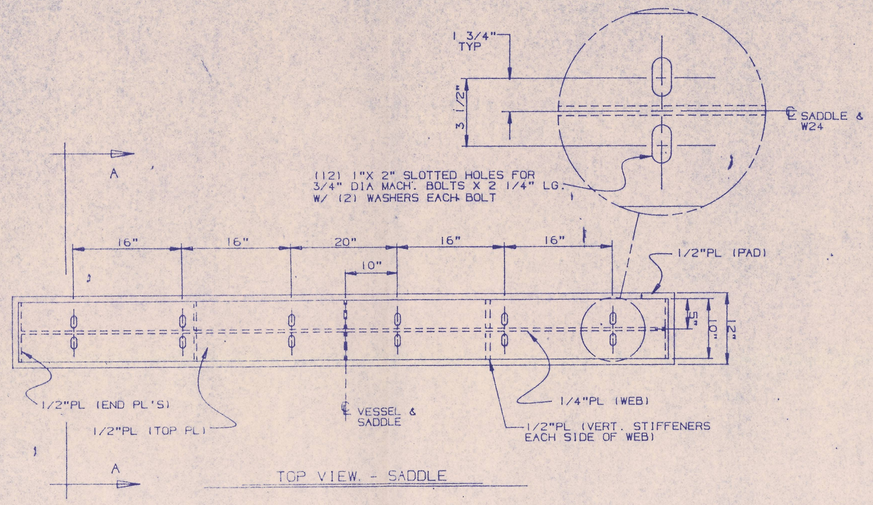
Project	Design	Check	Approval
	1 2		
Date	Scale		

BLACK & VEATCH
ENGINEERS-ARCHITECTS
KANSAS CITY, MISSOURI

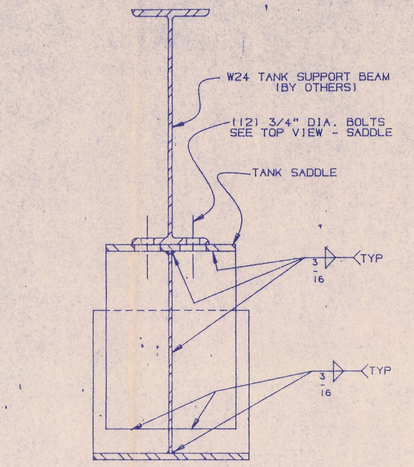
B & V DWG NO. M-3

APPENDIX 15B
PLAN AND PROFILES OF BCSF AND LONGITUDINAL SECTION OF WASTE STORAGE TANK
(APPENDIX 15B-5 THROUGH 15B-9 IN PLASTIC POCKETS)

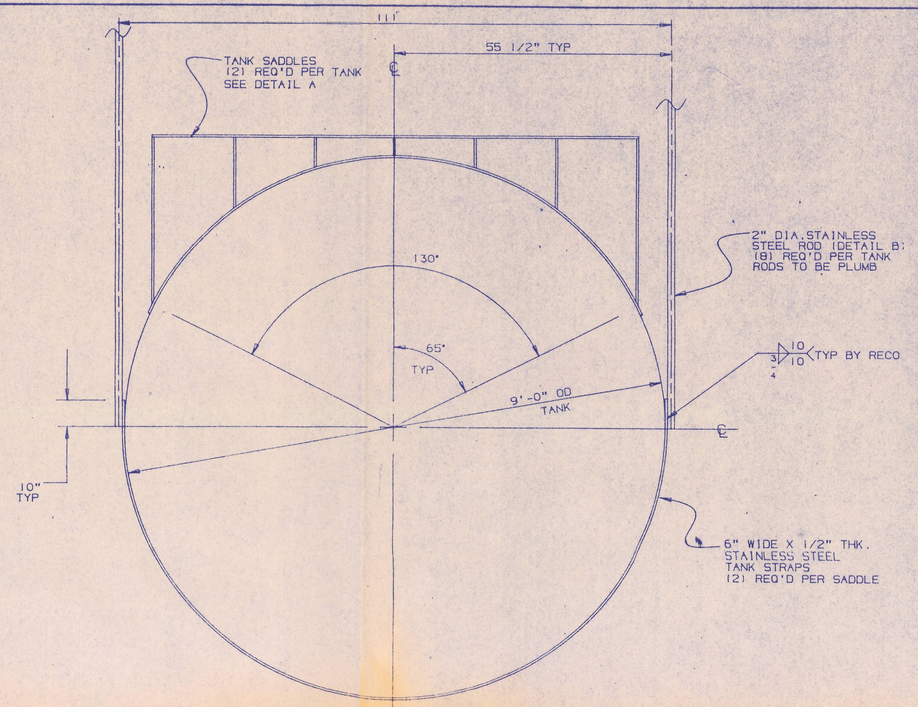
APPENDIX 15B-5
STORAGE TANK CROSS SECTION



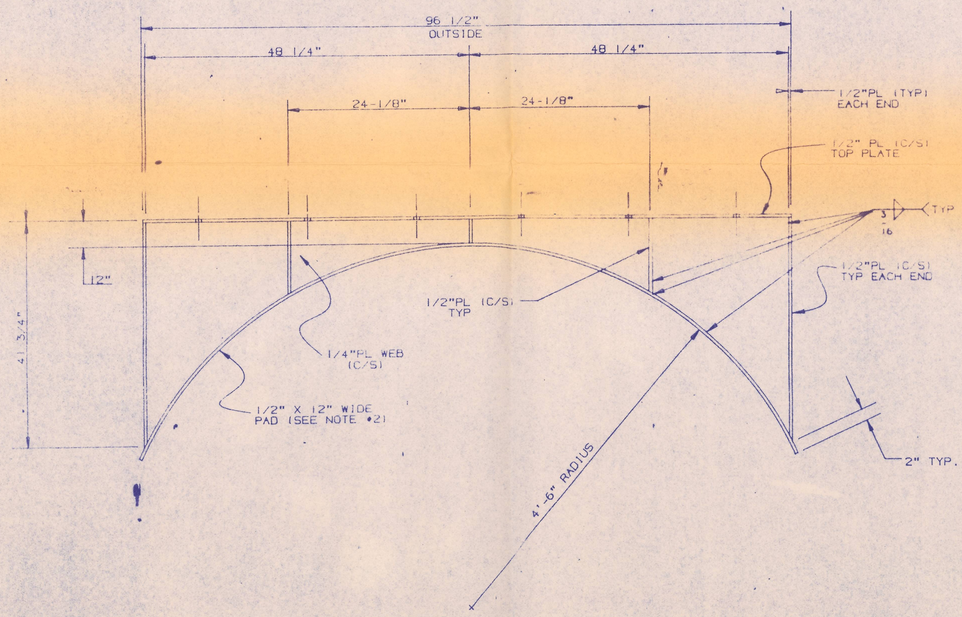
TOP VIEW - SADDLE



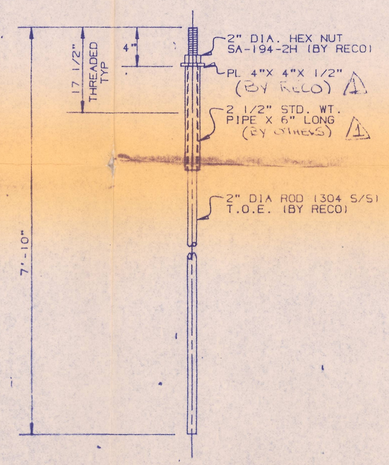
SECTION A - A



TANK SUPPORT DETAIL



DETAIL A
2 REQ'D. PER TANK



DETAIL B
TANK SUPPORT RODS

NOTES:

1) MATERIALS:
CARBON STEEL PLATE- A-285 GR.C
STAINLESS STEEL PLATE- A-240 TYPE 304L
BOLTING- HIGH STRENGTH CARBON A-325

2) CARBON STEEL TANKS TO HAVE CARBON STEEL SADDLES WITH CARBON STEEL PADS. STAINLESS STEEL TANKS TO HAVE CARBON STEEL SADDLES WITH STAINLESS STEEL PADS. ALL TANKS TO HAVE STAINLESS STEEL STRAPS (4 EACH).

3) STAINLESS STEEL STRAPS & SUPPORT RODS TO BE SHIPPED TO THE FIELD AS (1) COMPLETE UNIT (ONE STRAP & 2 RODS / UNIT).

1 [illegible] PER DWG. D84-934

REF. DWG.
D84-930
D84-931
D84-934 1

PRELIMINARY

SAFETY FIRST

REV. NO.	CHANGE NOTICE NO.	DESCRIPTION	BY	DATE	APPROVAL ENG.	APPROVAL Q.A.
1		REVISED AS NOTED	E. [illegible]			

REVISIONS

NO. UNITS REQ'D.		CUST. DWG. OR SPEC.	
CUSTOMER ORDER NO.	P-19878	CUST. TAG OR ITEM NO.	

RECO., INC.
RICHMOND VIRGINIA

SADDLE DETAILS
IBM - PIZZAGALLI

JOB NO.	DATE	DRAWN BY	DRAWING NO.	REV.
N4438 .10-.70 N4439.10	10-11-84	SBW	D-84-933	1
	CHECKED BY	APPROVED		
	[illegible]	[illegible]		

APPENDIX 15B-6
WASTE XYLENE SYSTEM

VALVE / SAMPLE ROOM

STORAGE TANK AREA

BLDG 004 SURGE TANK AREA

TRUCK GROUND PERMISSIVE INTERLOCK

AS

HV 102

ES 102

3"

HS 102B | XA 102 | HS 102A | L A | L B

VIRGIN XYLENE BULK STORAGE TANK

NITROGEN SUPPLY

HV 104

HV 108

NITROGEN EXHAUST TO CARBON DRUM

PAH 107 | PAL 107 | PSH 107 | PSL 107

HS 103 | L A | L B

LT 109

LAH 109 | LAL 109

LSH 109 | LSL 109

TO VIRGIN CHEMICAL UNLOAD VALVE (LOOP # 102)

TO VIRGIN CHEMICAL SAMPLE VALVE (LOOP # 101)

TO VIRGIN CHEMICAL BULK STORAGE TANK TRANSFER PUMPS (LOOP # 114)

LAHH 110

LSHH 110

TO VIRGIN CHEMICAL UNLOAD VALVE (LOOP # 102)

TO VIRGIN CHEMICAL SAMPLE VALVE (LOOP # 101)

LAH 111

LS 111

TO START TANK FARM VENTILATION SYSTEM ON HIGH SPEED

TO VIRGIN CHEMICAL UNLOADING VALVE (LOOP # 102)

TO VIRGIN CHEMICAL SAMPLE VALVE (LOOP # 101)

TO VIRGIN CHEMICAL BULK STORAGE TANK TRANSFER PUMPS (LOOP # 114)

HS 114B | XA 114 | HS 114A | L A | L B

HV 114

FILTER

DPSH 115

XA 115

1"

HV 118

FUSIBLE PLUG

1/4" PURGE CONNECTION (TYP.)

HV 117

FUSIBLE PLUG

1½"

TRUCK GROUND PERMISSIVE INTERLOCK

HS 101B | XA 101 | HS 101A | L A | L B

HV 101

ES 101

1½"

HS 151B | XA 151 | HS 151A | L A | L B

HV 151

ES 151

TRUCK GROUND PERMISSIVE INTERLOCK

HS 150B | XA 150 | HS 150A | L A | L B

HV 150

XS 150

2½" WASTE RECIRCULATION

TO TRUCK BAY

WASTE XYLENE TRANSFER PUMP

2½" BYPASS DRAIN

OPEN WHEN PUMP STOPS CLOSE WHEN PUMP IS IN OPERATION

NITROGEN SUPPLY

HV 148

HS 148B | HS 148A | L A | L B

PAH 147 | PAL 147

FSH 147 | FSL 147

HS 149 | L A | L B

HV 149

NITROGEN EXHAUST TO CARBON DRUM

VACUUM RELIEF VALVE (TYP.)

EM RELIEF VALVE

RUPTURE DISC (TYP.)

LAH 146

LAL 146

LT 146

LSHH 145

18" MANWAY (TYP.)

LSH 146

LSL 146

LAHH 145

TO CORE AREA WASTE TANK TRANSFER PUMPS

TO NASTE CHEMICAL BULK STORAGE TANK TRANSFER PUMP (LOOP # 150)

1½"

TO ANY WASTE TANK FROM VIRGIN CHEMICAL FILL PANEL

AS

HV 143

FUSIBLE PLUG

LAH 144

LS 144

TO CORE AREA WASTE TANK TRANSFER PUMPS

TO START TANK FARM VENTILATION SYSTEM ON HIGH SPEED

CLOSE VALVE 101

TO STOP WASTE XYLENE TRANSFER PUMP

NASTE XYLENE BULK STORAGE TANK

SPILL CONTAINMENT PAN (TYP.)

MATCH LINE

1 - LOCATED ON MAIN CONTROL PANEL.

INDICATES EXISTING EQUIPMENT

* SHUTDOWN INTERLOCKS WHICH REQUIRE MANUAL RESET REFER TO LOOP TABULATION SHEETS IN SPECIFICATION

CONTRACT SET

BLK NO	REVISION DESCRIPTION	APPROVAL Initial and Date

BULK CHEMICAL STORAGE FACILITY POUGHKEEPSIE, NEW YORK

XYLENE SYSTEM

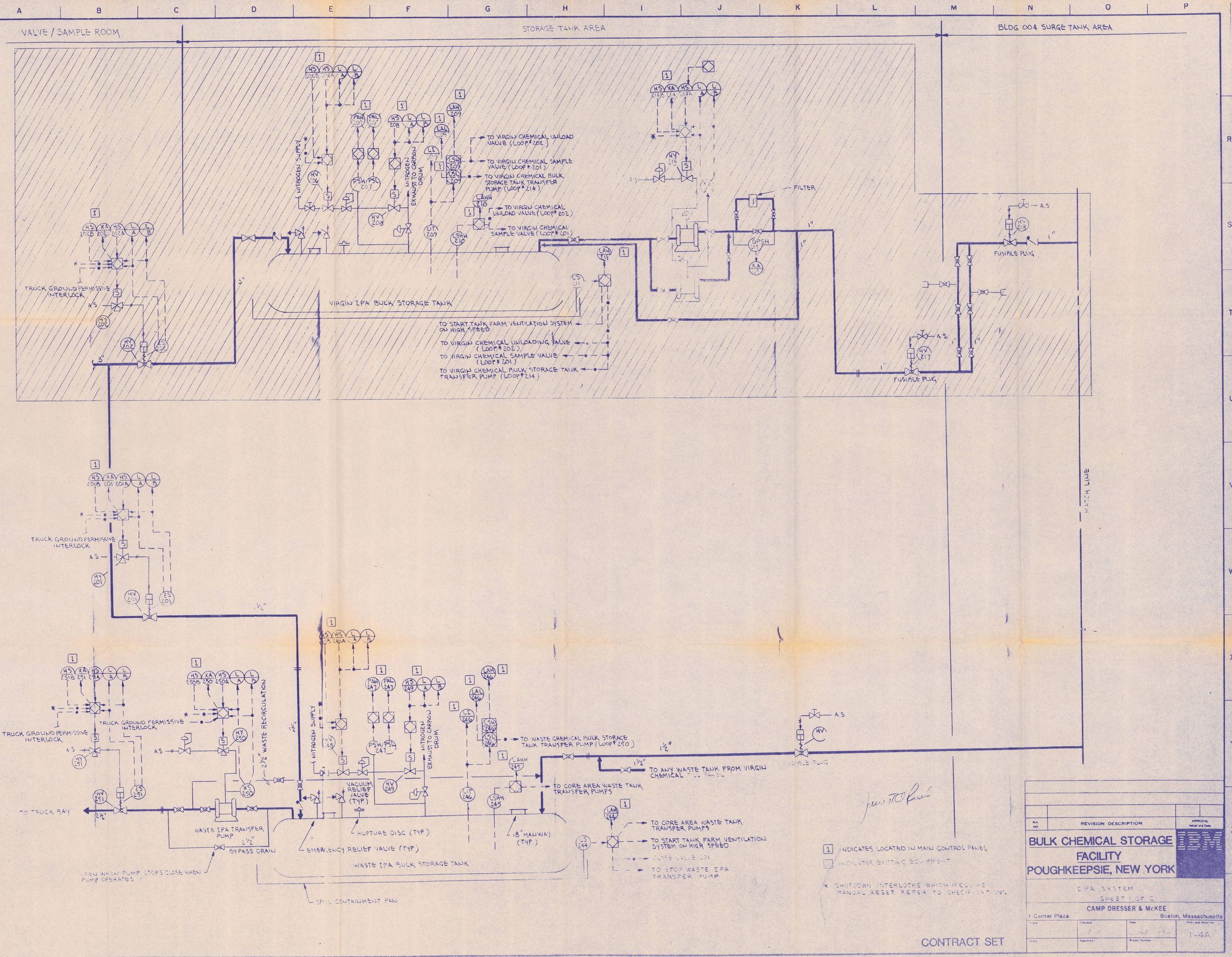
SHEET 1 OF 2

CAMP DRESSER & McKEE

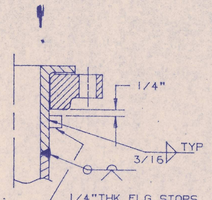
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Drawn	Checked	Date	Plan and Sheet No.
		JUNE 9	1-2A
Scale	Approved	Project Number	

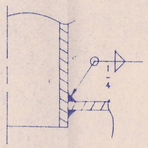
APPENDIX 15B-7
WASTE IPA SYSTEM


VALVE / SAMPLE ROOM
STORAGE TANK AREA
BLDG 004 SURGE TANK AREA
TRUCK GROUND PERMISSIVE INTERLOCK
VIRGIN IPA BULK STORAGE TANK
TO START TANK FARM VENTILATION SYSTEM ON HIGH SPEED
TO VIRGIN CHEMICAL UNLOADING VALVE (LOOP # 202)
TO VIRGIN CHEMICAL SAMPLE VALVE (LOOP # 201)
TO VIRGIN CHEMICAL BULK STORAGE TANK TRANSFER PUMP (LOOP # Z14)
NITROGEN SUPPLY
NITROGEN EXHAUST TO CARBON DRUM
FILTER
FUSIBLE PLUG
TO VIRGIN CHEMICAL UNLOAD VALVE (LOOP # 202)
TO VIRGIN CHEMICAL SAMPLE VALVE (LOOP # 201)
TO WASTE CHEMICAL BULK STORAGE TANK TRANSFER PUMP (LOOP # 250)
2½" WASTE RECIRCULATION
TO TRUCK BAY
WASTE IPA TRANSFER PUMP
BYPASS DRAIN
OPEN WHEN PUMP STOPS/CLOSE WHEN PUMP OPERATES
VACUUM RELIEF VALVE (TYP)
RUPTURE DISC (TYP)
EMERGENCY RELIEF VALVE (TYP)
18" MANWAY (TYP)
WASTE IPA BULK STORAGE TANK
SPILL CONTAINMENT PAN
TO ANY WASTE TANK FROM VIRGIN CHEMICAL
TO CORE AREA WASTE TANK TRANSFER PUMPS
TO START TANK FARM VENTILATION SYSTEM ON HIGH SPEED
CLOSE VALVE 201
TO STOP WASTE IPA TRANSFER PUMP
[1] INDICATES LOCATED IN MAIN CONTROL PANEL
INDICATES EXISTING EQUIPMENT
(X) SHUTDOWN INTERLOCKS WHICH REQUIRE MANUAL RESET REFER TO SPECIFICATIONS
CONTRACT SET
BULK CHEMICAL STORAGE FACILITY
POUGHKEEPSIE, NEW YORK
EPA SYSTEM
SHEET 1 OF 2
CAMP DRESSER & McKEE
1 Center Plaza
Boston, Massachusetts
I-4A

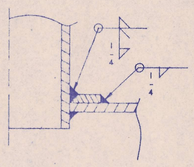
APPENDIX 15B-8
TANK SPECIFICATION SHEET



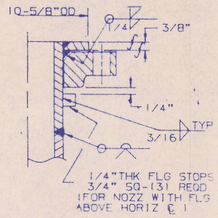
NOZZLE F DETAIL



NOZZLE WO/ REPAD



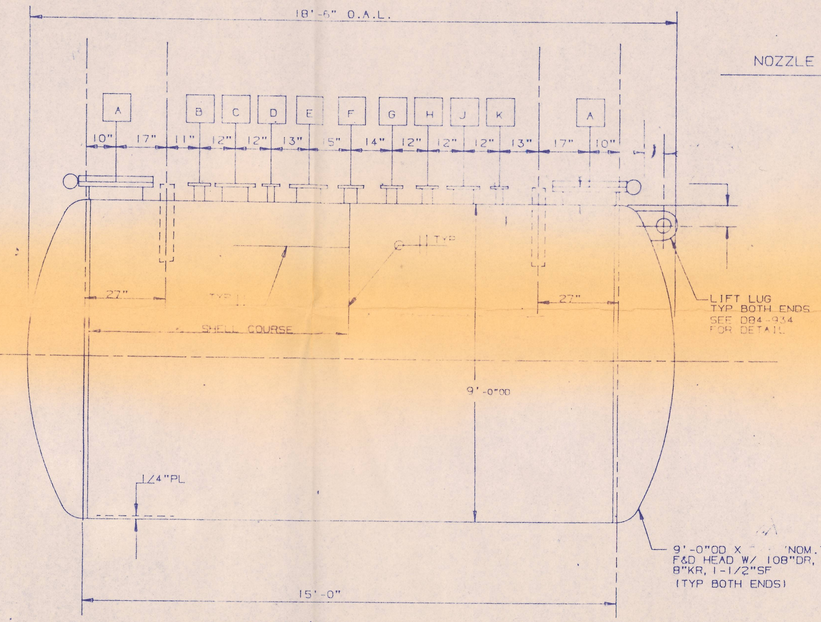
NOZZLE W/ REPAD



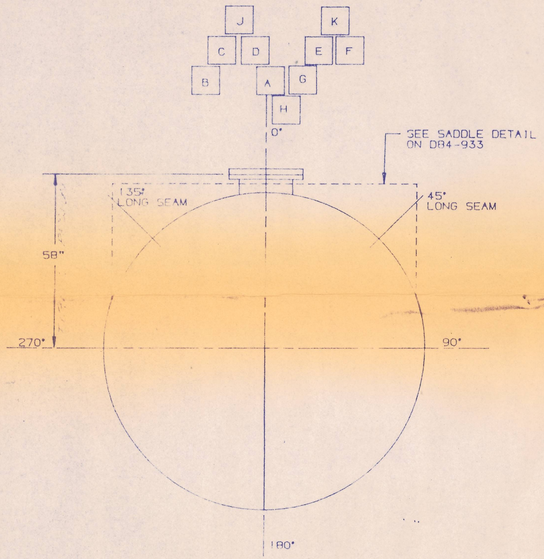
NOZZLE DETAIL

ITEM	MARK	NO. REQ'D	SIZE	RATING	FACING	MATL SPEC	REPAD SIZE	SERVICE	REMARKS
	A	2	18"	150	RFSO	3/8"PL		MANWAY	W/ HINGE
	B	1	3"	150	RFSO	40S		INLET	
	C				LJF			INLET	
	D		2"		RFSO			VAC. REL	
	E		8"		LJF			OPEN VENT	
	F		4"		LJF			RUPTURE DISC	
	G		3"		RFSO			LEV. TRANS	
	H		3"		RFSO			LEV. SW	
	J		5"		LJF			SUCTION	
	K		2"		RFSO			N2 IN/OUT	

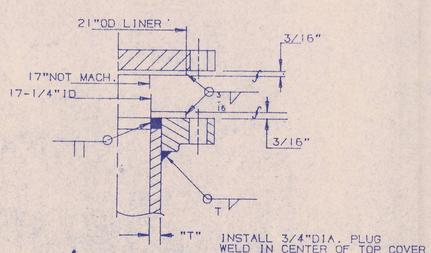
CODE	ASME SEC. VIII DIV 1 83ED W/N 83AD
DESIGN PRESS	30 PSIG
DESIGN TEMP	150° F
CORROSION ALLOW	NONE
RADIOGRAPHY	
HYDRO TEST	45 PSIG
MATERIALS	
SHELL	SA 240-304L
HEADS	SA 240-304L
NOZZ NECKS	SA 312-304L
NOZZ FLGS	SA 182F304L / SA 105
PLATES	SA 240-304L
FLANGES	SA 105 W/SS LINER
BOLTING	
NUTS	
GASKETS	SA 240-304L
GASKET	1/8"NEOPRENE WITH TEFLON ENVELOPE
BOLTS	SA 193
NUTS	SA 194
SUPPORTS	SA 240-304L WEAR PL/SA 285C
LIFT LUGS	SA 240-304L
WEIGHTS	
EMPTY	SEE DB4-934
FULL	SEE DB4-934
MISC	
CAPACITY	8000 GALS
MATERIAL	
SERVICE	XXXX
CONTAINER TYPE	XXXX
FABRICATION	
RADIOGRAPHS UNLESS OTHERWISE NOTED	
BEVEL WELDING PASS TO HAVE 100% PT	
ALL FLANGE FACES AND OTHER MACHINED SURFACES	



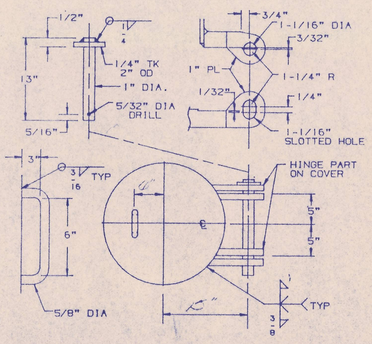
ELEVATION



ORIENTATION



MANWAY FLANGE DETAIL



HINGE DETAIL

REF. DWG.
DB4-933
DB4-934

WELD PROCEDURES

PT MMA
PR/PT
PT MIG
PT MAG
PT TIG
PT SAW

4A

XYLENE WASTE

IPA WASTE

POTASSIUM FERRO/FERRICYANIDE WASTE

SPARE TANKS

HOLD
HOLD

SAFETY FIRST

REV. NO.	CHANGE NOTICE NO.	DESCRIPTION	BY	DATE	APPROVAL ENG.	APPROVAL Q.A.

REVISIONS

NO. UNITS REQ'D.	SEVEN
CUSTOMER ORDER NO.	P-
QP SPEC.	
CUST. ITEM OR DRW. NO.	

RECO INDUSTRIES INC.
RICHMOND VIRGINIA

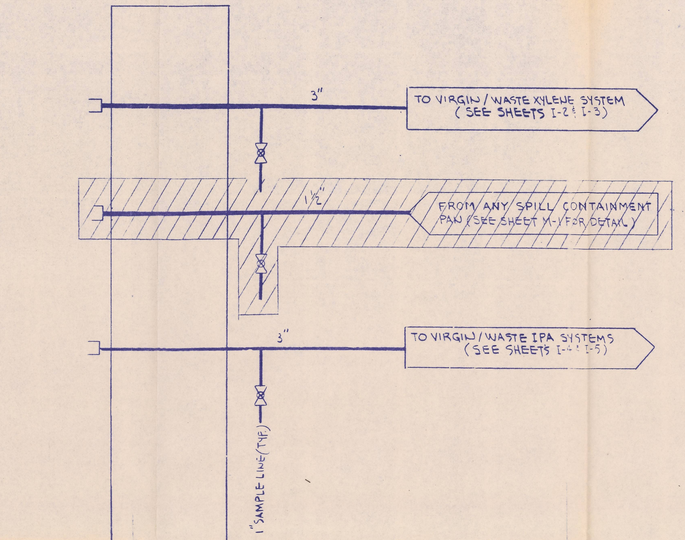
CHEM. STOR. TANK
IBM - PIZZAGALLI

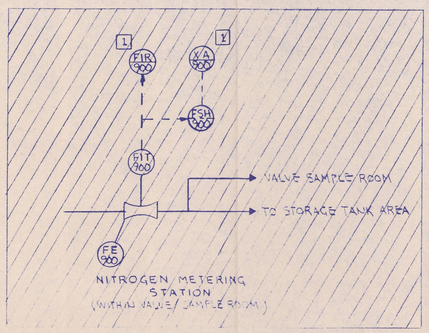
JOB NO.	DATE	DRAWN BY	DRAWING NO.	REV.
N4438 .10-.70	10-8-84	SBW	D-84-931	
	CHECKED BY	APPROVED		

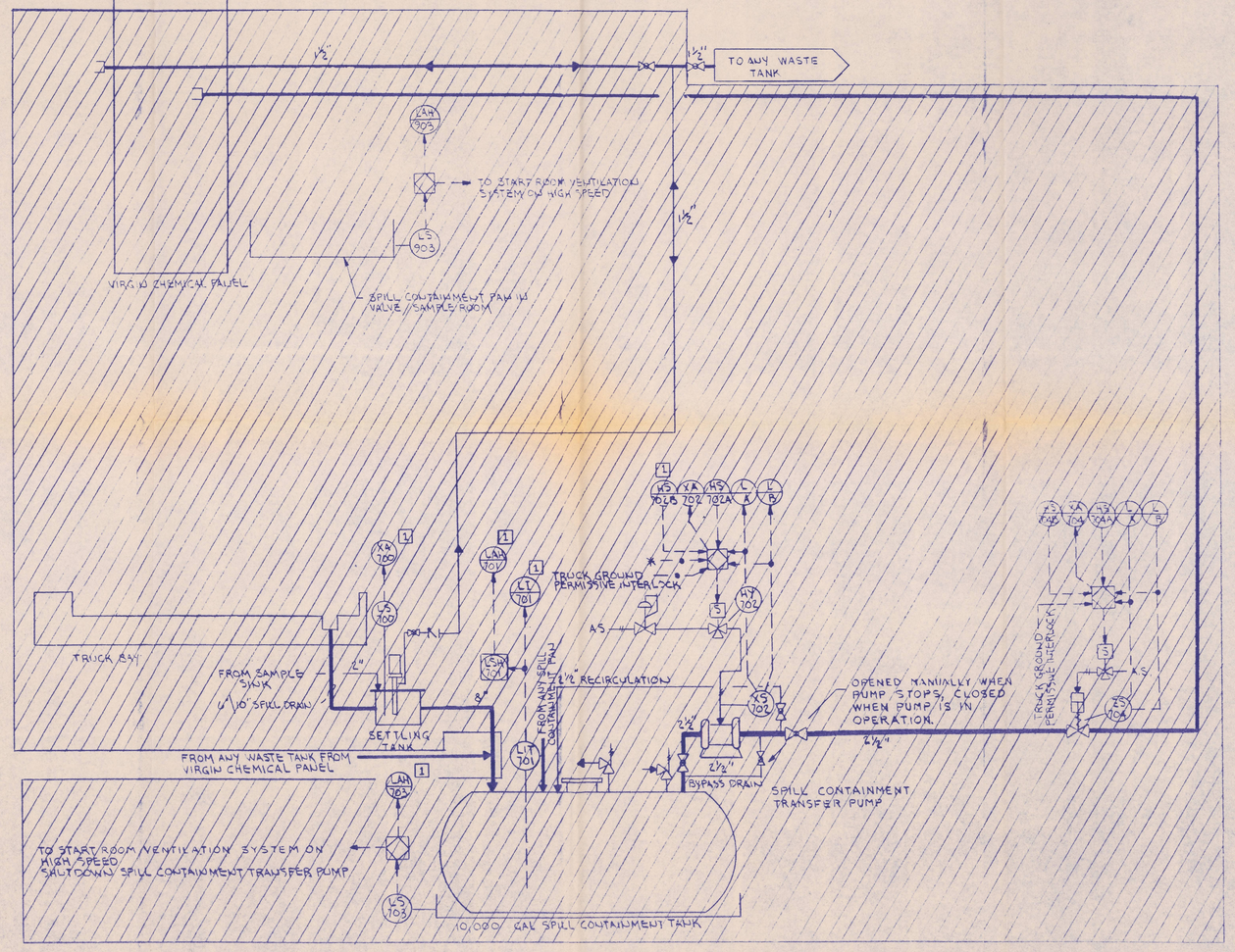
APPENDIX 15B-1

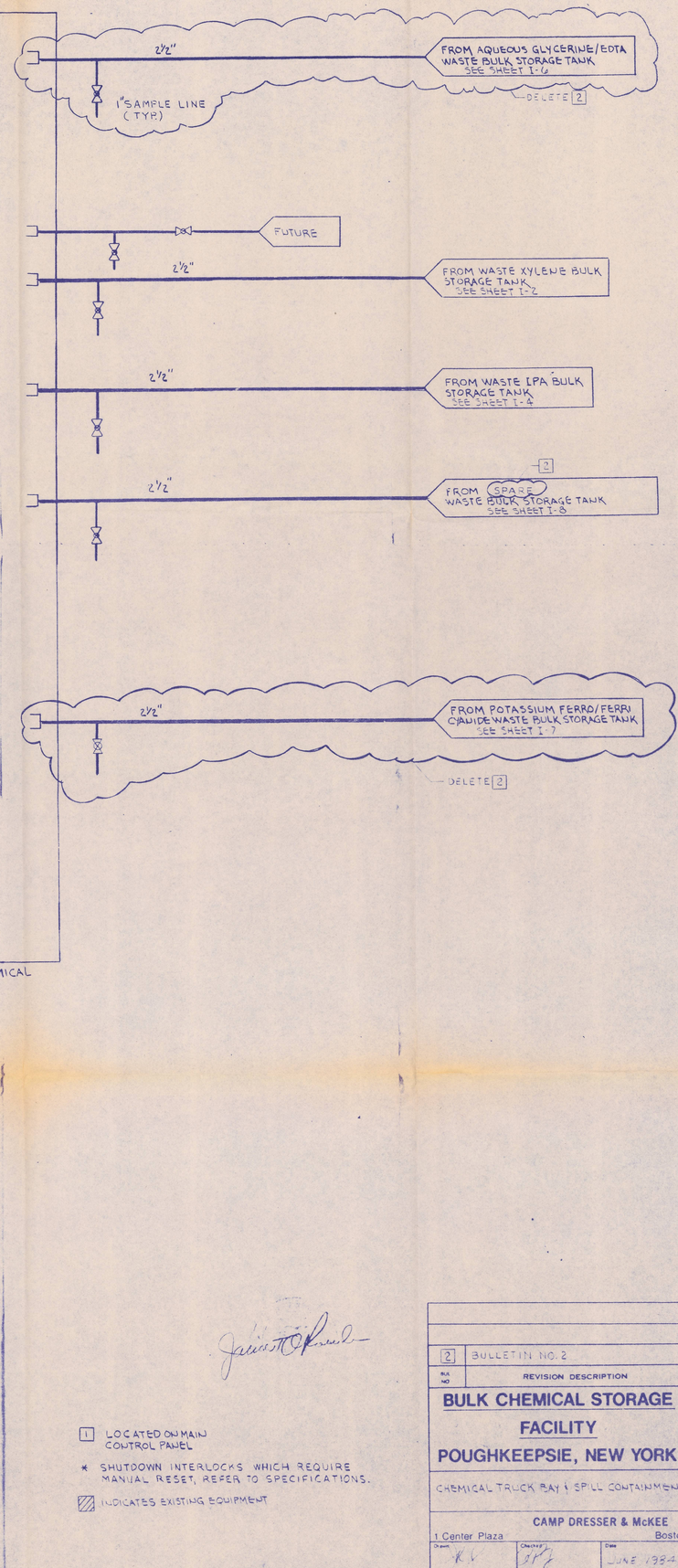
BCSF
SPILL TANK SPECIFICATION SHEET
CHEMICAL TRUCK BAY AND
SPILL CONTAINMENT AREA

POLY-VU
#PV119









1 LOCATED ON MAIN CONTROL PANEL

* SHUTDOWN INTERLOCKS WHICH REQUIRE MANUAL RESET, REFER TO SPECIFICATIONS.

▨ INDICATES EXISTING EQUIPMENT

CONTRACT SET

REV NO	REVISION DESCRIPTION	APPROVAL Initial and Date
2	BULLETIN NO. 2	

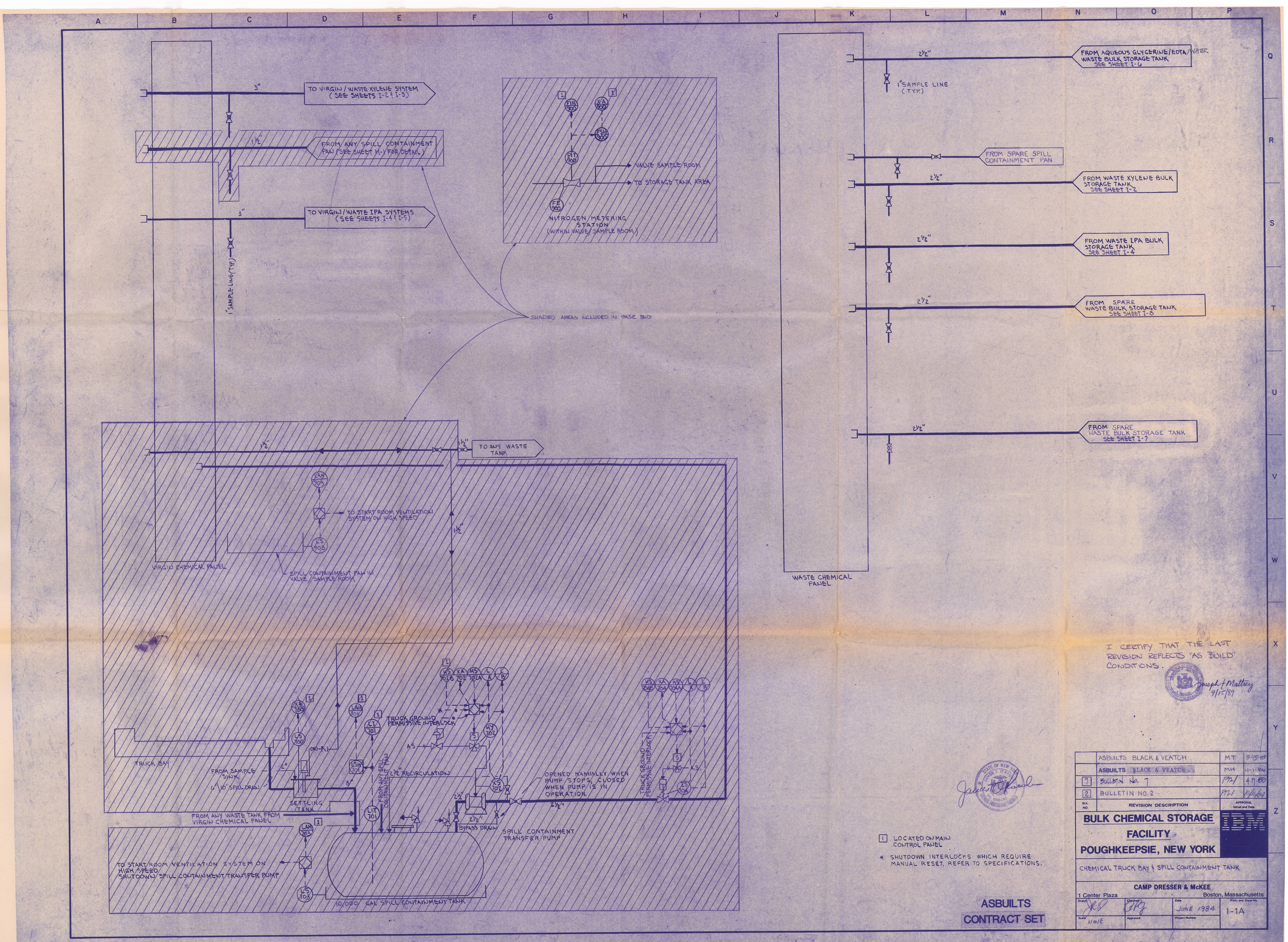
BULK CHEMICAL STORAGE FACILITY
POUGHKEEPSIE, NEW YORK

CHEMICAL TRUCK BAY & SPILL CONTAINMENT TANK

CAMP DRESSER & McKEE
1 Center Plaza, Boston, Massachusetts

Drawn	Checked	Date	Draft. and Sheet No.
K.V.		JUNE 1984	I-1A
Scale 1/16" = 1'-0"	Approved	Project Number	

APPENDIX 15B-9
SPILL TANK SPECIFICATION SHEET
CHEMICAL TRUCK AREA AND
SPILL CONTAINMENT AREA



[1] LOCATED ON MAIN CONTROL PANEL

* SHUTDOWN INTERLOCKS WHICH REQUIRE MANUAL RESET, REFER TO SPECIFICATIONS.

ASBUILTS
CONTRACT SET

I CERTIFY THAT THE LAST REVISION REFLECTS 'AS BUILD' CONDITIONS.

Joseph F. Mattsey
9/15/89

NO	REVISION DESCRIPTION	APPROVAL Initial and Date
	ASBUILTS BLACK & VEATCH	MT 9-15-89
	ASBUILTS BLACK & VEATCH	MH 11-1-84
1	BULLETIN NO. 1	MH 4-17-85
2	BULLETIN NO. 2	MH 10/6/84

BULK CHEMICAL STORAGE FACILITY
POUGHKEEPSIE, NEW YORK

IBM

CHEMICAL TRUCK BAY & SPILL CONTAINMENT TANK

CAMP DRESSER & McKEE
1 Center Plaza Boston, Massachusetts

Drawn	Checked	Date	Plate and Sheet No.
JKB	BPJ	JUNE 1984	I-1A
Scale NONE	Approved	Project Number	

PUMPOUT PROCEDURE FOR BULK WASTE TANKERS (B/034)

11/17/92

THIS PROCEDURE IS FOR THE FOLLOWING WASTE PRODUCTS: IPA , XYLENE , CARBON ABATEMENT WASTE WATER , GLYCERIN/EDTA WASTE WATER.

PROPER PROTECTIVE CLOTHING AND EQUIPMENT MUST BE WORN DURING BULK UNLOADING/LOADING PROCEDURES FOR FLAMMABLES.

VERIFY CHEMICAL AND QUANTITY BEING LOADED TO WASTE TANKER.

ENSURE SCALE IS READING "ZERO". RECORD TARE WEIGHT OF TRACTOR AND TRAILER TANK.

POSITION TANKER IN TRUCK CONTAINMENT AREA & **CHOCK WHEELS.**

IF TANKER HAS SIDE MANIFOLD, DISCONNECT TRACTOR FROM TRAILER AND PLACE TRAILER SAFETY JACK UNDERNEATH TANKER, NEAR TRACTOR CONNECTION PIN.

ONCE TRACTOR IS OUT OF THE BUILDING, OR ONCE TANKER WITH REAR MANIFOLD IS POSITIONED PROPERLY IN THE TRUCK BAY, ENSURE BOTH OVERHEAD DOORS ARE CLOSED.

GROUND TANKER - INDICATOR LIGHT SHOULD BE LIT TO VERIFY PROPER GROUND. (AUTOMATIC DRAIN VALVE WILL NOT OPERATE WITHOUT PROPER GROUND CONNECTION)

CONNECT DEDICATED CHEMICAL WASTE HOSE(S) TO TRUCK AND WALL MANIFOLDS. SECURE ALL QUICK DISCONNECTS USING SAFETY TIPS TO PREVENT ACCIDENTAL OPENING OF FITTING. (USE CONTAINERS UNDER ALL CONNECTIONS)

HOOK UP SPECIFIC HIGH LEVEL ALARM PROBE IN TANKER DOME AND TURN TO AUTO POSITION.

INSPECT FOR THE FOLLOWING ITEMS:

A. ANY MATERIAL IN TANKER
B. HAVE DRIVER OPEN AND CLOSE INTERNAL VALVE. MAKE SURE VALVE OPERATES UP AND DOWN. LEAVE IN OPEN **(UP)** POSITION.

RECHECK ALL CONNECTIONS BEFORE OPENING VALVES.

OPEN MANUAL WASTE CHEMICAL TRUCK FILL VALVE IN TRUCK BAY AND BOTH INTERNAL AND EXTERNAL VALVES ON TANKER.

ACTIVATE DRY CHEM FIRE SYSTEM. (SEE OPERATIONS PROCEDURE FOR INSTRUCTION). - USE FOR FLAMMABLES ONLY !

DISABLE N2 ALARM AND BLEED TANK PER OPERATING PROCEDURE # 40C.

MEASURE LEVEL OF WASTE TANK USING DIP STICK BEFORE LOADING OF TANKER. RECORD START LEVEL IN BULK CHEMICAL LOG IN B/035.

SELECT A WASTE TRANSFER PUMP AND TURN ON AIR SUPPLY TO PUMP AND SET THE AIR PRESSURE TO 20 PSI ON AIR REGULATOR. ENSURE THAT ALL BYPASS VALVES ARE CLOSED AND THE APPROPRIATE PUMP INLET AND OUTLET VALVES ARE OPEN.

NOTIFY CONTROL ROOM TO OPEN PNEUMATIC WASTE CHEMICAL FILL VALVE, AND START PUMP.

APR 0 3 1993

POK117168
POK117168

PROCEDURE FOR ENABLING/DISABLING NITROGEN PRESSURE ALARMS (B/034)

11/17/92

ONLY PROPERLY TRAINED BULK CHEMICAL PERSONNEL SHOULD DISABLE / ENABLE NITROGEN ALARMS USING THE MODICON PLC.

NITROGEN PRESSURE ALARMS MUST BE DISABLED PRIOR TO BLEEDING TANKS TO MEASURE CHEMICAL LEVELS.

DISABLE THE APPROPRIATE OUTPUT COIL FOR THE TANK THAT IS BEING MEASURED:

VIRGIN XYLENE	- 00668
WASTE XYLENE	- 00716
VIRGIN IPA	- 00744
WASTE IPA	- 00792

ONCE THE OUTPUT COIL HAS BEEN DISABLED - RECORD THE OUTPUT COIL NUMBER IN THE BULK CHEMICAL LOG.

CLOSE THE NITROGEN SUPPLY VALVE FOR THE TANK AND OPEN THE NITROGEN BLEED VALVE.

ONCE THE NITROGEN PRESSURE IN TANK HAS BLED DOWN, THE TANK MAY BE MEASURED THROUGH THE TWO INCH QUARTER TURN BALL VALVE STANDOFF ON TOP OF THE TANK.

UPON COMPLETION OF BULK CHEMICAL OPERATIONS ENSURE THAT THE VALVE ON THE STANDOFF HAS BEEN CLOSED AND PLUG REINSTALLED.

TURN ON NITROGEN SUPPLY VALVE AND CLOSE THE NITROGEN BLEED VALVE.

ONCE THE PRESSURE SWITCH HAS BEEN SATISFIED, ENABLE THE APPROPRIATE OUTPUT COIL.

RECORD IN THE BULK CHEMICAL LOG THAT THE OUTPUT COIL HAS BEEN ENABLED.

POK117168
POK117168

APR 0 3 1993

PROCEDURE FOR DRY CHEM FIRE SYSTEM ACTIVATION NO.40D

Nov 17, 1992

THIS PROCEDURE IS FOR LOADING AND UNLOADING OF FLAMMABLE CHEMICALS. (WASTE AND VIRGIN IPA AND XYLENE AND CARBON ABATEMENT WASTE WATER).

CHECK BOX TO ENSURE COTTER PIN IS IN CYLINDER SHAFT OF FIRE SYSTEM (B/034) SOUTH SIDE LOCATION).

OVERHEAD DOORS MUST BE CLOSED BEFORE FIRE SYSTEM ACTIVATION.

ACTIVATE KEY LOCK SYSTEM IN B/035 CONTROL ROOM (C-55 KEY) INDICATOR LIGHT WILL BE LIT TO VERIFY SYSTEM HAS BEEN TURNED ON.

SLIDE COTTER PIN OUT IN FIRE SYSTEM BOX TO ENGAGE FIRE PROTECTION.

NOTE: IF PIN IS HARD TO PULL OUT OF CYLINDER SHAFT. "DO NOT REMOVE". DEACTIVATE KEY IN CONTROL ROOM AND CONTACT EMERGENCY CONTROL IMMEDIATELY FOR ASSISTANCE.

WHEN BULK OPERATION IS COMPLETED, PLACE PIN IN CYLINDER SHAFT AND DEACTIVATE KEY LOCK SYSTEM.

IN CASE OF FIRE FOR MANUAL OPERATION, PULL PIN AND PUSH ORANGE KNOB IN FIRE SYSTEM CONTROL BOX AT B/034. EVACUATE AREA IMMEDIATELY AND CONTACT EMERGENCY CONTROL

NOTE: "DO NOT TOUCH" ORANGE KNOB IN ALARM BOX "EXCEPT" FOR EMERGENCY ONLY.

OVERHEAD DOORS MAY NOW BE OPENED ONCE FIRE PROTECTION SYSTEM HAS BEEN SECURED.

POK117168
POK117168

APR 0 3 1993

IBM POUGHKEEPSIE
6NYCRR PART 373 PERMIT APPLICATION

TABLE OF CONTENTS

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16.0 CHEMICAL AND PHYSICAL ANALYSIS	16-1

16.0 CHEMICAL AND PHYSICAL ANALYSIS

This section describes the hazardous characteristics of each RCRA waste stored at the IBM Poughkeepsie facility.

Table 16-1 contains the hazardous characteristics and the basis for hazardous designation for each hazardous waste stream.

Table 16-2 lists waste streams that are generated at IBM-owned satellite locations that are stored at Building 028.

Date: *9-90*

Table 16-1
IBM – POUGHKEEPSIE
HAZARDOUS CHARACTERISTICS AND BASIS FOR HAZARDOUS DESIGNATION

Waste Stream No.	Waste Description	Ignitability Flash Point (°F)	Corrosivity pH	Reactivity	EP Toxicity	EPA/NYSDEC Hazardous Waste Number	Delivery to Storage Frequency	Process or Activity which Generates the Waste	Waste Storage Building and Room Locations
735-003-01	Sodium Persulfate/Sodium Hydroxide Bath		12.5			D002	BW	Bath solution to clean molybdenum foil prior to a photographic process	B/028, Room 126
723-003-02B	Sodium Ferricyanide/Ferro-cyanide Concentrate			Cyanide		F006	W	Concentrate sodium ferri/ ferrocyanide regeneration from ion exchange bed	B/028, Rooms 118, 125, 126
735-003-03	$K_3Fe(CN)_6$ Potassium Ferricyanide Solution		12.5 – 14			F009 D002	D	Etching solution	B/028, Rooms 118, 125, 126
735-003-05	Methyl Chloroform					F001	BW	Two Processes: (1) degreaser (2) developer	B/028, Rooms 118, 119, 125
735-003-10 735-003-10A	Solvent Filters and Rags	140*				Varies	Y	Spent filters used to clean solvents and spent rags from solvent clean-up	B/028, Rooms 118, 119, 120, 125
735-003-13 184-003-13	Sodium Persulfate/H_2SO_4		2			D002	W	Cleaning solution	B/028, Room 121
735-003-14	PR 491		2			D002 F002	W	Bath solution used to remove photographic resists	B/028, Rooms 118, 123, 125
735-003-18	Hydrochloric Acid Rinse		2			D002	BW	Acidic rinse solution of etching bath	B/028, Room 123
735-003-20	AZ 303 Developer		12.5			D002	BM	Photographic developer tank solution	B/028, Rooms 118, 125, 126

*Depending on the material and the amount spilled, the flashpoint may be 140°F.

Date: *9-90*

Table 16-1
IBM – POUGHKEEPSIE
HAZARDOUS CHARACTERISTICS AND BASIS FOR HAZARDOUS DESIGNATION

Waste Stream No.	Waste Description	Ignitability Flash Point (°F)	Corrosivity pH	Reactivity	EP Toxicity	EPA/NYSDEC Hazardous Waste Number	Delivery to Storage Frequency	Process or Activity which Generates the Waste	Waste Storage Building and Room Locations
184-003-24	Glycerin and EDTA				Chromium Lead	D007 D008	W	Cleaning solution	B/028, Rooms 118, 125
184-003-34	Mixed Freons					F002 F001 F003	W	Degreasing	B/028, Rooms 118, 119, 125
124-004-44	Spent Activated Carbon					F002	Y	Carbon absorption system for removing organic solvents	B/028, Room 120
762-033-45A	Carbon Abatement Wastewater	<140				D001 F003	D	Carbon absorption system for removing organic solvents	B/033
124-004-46	Waste IPA	45 – 70				D001	D	Washing and degreasing	B/028, Rooms 119, 120; B/034,
124-004-47	Waste Xylene	53 – 80				D001 F003	D	Washing and degreasing	B/028, Rooms 119, 120; B/034
124-004-48	FC-72 Waste					F003 F005	M	Cleaning solvent	B/028, Rooms 118, 119, 125
953-953-49	Aircraft Washdown					F001 F005	BM	Washwater	B/028, Rooms 118, 125
953-953-51	Jet Fuel and Trace Water	<140				D001	BW	Fuel oil and water drained from airplane tanks for periodic scheduled maintenance	B/028, Room 120
421-028-55	Various Acids		<2		Chromium Lead	D002 D007 D008	M	Various laboratory waste acids	B/028, Room 123

APR 0 3 1993

Date: 9-90

Table 16-1
IBM – POUGHKEEPSIE
HAZARDOUS CHARACTERISTICS AND BASIS FOR HAZARDOUS DESIGNATION

Waste Stream No.	Waste Description	Ignitability Flash Point (°F)	Corrosivity pH	Reactivity	EP Toxicity	EPA/NYSDEC Hazardous Waste Number	Delivery to Storage Frequency	Process or Activity which Generates the Waste	Waste Storage Building and Room Locations
421-028-61	Spilled No. 6 Fuel Oil	140			Cadmium Lead	D006 D008	I	Oil fuel	B/028, Rooms 120, 125
421-028-62	Cathode Ray Tube				Lead	D008	I	Disposal of equipment	B/028, Rooms 118, 125, 126
421-028-65	Reproduction Waste				Silver	D011	BW	Waste photo-reproduction	B/028, Rooms 118, 125, 126
421-028-67†	Packaged Lab Chemicals					*	Y	Discarded laboratory chemicals	B/028, Rooms 118, 120, 121, 123, 125, 126
421-028-68	Mercury Waste				Mercury	D009	I	Scrap electrical and lighting devices	B/028, Rooms 118, 125
771-450-70	Industrial Waste Sludge					F006	I	Rinse waters from several acid, etching and plating bath operations are treated by chemical precipitation to remove heavy metals. Settled sludge from precipitation tank is dewatered in sludge drying beds prior to disposal.	B/028, Rooms 118, 125
421-028-74	Oil Contaminated Scrap Metal					B004	M	Old or rebuilt IBM business machines	B/028, Room 118
421-028-75	Transformer Fluid and Waste Oil Containing PCBs					B001	BM	Old IBM transformers	B/028, Room 118

† Depends on waste or oil type

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Date: *9-90*

Table 16-1
IBM – POUGHKEEPSIE
HAZARDOUS CHARACTERISTICS AND BASIS FOR HAZARDOUS DESIGNATION

Waste Stream No.	Waste Description	Ignitability Flash Point (°F)	Corrosivity pH	Reactivity	EP Toxicity	EPA/NYSDEC Hazardous Waste Number	Delivery to Storage Frequency	Process or Activity which Generates the Waste	Waste Storage Building and Room Locations
771-450-76	Dewatered Industrial Waste Sludge					F006	W	Rinse waters from several acid, etching and plating bath operations are treated by chemical precipitation to remove heavy metals. Settled sludge from precipitation tank is dewatered in sludge drying beds prior to disposal.	B/028, Rooms 118, 125
421-028-80	Waste Nickel Cadmium Batteries				Cadmium	D006	I	Various DC powered equipment	B/028, Rooms 118, 125, 126
421-028-83	Capacitors and/or Ballasts with PCBs					B004	BM	Capacitors and/or ballasts	B/028, Room 118
421-028-85	Mixed Flammables	140				Varies	M	Degreasing solutions and waste from laboratories and copiers	B/028, Rooms 119, 120
421-028-88	Solvent Contaminated Soil					Varies	I	Soil excavation	B/028, Rooms 118, 120, 125
421-028-89	Solvent Tanks, Oil Tanks, and Associated Pipe Scrap					Varies	I	Scrap from demolition of chemical storage tanks and piping	B/028, Rooms 118, 125 if not ignitable; B/028, Rooms 119, 120 if
184-003-94	Immersion Tin Line Floor Drain Waste				Lead Chromium	D008	M	Rinsewater waste from floor spills in the Immersion Tin Line Area	B/028, Rooms 118, 123, 125

Date: *9-90*

Table 16-1
IBM – POUGHKEEPSIE
HAZARDOUS CHARACTERISTICS AND BASIS FOR HAZARDOUS DESIGNATION

Waste Stream No.	Waste Description	Ignitability Flash Point (°F)	Corrosivity pH	Reactivity	EP Toxicity	EPA/NYSDEC Hazardous Waste Number	Delivery to Storage Frequency	Process or Activity which Generates the Waste	Waste Storage Building and Room Locations
421-028-102	Industrial Waste Contaminated Debris					F006	BM	Industrial material contaminated with industrial waste sludge	B/028, Rooms 118, 125
735-003-103	Debris Contaminated with Potassium Ferricyanide					F009	I	Debris from Rearrangement Activity	B/028, Rooms 118, 125, 126
723-003-104	Waste Ion Exchange Resin					F009	M	Resin from regeneration system	B/028, Rooms 118, 125, 126
771-450-105	Spent Carbon from Industrial Waste					F006	BM	Activated carbon used to remove organics in industrial wastewater	B/028, Rooms 118, 125
421-028-120	Sand Contaminated with Lead				Lead	D008	I	Sand contaminated with lead metal particles from an indoor rifle range	B/028, Rooms 118, 125, 126
421-028-120A	Air Filters Contaminated with Lead				Lead	D008	I	Scrapped equipment and debris contaminated with lead	B/028, Rooms 118, 125, 126
771-450-125	Air Stripper Media					F006	I	Air filters used to strip organics from IWTP	B/028, Rooms 118, 125, 126
421-028-126	Various Caustics		12.5 – 14			D002	I	Miscellaneous compatible caustics are combined	B/028, Room 126

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Date: *9-90*

Table 16-1
IBM – POUGHKEEPSIE
HAZARDOUS CHARACTERISTICS AND BASIS FOR HAZARDOUS DESIGNATION

Waste Stream No.	Waste Description	Ignitability Flash Point (°F)	Corrosivity pH	Reactivity	EP Toxicity	EPA/NYSDEC Hazardous Waste Number	Delivery to Storage Frequency	Process or Activity which Generates the Waste	Waste Storage Building and Room Locations
421-028-136	PCB-Contaminated Debris					B007	I	Ripout and closure activity	B/028, Room 118
783-001-139	Metal Grindings with Oil				Lead	D008	M	Tool Shop	B/028, Rooms 118, 125
783-001-141	Rust Lick B				Lead	D008	BM	Rust preventative used in tool shop	B/028, Rooms 118, 125
184-003-142	Fixer/Developer Waste				Silver	D011	M	Developer/fixer waste from photographic process	B/028, Rooms 118, 125, 126
421-028-145	Safety-Kleen Solvent					D001	I	Degreasing of elecric power vehicle equipment	B/028, Rooms 119, 120
421-028-146	Aerosol Cans					varies	Y	Discarded aerosol cans	B/028, Rooms 118, 120, 121, 123, 125, 126

Notes:

D = Daily
W = Weekly
BW = Bi-Weekly
M = Monthly
BM = Bi-Monthly
Y = Yearly
I = Infrequent

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Attachment
to
Table 16-1
Hazardous Characteristics and
Basis For Hazardous Designation
For
Packaged Lab Chemicals
421-028-67

This waste is generated in various laboratories within Poughkeepsie facilities. Laboratory personnel will use various chemicals in experiments. Upon completion of an experiment, the waste materials are packaged and labeled. There is no need for laboratory analysis of the waste because the experimenter has knowledge of the chemical and physical nature of the waste material. Prior to the purchase and use of any chemical at the facility, a comprehensive review of handling, storage (i.e., container compatability) is performed as part of an internal IBM-Poughkeepsie written proceedure. The following EPA Hazardous Waste Numbers commonly make up the Packaged Lab Chemicals waste stream although any of the EPA numbers listed in IBM Poughkeepsie's Part A Permit may also be generated as "lab packs".

D005	P005	U002	U051	U088	U147	U228
D010	P010	U003	U052	U102	U154	U238
D001	P015	U004	U054	U108	U161	U239
D002	P022	U008	U055	U112	U165	U162
D003	P029	U013	U056	U117	U188	F001
D004	P030	U019	U057	U122	U210	F002
D006	P042	U031	U069	U133	U213	
D007	P098	U037	U071	U134	U219	
D008	P104	U043	U077	U135	U220	
D009	P106	U044	U080	U140	U223	
D011	P120	U050	U083	U144	U226	

PCK11707A

LAB PAK GUIDELINES

I. FOR PICK-UP OF SCRAPPED CHEMICALS FROM USING DEPT. AREAS (ON/OFF SITE). A **WASTE REMOVAL REQUEST FORM** IS REQUIRED TO BE FILLED OUT. (SEE ATTACHED FORM & GUIDELINES FOR SPECIFICS).

II. SEGREGATION OF INCOMPATABLE CHEMICALS ARE ESSENTIAL WHEN STORING, SORTING, CLASSIFYING & PICKING UP OF SCRAPPED HAZ. MATERIALS. PYROPHORIC, RADIOACTIVE, EXPLOSIVE OR SHOCK SENSITIVE MUST BE HANDLED SEPARATELY WITH EXTREME CARE.

III. LAB PAK CLASSIFICATIONS:

GROUP "A"-ACID GENERATING COUMPOUNDS
(RM. 123)
1) INORGANIC ACIDS (EG.-HYDROCHLORIC ACID, SULFURIC ACID, PHOSPHORIC ACID)
2) ELEMENTS & INORGANIC CHEMICALS, THAT **:"DO NOT"** LIBERATE GASEOUS PRODUCTS WHEN ACIDIFIED, EXCLUDING HEAVY METALS (EG.-SODIUM CHLORIDE, POTASSIUM SULFATE, AMMONIUM CHLORIDE)

GROUP "B"-ACID SENSITIVE COMPOUNDS
(RM.126)
1) INORGANIC ALKALINE CHEMS. (EG.-HYDROXIDES, CARBONATES BICARBONATES)
2) NON-FLAMMABLE ORGANIC BASES WITH A FLASH POINT >140F (EG.-TRIETHANOLAMINE, PYRIDIAZINE)
3) ELEMENTS & INORGANIC CHEMICALS THAT LIBERATE GASEOUS PRODUCTS WHEN ACIDIFIED (EG. METAL CYANIDES, SULFIDES)
4) REDUCING AGENTS (EG. MAGNESIUM, HYDRAZINE)

GROUP "C"-ORGANIC COMPOUNDS, INCLUDING ORGANIC ACIDS AND
(RM.125) **COMBUSTIBLES BUT EXCLUDING ORGANIC BASES** (>140F) (EG. OILS, RESINS, DYES, ACETIC ACID, HALOGENATED SOLVENTS, INKS)

GROUP "D"-FLAMMABLE ORGANIC COUMPOUNDS INCLUDING ORGANIC
(RM.120) **BASES** (F.P.<140F) (EG. ACETONE, MINERAL SPIRITS, PYRIDINE, INKS, AEROSOL SPRAY CANS, NON-HALOGENATED SOLVENTS)

GROUP "E"-OXIDIZERS & HEAVY METALS
(RM.121)
1) INORGANIC OXIDIZING COMPOUNDS (EG. HALOGENS, PERCHLORATES, NITRATES, PERMANGANATES)
2) HEAVY METAL COUMPOUNDS (EG. IRON, COBALT, COPPER SULFATE, MERCURY)

GROUP "F"-HIGHLY TOXIC ORGANICS (EG. PESTICIDES,
(RM.120 HERBICIDES, KNOWN CARCINOGENIC MATERIAL)
OR 125)

GROUP "G"-ALKALINE SENSITIVE & PSEUDOMETAL COMPOUNDS

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(RM.125) (EG.-ARSENIC TRIOXIDE, SELENIUM, BERYLLIUM, BISMUTH)

IV REACTIVE/SHOCK-SENSITIVE/EXPLOSIVE CHEMICALS

THE FOLLOWING TYPES MUST BE SEPERATED & PACKED INDIVIDUALLY WITH "**EXTREME CARE**":

1) SHOCK-SENSITIVE MATERIALS (EG.-MERCURY FULMINATE, PICRIC ACID)

2) ORGANIC OXIDIZING AGENTS (EG.-BENZOYL PEROXIDE)

3) PRESSURED GAS CYLINDERS (EG.-HYDROGEN SULFIDE, PROPANE)

4) WATER-REACTIVE MATERIALS (EG.-SODIUM METAL)

5) EXPLOSIVES (EG. ACTUATING CARTRIDGES, AMMUNITION)

6) RADIOACTIVES (EG.-GAS PANELS, SMOKE DETECTORS)

7) PATHOGENIC OR INFECTIOUS MATERIALS (EG.-BLOOD SAMPLES, SYRINGES)

8) PEROXIDE FORMING COUMPOUNDS (EG.-ETHERS)

PORTA-KAN

GUILDELINES FOR WASTE REMOVAL REQUEST

1. Make sure general information is correct and accurate. (eg - requester's name, location, phone no., etc...)

2. Describe type(s) of waste, quantities, and containers to be removed.

3. List separately each Chemical Hazardous Constituent for each item in question.

   A. The following will **not** be acceptable on forms and containers:

      1. Tradename Chemicals (eg - S-43 Stripper, Shipley 111ZA)
      2. Abbreviations
      3. Unmarked or unlabeled containers
      4. Code numbers for proprietary reasons

   B. The following **is** acceptable on forms and container:

      1. Technical names (eg - Acetone, Hydrochloric Acid...)
      2. Generic names (eg - Organic Acid, Amine)
      3. Common Usage names (eg - Epoxy Resin, Paint...)

   C. Mixtures or Solutions must include major Chemical Constituent.

   D. Expired Shelf-Life Chemicals must be properly disposed of as soon as possible.

4. Include Material Safety Data Sheet (MSDS) or note special precautions (if applicable).

5. Sign and date form upon completion.

6. Send original to Chemical Control and retain copy for your records.

7. Approval must be granted before waste pick up can be scheduled.

RAYTHEON

IBM

Call Chemical Control
3-7752 or 3-7753

WASTE REMOVAL REQUEST

NAME: (PRINT) _____ PHONE: _____

REMOVAL LOCATION: _____ | _____ | _____ | _____
DEPT | BLDG/FLOOR | COL | LOC

WASTE DESCRIPTION: _____

QUANTITY/TYPE OF CONTAINERS: _____

PHYSICAL STATE: (CIRCLE) SOLID LIQUID SLUDGE

CHEMICAL CONSTITUENT(S): QUANTITY:

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____

CONTAINER NO:

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS: _____

_____

SIGNATURE: _____ DATE: _____

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Table 16-2
IBM – POUGHKEEPSIE
WASTES GENERATED AT SATELLITE LOCATIONS WHICH ARE STORED AT BUILDING 028

Waste Name	Waste Stream No.	EPA ID No.	EPA Facility No.
Methyl Chloroform (1,1,1-Trichloroethane)	735-003-05	F001	NYD000799148
Contaminated Filters, Rags (Non-Hal. Solvents)	735-003-10	F005	NYD000707943
Contaminated Filters, Rags (Hal. Solvents)	735-003-10A	Varies	NYD000707943
Mixed Freons	184-003-34	F002 F001	NYD000799148
Aircraft Washdown	953-953-49	F001 F005	NYD000799148
Fuel Oil and Water	953-953-61	D006 D008	NYD000799148
Cathode Ray Tubes	421-028-62	D008	NYD000707943
Reproduction Waste	421-028-65	D011	*
Packaged Lab Chemicals	421-028-67	Varies	NYD000799130
Mercury Waste	421-028-68	D009	NYD000707943 NYD000799130
Waste Nickel Cadmium Batteries	421-028-80	D006	NYD000707943
Capacitors and/or Ballasts with PCB's	421-028-83	B004	NYD000707943
Capacitors with Phthalates	421-028-84	U102 U107 U028	NYD000707943
Mixed Flammables	421-028-85	Varies	NYD000799130 NYD000799148 NYD980762090
Solvent Contaminated Debris	421-028-88	Varies	*
Halogenated Solvent Tanks and Associated Piping	421-028-89	Varies	*
Sand Contaminated with Lead	421-028-120	D008	NYD980762090 NYD000799130
Air Filters Contamintated with Lead	421-028-120A	D008	NYD980762090 NYD000799130
Soil Contaminated with Fuel Oil	421-028-127	D006 D007 D008	*
Metal Grindings with Oil	783-001-139	D008	NYD000707943

Notes:

The above wastes are tested for pH, specific gravity (for aqueous wastes only), and ***appearance*** (for all wastes) each time they are delivered to Building 028.

This table reflects wastes generated in satellite locations at the current time. Other wastes may be generated in the future that are not listed in this table.

*All Satellite Facilities:

NYD000707943	NYD980762090
NYD000799130	NYD981078645
NYD000799148	NYD986894004

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Table 16-2
IBM – POUGHKEEPSIE
WASTES GENERATED AT SATELLITE LOCATIONS WHICH ARE STORED AT BUILDING 028

Waste Name	Waste Stream No.	EPA ID No.	EPA Facility No.
Waste Lubricating and Hydraulic Oil	421-028-73	D008	NYD000707943 NYD000799148 NYD980762090 NYD000799130
Waste Nickel Cadmium Batteries	421-028-80	D006	NYD000707943
Capacitors and/or Ballasts with PCB's	421-028-83	B004	NYD000707943
Capacitors with Phthalates	421-028-84	U102 U107 U028	NYD000707943
Mixed Flammables	421-028-85	D001 F001 F003 F004 F005	NYD000799130 NYD000799148 NYD980762090
Solvent Contaminated Debris	421-028-88	F002	*
Halogenated Solvent Tanks and Associated Piping	421-028-89	F002	*
Air Filters and Sand Contaminated with Lead	421-028-120	D008	NYD980762090 NYD000799130
Debris Contamintated with Lead	421-028-120A	D008	NYD980762090 NYD000799130
Soil Contaminated with Fuel Oil	421-028-127	D008	*
Metal Grindings with Oil	783-001-139	D007	NYD000707943

Notes:

The above wastes are tested for pH, specific gravity (for aqueous wastes only), and ***appearance*** (for all wastes) each time they are delivered to Building 028.

This table reflects wastes generated in satellite locations at the current time. Other wastes may be generated in the future that are not listed in this table.

*All Satellite Facilities:
NYD000707943
NYD000799130
NYD000799148
NYD980776256
NYD980762090
NYD981078645
NYD982528986
NYD001872928
NYD986894004

IBM POUGHKEEPSIE
6NYCRR PART 373 PERMIT APPLICATION

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17.0 WASTE ANALYSIS PLAN

17.1 INTRODUCTION

6 NYCRR Part 373 requires that an owner or operator of a hazardous waste treatment, storage, or disposal facility obtain a detailed chemical and physical analysis of a representative sample of each waste generated before the facility treats, stores, or disposes of the waste. The analysis may include data developed previously, existing published or documented data on the hazardous waste or on wastes generated from similar processes, or on the generator's knowledge of the process. It is also the owner or operator's responsibility to ensure that data is accurate and up to date.

6 NYCRR Part 373 also requires that an owner or operator develop and follow a written Waste Analysis Plan (WAP) describing how to obtain the detailed chemical/physical analysis data. The following document is the Waste Analysis Plan for the IBM Facility in Poughkeepsie, New York. The plan specifies:

1. The parameters for which each hazardous waste will be analyzed and the rationale for the selection of these parameters;
2. The test methods which will be used to test for these parameters;
3. The sampling method which will be used to obtain a representative sample of the waste to be analyzed; and
4. The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date.

This Waste Analysis Plan will also provide a procedure for inspection of wastes which have been generated by off-site, satellite facilities and have been sent to the main plant for storage (Section II on Waste Analysis Plan form). This inspection is to ensure that the waste received matches that which is designated on the accompanying manifest or shipping document, provided by the satellite generator.

For each new or modified waste stream, a Waste Analysis Plan will be prepared as follows:

1. Review all information related to the waste-generating process, including material safety data sheets of those chemicals used in the process, internal Environmental Impact Assessment forms (EIA's), and the expected contaminants in the waste.
2. Review any existing chemical and physical analysis data.
3. Determine the waste volume generated, the hazardous nature, and the waste characteristic variability.
4. Based on the information gathered in Steps 1, 2, and 3, determine the parameters to be analyzed and the frequency with which these analyses should be repeated.
5. Determine the sampling and analysis methods to be used in analyzing the parameters determined in Step 4.

One of the most important objectives of any analysis plan is to accurately assess the material. The use of statistics in this assessment process is necessary because all measurements of physical properties contain some unavoidable random measurement errors. That is, because of the effect of random measurement errors, any analysis data is only an estimate of the true value. A judgment must be made as to the degree of sampling accuracy and precision that is required to reliably estimate the chemical characteristics of a solid waste for the purpose of comparing those characteristics to concerned levels (such as government regulatory levels, if they exist).

Generally, it is recommended to concentrate sampling and analysis efforts on those wastes with large volumes. After a period of time, the data gathered will have a range which can be statistically expressed. For smaller volume or those known non-hazardous wastes, a one time analysis or no analysis is recommended. (Non-hazardous wastes are not included in the 6 NYCRR Part 373 permit application.) In addition to the confirmation of waste composition, accumulated waste analysis data can also flag a significant change in waste composition as a result of process modifications.

17.2 PROCEDURE FOR PREPARATION OF A WASTE ANALYSIS PLAN

Preparing a Waste Analysis Plan (WAP) consists of completing the form shown in Appendix 17A. The form specifies the parameters to be analyzed, the sampling and analytical methods to be used, and the frequency of the testing required. It also provides the rationale used in both choosing those parameters for analysis and determining the frequency of analysis. The following is a step-by-step procedure used in preparing a WAP. This procedure is presented in two sections.

17.2.1 Background Information

This section lists the information (to be entered on the form) which is needed to complete the WAP, and the various sources from which this information can be obtained (Sections I, IV, and V of the form). It includes:

1. The IBM Waste Stream I.D. Number (how is this determined, I see variation, only the last three numbers are chronological
2. The Waste Name and Description
3. Variability - This is a qualitative estimate of how variable the waste stream will be. For example, a laboratory operation will produce a much more changeable waste in comparison with a manufacturing line where a continuous operation is involved. An arbitrary "L, M, H" code (Low, Medium, and High variability) is assigned. The two waste characteristics which should be evaluated for variability are the components in the waste and the concentration of those components. Knowledge of the process generating the waste is required, and it is helpful but not necessary to have previous analysis data to assign variability
4. Hazard - RCRA/NYSDEC waste number
5. Volume Generated Annually
6. Process Formulation - List those components used to make up the original process chemical. This information can be obtained from the process engineer and/or the Material Safety Data Sheet(s)
7. Expected Contaminants - List those contaminants expected to be present in the waste as a result of the process. For example, a

waste copper etching solution will be contaminated with copper. General knowledge of the process together with good engineering judgment can be used to determine contaminants.

8-m see p 17-5, Appendix F-2 of Applicant Handbook

17.2.2 Waste Analysis Plan

This section outlines how, using the information obtained in Section 17.2.1, it is possible to formulate a WAP that will adequately characterize each waste stream and to ensure that the data is accurate and up to date. This section is divided into two tasks.

Determination of the Parameters for Analysis and the Related Sampling and Analysis Procedures

The following are guidelines to be used to select parameters for analysis for each new or modified waste stream:

1. For every waste received by Chemical Control for shipment (bulk or drum), the appearance (color, consistency, physical state) is noted by basic inspection. pH determination and specific gravity (SG) are also required if the waste is a liquid.
2. An engineering evaluation of the process formulation, expected contaminants, along with the requirements of 40 CFR Part 261, 6 NYCRR Part 371 will provide the basis for determining what specific analysis is required for each waste stream.
3. Wastes which are classified under RCRA as hazardous, by a previous analysis of a specific component (hexavalent chromium, for example), should be analyzed for that component.
4. The method of treatment and disposal of a waste may also determine what parameters should be specified for analysis based on the following:

a. For those wastes to be aqueous treated, total suspended solid (TSS) analysis is recommended, where appropriate.

b. For those wastes to be incinerated, analysis of heat of combustion (Btu value), ash content, chlorine content and sulfur content are recommended, where appropriate.

c. For those wastes to be disposed of in a secure landfill, USEPA Landfill Ban parameters are recommended.

The WAP form incorporates a "sampling code" which specifies the sampling procedure to be used for a given waste stream. Each sample code is defined as follows:

1. Liquid wastes - "COLIWASA" or composite liquid waste sampler described in EPA SW-846 3rd Edition.
2. Sludge waste in ponds, lagoons and similar reservoirs - "Trier Sampler" described in EPA SW-846 3rd Edition.
3. Dry granules or powdered waste - "Thief Sampler" or "Trier Sampler" described in EPA SW-846 3rd Edition.
4. Other - Cannot be classified in 1, 2, or 3, explain method to be used on form when Code 4 is used.

All analytical test methods are specified on the WAP form. All sampling considerations, including methodologies, equipment, containers, labeling, logging, handling, and preservation as well as analytical test methods will be performed using those procedures recommended in the following documents:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" described in EPA SW-846, Latest Edition.

determining analysis frequency from variability and hazardous nature. Table 17-1 shows how sampling frequency is determined.

No wastes from independent off-site facilities (i.e., non-IBM owned), will be received at the IBM Facility in Poughkeepsie, New York. Each shipment of waste received from a satellite facility (i.e., IBM owned) shall undergo a physical inspection, including a visual check of the waste for physical state, appearance, pH (in aqueous wastes), and specific gravity (in aqueous wastes) in order to ascertain conformance with the manifest. Applicable analytical parameters for each waste stream are specified in the waste analysis plan depending on the type of waste and the applicable waste treatment or disposal process. Each waste stream will be sampled and tested as specified in the Waste Analysis Plan.

17.2.3 Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Wastes

As required by 6 NYCRR, Part 373-2.2(i), proper precautions were and are taken regarding the design and operation of the Chemical Distribution Center (CDC), Bulk Chemical Storage Facility (BCSF), and Waste Xylene Tanks in the Carbon Abatement Area. To prevent reaction of incompatible wastes in the CDC wastes, containers are definitively segregated into separate rooms; acid, oxidizer, flammable, solvent dispense, miscellaneous, organic, and caustic. All rooms are provided with adequate ventilation. There are no incompatible wastes stored at BCSF or in the Waste Xylene area in the Carbon Abatement area.

Details of additional precautions for ignitable, reactive, or incompatible wastes can be found in Section 14 – Use and Management of Containers, and Section 15 – Tanks.

17.3 QUALITY ASSURANCE/QUALITY CONTROL PLAN

IBM-Poughkeepsie will select an analytical laboratory approved by the New York State Department of Health ELAP to characterize IBM-Poughkeepsie's waste. All subcontracted labs will be required to follow the procedures of this Quality Assurance/Quality Control Plan. A copy of the currently used laboratory's Quality Assurance/Quality Control Plan is attached in Appendix 17C.

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17.2.3 Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Wastes

As required by 6 NYCRR, Part 373-2.2(i), proper precautions were and are taken regarding the design and operation of the Chemical Distribution Center (CDC), Bulk Chemical Storage Facility (BCSF), and Waste Xylene Tanks in the Carbon Abatement Area. To prevent reaction of incompatible wastes in the CDC wastes, containers are definitively segrated into separate rooms; acid, oxidizer, flammable, solvent dispense, miscellaneous, organic, and caustic. All rooms are provided with adequate ventilation. There are no incompatible wastes stored at BCSF or in the Waste Xylene area in the Carbon Abatement area.

Details of additional precautions for ignitable, reactive, or incompatible wastes can be found in Section 14 - Use and Management of Containers, and Section 15 - Tanks.

17.3 QUALITY ASSURANCE/QUALITY CONTROL PLAN

IBM-Poughkeepsie will select an analytical laboratory from the NYSDEC Technically Acceptable Laboratory List (a current list is provided in Appendix 17B) to characterize IBM-Poughkeepsie's waste. All subcontracted labs will be required to follow the procedures of this Quality Assurance/Quality Control Plan.

Log Book, Sample Labels, Sample Seals p 6-2

Field Records p 6-2?

Chain-of-Custody

A chain-of-custody form (see Figure 17-1 for an example of the types of information that will be entered on the form), which will be initiated for each sample at the time of its collection, will accompany the samples and be properly filled out and signed. Any transfer of custody will be recorded by each party signing and dating the form.

Upon receipt by the laboratory, the transfer of custody will be recorded and the samples inspected. Laboratory inspection will consist of an examination of the following:

40 CFR p. 61

which utilizes dedicated or disposable sampling equipment to prevent cross-contamination. Sample holding times are listed in Appendix 17D, while sample preparation and presentation methods are listed in Appendix 17D. Water used in the preparation of blanks and for the completion of analytical testing shall be ASTM II deionized water demonstrated analyte free.

Calibration of analytical instruments will, at a minimum, conform to the specific requirements of the methods referenced in EPA SW-846. Specific details describing the laboratory Quality Assurance/Quality Control program are located in Appendix 17C.

Field Quality Control Samples

Duplicate samples may also be taken in the field to assess sampling precision. Field blanks, consisting of reagent water, may be collected prior to the actual sample collection and analyzed to assess the presence of any sampling apparatus and/or container contamination or interferences if such contamination/interference is suspected.

Documentation

Analytical results will be thoroughly documented in ink and be of reproduction quality.

For each analytical result, including all blanks, spikes, calibration standards, samples, and equipment calibration (including limits of detection), the following supporting documentation (at least) will be maintained:

- Complete chain-of-custody records for the sample.
- Records of all sample preparation, including weights and volumes of reagents, dilution ratios, date of extraction of each sample, and chromatograms (from which retention time of the analyte can be determined). These records should be in laboratory notebooks and/or on formalized data sheets, and will undergo regular review by a supervisor or quality control officer.
- Reproducible documentation of all manual calculations.

All QA/QC documentation will be kept at the NYSDEC-approved analytical laboratory and will be available at the request of the facility.

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FIGURE 17-1

CHAIN OF CUSTODY RECORD

PROJECT: _____

CLIENT : _____

JOB No. : _____

SAMPLE IDENTIFICATION:

LOCATION No.	LAB SAMPLE No.	CONTAINERS: NUMBER/TYPE	CONTAINER CONDITION

CHAIN OF CUSTODY CHRONICLE:

COLLECTED BY:

1 NAME: _____ DATE: _____

SIGNATURE: _____ SEALS PLACED ON CONTAINERS ? ☐ YES ☐ NO

CUSTODY TRANSFERRED TO:

2 NAME: _____ DATE: _____ TIME: _____

SIGNATURE: _____ ARE SEALS INTACT ? ☐ YES ☐ NO ☐ N/A

CUSTODY TRANSFERRED TO:

3 NAME: _____ DATE: _____ TIME: _____

SIGNATURE: _____ ARE SEALS INTACT ? ☐ YES ☐ NO ☐ N/A

RECEIVED IN LABORATORY BY

4 NAME: _____ DATE: _____ TIME: _____

SIGNATURE: _____ ARE SEALS INTACT ? ☐ YES ☐ NO ☐ N/A

DISPOSED BY:

5 NAME: _____ DATE: _____

SIGNATURE: _____

REFER TO "WATER QUALITY SAMPLING FIELD DATA SHEET" FOR SPECIFIC SAMPLING DETAILS.

WERE ANY SAMPLES SPLIT WITH ANOTHER PARTY ? ☐ YES ☐ NO

IF YES, IDENTIFY: _____

Data Validation

All data will be validated by the laboratory prior to issuance. Validation will consist of both a statistical review and a documentation review. Statistical review will include examination of all quality control data – field blanks, reagent blanks, method blanks, and standard calibration, as applicable. Documentation review of the chemical analyses will include inspection of supporting documentation for completeness, correctness, and legibility.

17.4 RECORDING OF ANALYSIS RESULTS

Documentation of all waste sampling and analyses will be kept at the IBM facility until closure, in compliance with requirements found in 6 NYCRR Part 373-2.5(c)(2)(iii). These records will include, at a minimum, the following:

- Waste name and waste stream number
- Date and time sample was taken
- Sample location
- Date and time sample was analyzed
- Analytical results

17.5 TESTING FOR PERMITS

IBM-Poughkeepsie has SPDES and Air Permits for the entire facility. Each permit requires certain testing to satisfy the permit requirements. No SPDES outfalls are associated with the CDC, BCSF, or Waste Xylene Tanks in the Carbon Abatement area. However, per NYSDEC request, a copy of the SPDES permit list is included in Appendix 17B. Copies of all permits and supporting documentation are on file at the facility. There are air permits in place for the CDC, BCSF, and Carbon Abatement area. No testing is required as a condition of these air permits. IBM-Poughkeepsie has a program in place to test for parameters included in the USEPA Landburial Ban Programs (the applicable parameters are noted on each Waste Analysis Plan Form).

17.6 ADDITIONAL INFORMATION

All storage of hazardous waste at IBM-Poughkeepsie is done in fully bermed areas within closed and secure buildings. As such, no runoff from these areas is generated. In

the unlikely event of a spill in the CDC, BCSF or Waste Xylene Tanks in the Carbon Abatement area, cleanup procedures as specified in Section 7 – Contingency Plan, would be taken.

Most hazardous wastes generated by IBM-Poughkeepsie fit the definitions of waste streams in Appendix 17A. Any suspected hazardous wastes of unknown composition would be analyzed for expected constituents and contaminants based on knowledge of the process generating the waste. The possibility of waste being generated with absolutely no information as to its contents is extremely remote, due to IBM Poughkeepsie's waste drum handling and tracking procedures, in conjunction with IBM's practice of limiting waste drum handling to a few highly trained individuals. However, if this did occur, the waste would be sampled for pH, specific gravity, heavy metals, and organics.

Sampling and analysis is performed by outside contract laboratories that have been approved through the New York State Department of Health ELAP. Analysis may also be performed by a NYS-approved laboratory belonging to IBM-East Fishkill. IBM-Poughkeepsie uses a computer program for waste analysis scheduling, which automatically flags wastes that are due for sampling and analysis in any particular month.

- Complete chain-of-custody records for the sample.
- Records of all sample preparation, including weights and volumes of reagents, dilution ratios, date of extraction of each sample, and chromatograms (from which retention time of the analyte can be determined). These records should be in laboratory notebooks and/or on formalized data sheets, and will undergo regular review by a supervisor or quality control officer.
- Reproducible documentation of all manual calculations.

All QA/QC documentation will be kept at the NYSDEC-approved analytical laboratory and will be available at the request of the facility. ← should they get it anyway

Data Validation

All data will be validated by the laboratory prior to issuance. Validation will consist of both a statistical review and a documentation review. Statistical review will include examination of all quality control data -- field blanks, reagent blanks, method blanks, and standard calibration, as applicable. Documentation review of the chemical analyses will include inspection of supporting documentation for completeness, correctness, and legibility.

17.4 RECORDING OF ANALYSIS RESULTS

Documentation of all waste sampling and analyses will be kept at the facility. These records will include, at a minimum, the following:

- Waste name and waste stream number
- Date and time sample was taken
- Sample location
- Date and time sample was analyzed
- Name(s) of personnel who analyzed the waste
- Analytical results

17.5 TESTING FOR PERMITS

IBM-Poughkeepsie has SPDES and Air Permits for the entire facility. Each permit requires certain testing to satisfy the permit requirements. No SPDES outfalls are associated with the CDC, BCSF, or Waste Xylene Tanks in the Carbon Abatement area. Copies of all permits and supporting documentation are on file at the facility. There are air permits in place for the CDC, BCSF, and Carbon Abatement area. No testing is required as a condition of these air permits. IBM-Poughkeepsie has a program in place to test for parameters included in the NYS and USEPA Landburial Ban Programs.

17.6 ADDITIONAL INFORMATION

All storage of hazardous waste at IBM-Poughkeepsie is done in fully bermed areas within closed and secure buildings. As such, no runoff from these areas is generated. In the unlikely event of a spill in the CDC, BCSF or Waste Xylene Tanks in the Carbon Abatement area, cleanup procedures as specified in Section 7 -Contingency Plan, would be taken.

Most hazardous wastes generated by IBM-Poughkeepsie fit the definitions of waste streams in Appendix 17A. Any suspected hazardous wastes of unknown composition would be analyzed for expected constitutents and contaminants based on knowledge of the process generating the waste.

Sampling and analysis is performed by outside contract laboratories that are on the NYSDEC List of Technically Acceptable Laboratories (Appendix 17B). Analysis may also be performed by a NYS-approved laboratory belonging to IBM-East Fishkill.

APPENDIX 17A
WASTE ANALYSIS PLAN FORMS

WASTE ANALYSIS PLAN
REFERENCE LISTING

ASTM	"Annual Book of Standards, Section 11, Water", American Society for Testing and Materials
SM-16	"Standard Methods for the Examination of Water and Wastewater", 16th edition
EPA SW-846	"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"
EPA 1979	"Methods for Chemical Analysis of Water and Wastes", USEPA, EPA-600/4-79-020
NYSDEC	"Procedures for Certification of Waste Destined for Land Burial in New York State", January 1985 Division of Solid and Hazardous Waste, NYSDEC

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 735-003-01

Waste Name: Sodium Persulfate/Sodium Hydroxide Bath Sampling Method Code: 1

Description: Bath solution to clean molybdenum foils.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	12 - 14
SG	ASTM D1429-76.D.	1.0 - 1.2
Appearance	Visual	Clear

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually
X Annually
___ Every 3 Years
___ One Time Only
___ No Analysis
___ Other _____

Parameters	Test Method and Reference	Expected Concentration
TSS	SM-16, 209C	<10,000 ppm
Cu	EPA SW-846, 6010 (ICP)	<50 ppm
Ni	EPA SW-846, 6010 (ICP)	<10 ppm
Mo	EPA SW-846, 6010 (ICP)	<3,000 ppmTrace
pH	EPA SW-846, 9040 or 9045	12 - 14
TOC	EPA 415.1	<10,000 ppm

SG appearance

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   H_2O 85-94% $Na_2S_2O_8$ 5-10% NaOH 1-5%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   Cu Mo Ni

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Corrosive (D002)

Quantity Generated Annually: 10 Tons

Sampling method?

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 723-003-02B / Sodium Ferricyanide/Ferrocyanide Concentrate
EPA CODE(S): F006
PROCESS DESCRIPTION: Concentration of ion exchange regeneration waste.
GENERATING DEPT./BLDG.: 776/003 STORAGE LOCATION: Bldg. 028, Rms. 118,125,126
ANNUAL QUANTITY (Tons): 20 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS:

H_2O	50 – 60%	$NaFe(CN)_6$	< 10%	$Na_4Fe(CN)_6$	< 10%
Na	1 – 16%	Cl	0 – 18%		

III. WASTE CONTAMINANTS:

Fe, Mo, CN, K

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
pH	EPA SW-846, 9041	6 – 11
SG	ASTM D1429-76.D	1.2 – 1.4
Appearance	Visual	Yellowish Liquid

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
TSS	EPA 160.2	> 400,000 ppm	N/A
TOC	EPA SW-846, 9060	< 10,000 ppm	N/A
CN (Total)	EPA SW-846, 9010 and 40 CFR Part 268/6 NYCRR Part 376	< 50,000 ppm	N/A
CN (Amenable)	EPA SW-846, 9010 and 40 CFR Part 268/6 NYCRR Part 376	< 800 ppm	N/A
CN (Free)	EPA SW-846, 9010 and 40 CFR Part 268/6 NYCRR Part 376	< 30 ppm	N/A
pH	EPA SW-846, 9045	6 - 11	N/A
Mo	EPA SW-846, 6010	< 1,000 ppm	3010
Fe	EPA SW-846, 6010	< 7,000 ppm	3010
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Ni (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Ag (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:
   VARIABILITY (L,M,H): L , HAZARD (L,M,H): H QUANTITY (L,M,H): M

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WASTE ANALYSIS PLAN

I. General Information - Non-RCRA Hazardous

IBM Waste Stream I.D. No.: 735-003-03 Sampling Method Code: 1
Waste Name: Potassium Ferricyanide
Description: Solution used to etch molybdenum foils.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	11 -14
SG	ASTM D1429-76.D	1.0 - 1.3
Appearance	Visual	Yellow watery, dark

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
TSS	SM-16, 209C	<10,000 ppm
CN (Total)	EPA SW-846, 9010	<175,000 ppm
Mo	EPA SW-846, 6010 (ICP)	<12,000 ppm
Fe	EPA SW-846, 6010 (ICP)	<40,000 ppm
CN (Free)	EPA SW-846, 9010 (Modified)	<5 ppm
CN (Amenable)	EPQ SW-846, 9010	<200 ppm
TOC	EPA 415.1	<10,000 ppm
pH	EPA SW-846, 9040 or 9045	11 - 14
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Ni	EPA SW-846, 6010 (ICP)	<5 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm

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IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   H_2O 85-90% $K_3Fe(CN)_6$ 10-15% $K_4Fe(CN)_6$ 2-5% NaOH <1%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Mo

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): L Hazard: Toxic, Corrosive (F009, D002)
Quantity Generated Annually: 35 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 735-003-05 / Methyl Chloroform (1,1,1,-Trichloroethane)
EPA CODE(S): F001
PROCESS DESCRIPTION: Solvent used in degreasing and developing operations.
GENERATING DEPT./BLDG.: 735/003 STORAGE LOCATION: Bldg. 028, Rms. 118,119,125
ANNUAL QUANTITY (Tons): 15 VARIABILITY (L,M,H): M

II. WASTE COMPONENTS:

Methyl Chloroform 65 - 90% H_2O <10% Oils < 1%

III. WASTE CONTAMINANTS:

Methyl Methacrylate Mylar

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	1.2 - 1.7
Appearance	Visual	Blue-violet liquid

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Flash Point	EPA SW-846, 1010	> 100° F	N/A
Heat of Combustion	ASTM D2015-77	1,000 – 10,000 Btu	N/A
% Methyl Chloroform	EPA SW-846, 8240	65 – 99%	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): M HAZARD (L,M,H): L QUANTITY (L,M,H): L

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 735-003-10 / Filters, Rags, and Spill clean-up contaminated with Non-Halogenated Solvents

EPA CODE(S): F005

PROCESS DESCRIPTION: Solvent filtration and spill clean-up

GENERATING DEPT./BLDG.: 735/003 STORAGE LOCATION: Bldg. 028, Rms. 118, 119, 120, 125

ANNUAL QUANTITY (Tons): 5 VARIABILITY (L,M,H): H

II. WASTE COMPONENTS:

Soil & Absorbents 0 - 95% Filters & Rags 80 - 95%

III. WASTE CONTAMINANTS:

Various Non-Halogenated Solvents

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
Appearance	Visual	Filters/rags

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Composite
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Flash Point	EPA SW-846, 1010	>140° F	N/A
Volatile Organics - 624	EPA SW-846, 8240 and 40 CFR Part 268/6 NYCRR Part 376	Varies	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	<1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	<5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311 and 6010 40 CFR Part 268/6 NYCRR Part 376	<5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): H HAZARD (L,M,H): L QUANTITY (L,M,H): L

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IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 735-003-10A / Filters, Rags, and Spills contaminated with Halogenated Solvents

EPA CODE(S): Varies depending upon solvent spill.
PROCESS DESCRIPTION: Solvent filtration / spill clean-up.
GENERATING DEPT./BLDG.: 735/003 STORAGE LOCATION: Bldg. 028, Rms. 118, 119, 120, 125
ANNUAL QUANTITY (Tons): 2 VARIABILITY (L,M,H): H

II. WASTE COMPONENTS:

Soil & Absorbents 0 – 95% Filters & Rags 80 – 95%

III. WASTE CONTAMINANTS:

Various Halogenated Solvents

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
Appearance	Visual	Filters/rags

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Composite
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Flash Point	EPA SW-846, 1010	>140° F	N/A
Volatile Organics - 624	EPA SW-846, 8240 and 40 CFR Part 268/6 NYCRR Part 376	Varies	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	<1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	<5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311 and 6010 40 CFR Part 268/6 NYCRR Part 376	<5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): H HAZARD (L,M,H): L QUANTITY (L,M,H): L

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 735-003-11

Waste Name: PF Etchant Sampling Method Code: 1

Description: Solution used to etch nickel.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	<2
SG	ASTM D1429-76.D	1.0 - 1.5
Appearance	Visual	Water-like, Dark Brown

III. For the Frequency Indicated, Perform the Following Analysis:

___	Semi-Annually	___	Every 3 Years	___	One Time Only
X	Annually	___	No Analysis	___	Other ___

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	<2
Fe	EPA SW-846, 6010 (ICP)	<75,000 ppm
Cu	EPA SW-846, 6010 (ICP)	<15,000 ppm
Ni	EPA SW-846, 6010 (ICP)	<1,500 ppm
TSS	SW-16, 209C	<10,000 ppm
TOC	EPA 415.1	<10,000 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   H_2O 50-60% Fe Cl_3 40-45% HCl 0-1%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   Fe Cu Ni

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Corrosive (D002)

Quantity Generated Annually: 20 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 735-003-13, 184-003-13

Waste Name: Sodium Persulfate/Sulfuric Acid Bath Sampling Method Code: 1

Description: Cleaning solution for cleaning copper-beryllium circuit boards and foils.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	<2
SG	ASTM D1429-76.D	1.0 - 1.2
Appearance	Visual	Greenish-blue

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

X Annually ___ No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
TSS	SM-16, 209C	<10,000 ppm
Cu	EPA SW-846, 6010 (ICP)	<11,000 ppm
Ni	EPA SW-846, 6010 (ICP)	<31,000 ppm
Be	EPA SW-846, 6010 (ICP)	<5 ppm
TOC	EPA 415.1	<10,000 ppm
pH	EPA SW-846, 9040 or 9045	0.5 - 1.5

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   H_2O 80-95% H_2SO_4 <2% $Na_2S_2O_8$ 5-20%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   Cu Ni Be

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Corrosive (D002)

Quantity Generated Annually: 60 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 735-003-14 / PR-491
EPA CODE(S): F002, D002
PROCESS DESCRIPTION: Bath solution used to remove photographic resists.
GENERATING DEPT./BLDG.: 735/003 STORAGE LOCATION: Bldg. 028, Rms. 118,123,125
ANNUAL QUANTITY (Tons): 30 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS:

Methylene Chloride 40– 60%	Methanol 1 – 15%
Ethylene Dichloride 10 – 20%	Wetting Agent 1 – 5%
Sulfamic Acid < 1%	Dodecyl Benzene < 0.2%
Oxalic Acid 2 – 5%	Paraffin < 1%

III. WASTE CONTAMINANTS:

N-Butyl Acetate
Ethyl Benzene
Xylene
Ethyl Cellosolve Acetate
Polyvinyl Methyl Ether

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
pH	SW-846, 9041	<2
SG	ASTM D1429-76.D	1.0 – 1.3
Appearance	Visual	Water-like, brown

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Flash Point	EPA SW-846, 1010	>140° F	N/A
pH	EPA SW-846, 9045	< 2	N/A
% Methylene Chloride	EPA SW-846, 8240	40 – 60%	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): L HAZARD (L,M,H): M QUANTITY (L,M,H): M

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WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 735-003-18

Waste Name: Hydrochloric Acid Rinse Sampling Method Code: 1

Description: Acidic rinse solution of etching bath.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	<2
SG	ASTM D1429-76.D	1.0 - 1.05
Appearance	Visual	Pale blue, water like

III. For the Frequency Indicated, Perform the Following Analysis:

X Semi-Annually	___ Every 3 Years	___ One Time Only
___ Annually	___ No Analysis	___ Other _____

Parameters	Test Method and Reference	Expected Concentration
TSS	SM-16, 209C	<10,000 ppm
Cu	EPA SW-846, 6010 (ICP)	<5,000 ppm
Ni	EPA SW-846, 7520	<150 ppm
Be	EPA SW-846, 7090	<1 ppm
TOC	EPA 415.1	<10,000 ppm
pH	EPA SW-846, 9040 or 9045	<2

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

H_2O 85-95%	NH_4Cl 0-1%	NH_4OH 0-1%
Ethanolamine 1-2%	NH_4NO_3 0-1%	HCl 5-10%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

Ni Cu Be

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): H Hazard: Corrosive (D002)

Quantity Generated Annually: 30 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 735-003-20

Waste Name: AZ 303 Developer Sampling Method Code: 1

Description: Photographic developer for photo etch process.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	12 - 14
SG	ASTM D1429-76.D	1 - 1.05
Appearance	Visual	Rust brown

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

_X_ Annually ___ No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
TSS	SM-16, 209C	<10,000 ppm
TOC	EPA 415.1	<10,000 ppm
Cu	EPA SW-846, 6010 (ICP)	<20 ppm
Fe	EPA SW-846, 6010 (ICP)	<40 ppm
Ni	EPA SW-846, 6010 (ICP)	<30 ppm
Mo	EPA SW- 846, 6010 (ICP)	<40 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   Water 90-98% NaOH 2-10%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   Cu Fe Ni Mo

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Corrosive (D002)

Quantity Generated Annually: 15 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 184-003-24 / Glycerin EDTA
EPA CODE(S): D007
PROCESS DESCRIPTION: Cleaning solution for circuit boards.
GENERATING DEPT./BLDG.: 184/003 STORAGE LOCATION: Bldg. 028, Rms. 118, 125
ANNUAL QUANTITY (Tons): 40 VARIABILITY (L,M,H): M

II. WASTE COMPONENTS: Glycerin 80 – 99% EDTA 1 – 20%

III. WASTE CONTAMINANTS: Cu Fe Cr Pb

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
pH	EPA SW-846, 9041	6 – 9
SG	ASTM D1429-76.D	1.0 – 1.5
Appearance	Visual	Dark brown, opaque

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
TOC	EPA SW-846, 9060	< 500,000 ppm	N/A
TSS	EPA 160.2	< 10,000 ppm	N/A
Ash	EPA 160.4	< 5%	N/A
Chlorine	EPA SW-846, 9252	< 1%	N/A
Heat of Combustion	ASTM D2015-77	5,000 – 10,000 Btu	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
Flash Point	EPA SW-846, 1010	> 140° F	N/A
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Cu	EPA SW-846, 6010	< 5 ppm	3010
Fe	EPA SW-846, 6010	< 50 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): M HAZARD (L,M,H): L QUANTITY (L,M,H): M

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 184-003-25

Waste Name: Electrocleaner-Pennwalt K2 Cleaner# Sampling Method Code: 1

Description: Circuit board cleaning bath.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	12 - 14
SG	ASTM D1429-76.D	0.9 - 1.1
Appearance	Visual	Blueish-grey, watery

III. For the Frequency Indicated, Perform the Following Analysis:

X Semi-Annually	___ Every 3 Years	___ One Time Only
___ Annually	___ No Analysis	___ Other _____

Parameters	Test Method and Reference	Expected Concentration
TOC	EPA 415.1	<10,000 ppm
TSS	SM-16, 209C	<10,000 ppm
Cu	EPA SW-846, 6010 (ICP)	1 - 50 ppm
Fe	EPA SW-846, 6010 (ICP)	1 - 1,500 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
pH	EPA SW-846, 9040 or 9045	12 - 14

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   H_2O 90-98% Sodium Silicate 2.5-5% NaOH 1.5-5%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   Cu Pb Fe

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Corrosive (D002)

Quantity Generated Annually: 5 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 184-003-34 / Mixed Freons
EPA CODE(S): F001, F002, F003
PROCESS DESCRIPTION: Degreasing of small parts.
GENERATING DEPT./BLDG.: 184/003 STORAGE LOCATION: Bldg. 028, Rms. 118, 119, 125
ANNUAL QUANTITY (Tons): 5 VARIABILITY (L,M,H): M

II. WASTE COMPONENTS:

Trichlorotrifluoroethane 80 - 100%
Methylene Chloride <10%
Methyl alcohol <10%
Acetone <15%

III. WASTE CONTAMINANTS: Oils

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	1.3 - 1.6
Appearance	Visual	Amber, Transparent

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Ash	EPA 160.4	<1%	N/A
Sulfur	EPA SW-846, 9035	<4%	N/A
Chlorine	EPA SW-846, 9252	≤30%	N/A
Heat of Combustion	ASTM D2015-77	< 5,000 Btu	N/A
Flash Point	EPA SW-846, 1010	>140° F	N/A

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): M HAZARD (L,M,H): L QUANTITY (L,M,H): L

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 124-004-44 / Spent Activated Carbon
EPA CODE(S): F002
PROCESS DESCRIPTION: Used in carbon absorption system for removing organic solvent.
GENERATING DEPT./BLDG.: 124/004 STORAGE LOCATION: Bldg. 028, Rm. 120
ANNUAL QUANTITY (Tons): 5 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS: Carbon 98 – 100%

III. WASTE CONTAMINANTS: Solvent 0 – 2%

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
Appearance	Visual	Black particles

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Every Generation / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Flash Point	EPA SW-846, 1010	>140° F	N/A
Volatile Organics - 624	EPA SW-846, 8240 and 40 CFR Part 268 / 6 NYCRR Part 376	Varies	3510

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): L HAZARD (L,M,H): L QUANTITY (L,M,H): L

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 124-004-46 / Waste IPA
EPA CODE(S): D001
PROCESS DESCRIPTION: Cleaning of various computer components.
GENERATING DEPT./BLDG.: 124/004,012 STORAGE LOCATION: Bldg. 034 Tank 46, Bldg. 028, Rms. 119, 120
ANNUAL QUANTITY (Tons): 300 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS: IPA 94 - 100% H_2O 0 - 6%

III. WASTE CONTAMINANTS: Dirt Xylene Ethyl benzene

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	0.7 - 0.9
Appearance	Visual	Clear

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Ash	EPA 160.4	< 1%	N/A
Heat of Combustion	ASTM D2015-77	< 20,000 Btu	N/A
Flash Point	EPA SW-846, 1010	< 140° F	N/A
Chlorine	EPA SW-846, 9252	< 1%	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
% IPA	EPA SW-846, 8240	94 - 100%	3510
% Xylene	EPA SW-846, 8240	< 5%	3510
% Ethyl Benzene	EPA SW-846, 8240	< 1%	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): L HAZARD (L,M,H): M QUANTITY (L,M,H): H

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IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 124-004-47 / Waste Xylene
EPA CODE(S): F003, D001
PROCESS DESCRIPTION: Cleaning of various computer components.
GENERATING DEPT./BLDG.: 124/004,012 STORAGE LOCATION: Bldg. 034 Tank 47, Bldg. 028, Rms. 119, 120
ANNUAL QUANTITY (Tons): 500 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS:

Xylene 70 - 100% Freons 0 - 5% Ethyl benzene 0 - 20%
IPA 0 - 1% Perfluorohexane 0 - 1% Toluene < 1%

III. WASTE CONTAMINANTS: Dirt

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	0.80 – 0.98
Appearance	Visual	Clear

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Ash	EPA 160.4	1%	N/A
Heat of Combustion	ASTM D2015-77	< 20,000 Btu	N/A
Flash Point	EPA SW-846, 1010	50 - 90° F	N/A
Chlorine	EPA SW-846, 9252	< 2%	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
% Xylene	EPA SW-846, 8240	70 - 99%	3510
% Ethyl Benzene	EPA SW-846, 8240	0 - 20%	3510
% IPA	EPA SW-846, 8240	0 - 1%	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Ni (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 10 ppm	3010
Be	EPA SW-846, 6010	< 1 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:

   Expected waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

   VARIABILITY (L,M,H): L HAZARD (L,M,H): M QUANTITY (L,M,H): H

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IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 124-004-48 / FC-72 Waste
EPA CODE(S): F003, F005
PROCESS DESCRIPTION: Cleaning of various computer components.
GENERATING DEPT./BLDG.: 124/004,012 STORAGE LOCATION: Bldg. 028, Rms. 118, 119, 125
ANNUAL QUANTITY (Tons): 2 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS:

Inert Fluorochemical 80 - 90% Xylene 5 - 15% Ethyl Benzene 1 - 5%
Freon <2% Toluene <0.5%

III. WASTE CONTAMINANTS: Dirt

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	1.3 – 1.8
Appearance	Visual	Clear

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Ash	EPA 160.4	< 1%	N/A
Heat of Combustion	ASTM D2015-77	< 2,000 Btu	N/A
Chlorine	EPA SW-846, 9252	< 70%	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Flash Point	EPA SW-846, 1010	> 140° F	N/A

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
Expected waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): L HAZARD (L,M,H): L QUANTITY (L,M,H): L

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 953-953-49 / Aircraft Washdown
EPA CODE(S): F001, F005
PROCESS DESCRIPTION: Wastewater from washing IBM aircraft.
GENERATING DEPT./BLDG.: 953/953 STORAGE LOCATION: Bldg. 028, Rms. 118, 125
ANNUAL QUANTITY (Tons): 60 VARIABILITY (L,M,H): H

II. WASTE COMPONENTS: H_2O 99 – 100%

III. WASTE CONTAMINANTS: Trace Organics Oil/Grease Phosphates

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
pH	SW-846, 9041	6 – 10
SG	ASTM D1429-76.D	0.99 – 1.05
Appearance	Visual	Cloudy liquid

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Quarterly / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
TSS	EPA 160.2	< 10,000 ppm	N/A
TOC	EPA SW-846, 9060	< 20,000 ppm	N/A
Flash Point	EPA SW-846, 1010	> 140° F.	N/A
Organics - 608,624, 625	EPA SW-846, 8080, 8240, 8270 and 40 CFR Part 268/6 NYCRR, Part 376	Varies	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Expected waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): H HAZARD (L,M,H): L QUANTITY (L,M,H): M

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WASTE ANALYSIS PLAN

I. General Information - Non-RCRA Hazardous

IBM Waste Stream I.D. No.: 953-953-51 Sampling Method Code: 1

Waste Name: Jet Fuel and Trace Water

Description: Jet fuel and water drained from airplane tanks for periodic scheduled maintenance.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
SG	ASTM D1429-76.D	0.75 - 0.95
Appearance	Visual	Oil-like

III. For the Frequency Indicated, Perform the Following Analysis:

_____	Semi-Annually	_____	Every 3 Years	_____	One Time Only
X	Annually	_____	No Analysis	_____	Other _____

Parameter	Test Method and Reference	Expected Concentration
Flash Point	EPA SW-846, 1010 or 1020	110 - 150°F
Heat of Combustion	ASTM D2015-77	<22,000 Btu/lb
Chlorine	ASTM D808-81	<8%
Sulfur	ASTM D129	<1%
Ash	SM-16,209D	<1%
Cd (TCLP)	EPA SW-846, 1311 and 6010	< 1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	< 5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	< 5 ppm
% Kerosene	NYS DOH 310.13	95 - 100%

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IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:

   Kerosene 95 - 100% H_2O

2. Expected Contaminants in Waste (Based on Knowledge of Process):

   Cd Cr Pb

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Ignitable (D001)

Quantity Generated Annually: 2 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-55

Waste Name: Various Acids Sampling Method Code: 1

Description: From various sources.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	<2
SG	ASTM D1429-76.D	1.0 - 1.4
Appearance	Visual	Watery - Color varies

III. For the Frequency Indicated, Perform the Following Analysis:

X Semi-Annually	___ Every 3 Years	___ One Time Only
___ Annually	___ No Analysis	___ Other _____

Parameters	Test Method and Reference	Expected Concentration
TOC	EPA 415.1	<10,000 ppm
TSS	SM-16, 209C	<10,000 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	0 - 10 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<10 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

H_2O 80-99%	HCl 0-20%	HF 0-20%
H_2SO_4 0-20%	HNO_3 0-10%	H_3PO_4 0-10%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

Organic Acids	Potassium biphthalate	Urea
Thiourea	Sodium Nitrate	Heavy Metals

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): H Hazard: Corrosive, Toxic (D002, D007, D008)

Quantity Generated Annually: 3 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 421-028-61 / Spilled Fuel Oil
EPA CODE(S): D006, D008
PROCESS DESCRIPTION: Spills of fuel oil.
GENERATING DEPT./BLDG.: Site
STORAGE LOCATION: Bldg. 028, Rms. 120, 125
ANNUAL QUANTITY (Tons): Varies
VARIABILITY (L,M,H): M

II. WASTE COMPONENTS: Hydrocarbons mixtures 98 – 100%

III. WASTE CONTAMINANTS: Inert Material 0 - 2%

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	0.90 – 1.00
Appearance	Visual	Oily

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Each Spill / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Ash	EPA 160.4	< 3%	N/A
Heat of Combustion	ASTM D2015-77	14 - 19,000 Btu	N/A
Flash Point	EPA SW-846, 1010	> 140 °F	N/A
Chlorine	EPA SW-846, 9252	1.5%	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	> 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	> 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Expected waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): M
HAZARD (L,M,H): L
QUANTITY (L,M,H): M

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WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-62

Waste Name: Cathode Ray Tubes Sampling Method Code: 4

Description: Cathode ray tubes.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Cathode Ray Tubes

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually _X_ No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Electronic Components and Glass 99-100%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Heavy Metals

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): N/A Hazard: Toxic (D008)

Quantity Generated Annually: 10 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-65 Sampling Method Code: 1
Waste Name: Reproduction Waste
Description: Waste from various photographic areas.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	8.5 - 11
SG	ASTM D1429-76.D	1.0 - 1.1
Appearance	Visual	Water-like, dark

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
TSS	SM-16, 209C	< 10,000 ppm
TOC	EPA 415.1	< 30,000 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	< 5 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	< 100 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	< 1 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Water 80-99% NH_4OH 0-20% NaOH < 1% Soluble Organics

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Cd Cr Ag

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V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): M Hazard: Toxic (D011)
Quantity Generated Annually: 5 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-67

Waste Name: Packaged Lab Chemicals Sampling Method Code: 4

Description: Various laboratory chemicals.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Individually wrapped containers with spill absorbent

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Various
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Various

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic, Ignitable, Corrosive, Reactive (May be EPA numbers - See Attachment

Quantity Generated Annually: 2 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-68

Waste Name: Mercury Waste Sampling Method Code: 4

Description: Scrap electrical and lighting devices.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Broken thermometers, switches, lamps - mostly glass

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   Glass 95-100% Metal 0-4% Mercury 0-1%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   N/A

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Toxic (D009)

Quantity Generated Annually: 0.3 Ttons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 771-450-70 Sampling Method Code: 3
Waste Name: Industrial Waste Sludge
Description: Rinse waters from several acid etching and plating bath operations are treated by chemical precipitation to remove heavy metals. Settled sludge from precipitation is dewatered in sludge drying beds prior to disposal.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	6 - 10.5
SG	ASTM D1429-76.D	1 - 1.1
Appearance	Visual	Dark, gritty sludge

III. For the Frequency Indicated, Perform the Following Analysis:

_____ Semi-Annually _____ Every 3 Years _____ One Time Only
_____ Annually _____ No Analysis X Other Quarterly (Four times per year)

Parameter	Test Method and Reference	Expected Concentration
SG	ASTM D12980-72, Hydrometer	1 - 1.1
pH	EPA SW-846, 9040 or 9045	6.0 - 10.5
TSS	EPA/4-79-020, 160.2 Gravimetric 103°C or SM-16, 209C	1,000 - 25,000 ppm
TOC	EPA 415.1	<10,000 ppm
Organics: 608, 624, 625	EPA SW-846, 8080, 8210 and 8270	Varies
CN (Total)	EPA SW-846, 9010	<590 mg/l
CN (Amenable)	EPA SW-846, 9010	<30 mg/l
% Solids	EPA 160.3	1 - 10%
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<0.01 ppm
Ni	EPA SW-846, 6010 (ICP)	<1 ppm

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IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   H_2O 94 - 97%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Insoluble Metal Salts 3-9%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): H Hazard: Toxic (F006, F009)
Quantity Generated Annually: 60 Tons

WASTE ANALYSIS PLAN

I. General Information - NYSDEC Hazardous

IBM Waste Stream I.D. No.: 421-028-74

Waste Name: Oil Contaminated Scrap Metal Sampling Method Code: 4

Description: Scrap metal components from old or rebuilt business machines contaminated with oil containing PCBs. Waste may also contain ribbons and felt.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Scrap metal, ribbons, felt

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   Metal Solids, Ribbons, Felt 99 - 100%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   PCBs (50-500 ppm)

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: PCBs (B004), PCB Articles as defined by Part 371.4(3)(3)(i), B007 (Other PCB Wastes)

Quantity Generated Annually: 3 Tons

WASTE ANALYSIS PLAN

I. General Information - NYSDEC Hazardous

IBM Waste Stream I.D. No.: 421-028-75

Waste Name: Transformer Fluid & Waste Oil Containing PCBs Sampling Method Code: 1

Description: Liquid oil used in old transformers. Liquid oil contains PCBs.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Yellowish oil

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually ___ No Analysis X Other Responsible project Engineer to order PCB analysis as required

Parameters*	Test Method and Reference	Expected Concentration
PCBs	EPA SW-846, 8080	50-500 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Oil 99-100% Chlorinated Hydrocarbons 0 - 1%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   PCBs

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: PCBs (B001)

Quantity Generated Annually: 4 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 771-450-76 Sampling Method Code: 3
Waste Name: Dewatered Industrial Waste Sludge
Description: Rinse waters from several acid etching and plating bath operations are treated by chemical precipitation to remove heavy metals. Settled sludge from precipitation is dewatered by a vacuum filter prior to disposal.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	6.5 - 11
Appearance	Visual	Dark, gritty sludge

III. For the Frequency Indicated, Perform the Following Analysis:

_____ Semi-Annually _____ Every 3 Years _____ One Time Only
_____ Annually _____ No Analysis X Other Quarterly (Four times per year)

Parameter	Test Method and Reference	Expected Concentration
TSS	EPA 600/4-79-02°, Gravimetric 103° C or SM-16, 209C	100 - 15,000 ppm
TOC	EPA 415.1	100 - 15,000 ppm
CN (Total)	EPA SW-846, 9010	<590 mg/l
CN (Amenable)	EPA SW-846, 9010	<30 mg/l
Organics: 608, 624, 625	EPA SW-846, 8080, 8240 and 8270	Varies
pH	EPA SW-846, 9040 or 9045	6.5 - 11
% Solids	EPA 160.3	15 - 70%
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<4 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Ni	EPA SW-846, 6010 (ICP)	<1 ppm

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IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   H_2O 35-66% Carbon 1-5%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Insoluble Metal Salts 30 - 60% Diatomaceous Earth 5-10%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): H Hazard: Toxic (F006, F009)
Quantity Generated Annually: 250 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-80

Waste Name: Waste Nickel Cadmium Batteries Sampling Method Code: 4

Description: Discarded batteries from various DC powered equipment.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Batteries

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Nickel Hydroxide Potassium Hydroxide Cadmium Hydroxide
   Battery casing Iron
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Not Applicable

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic (D006)

Quantity Generated Annually: 1 Ton

WASTE ANALYSIS PLAN

I. General Information - NYSDEC Hazardous*

IBM Waste Stream I.D. No.: 421-028-83

Waste Name: Capacitors and/or Ballasts with PCBs Sampling Method Code: N/A

Description: Capacitors and/or ballasts with PCBs

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Metal container

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Metal container 80 - 85% Oil 15-20%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   PCBs

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: PCBs (B004)*

Quantity Generated Annually: 5 Tons

*NYSDEC hazardous for ballasts containing PCBs 50-500 ppm.

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-84

Waste Name: Capacitors w/ Phthalates Sampling Method Code: 4

Description: Capacitors w/ Phthalates

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Oval and rectangular metal canister

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Metal container 80-85%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Phthalates 15-20%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic (U102, U107, U028)

Quantity Generated Annually: 10 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 421-028-85 / Mixed Flammable Waste
EPA CODE(S): D001, may include various additional codes for solvents.
PROCESS DESCRIPTION: Wastewater from laboratory and copier operations.
GENERATING DEPT./BLDG.: Site
STORAGE LOCATION: Bldg. 028, Rms. 119, 120
ANNUAL QUANTITY (Tons): 75
VARIABILITY (L,M,H): M

II. WASTE COMPONENTS:

Various Solvents 100% (including kerosene, alcohols, xylene, toluene, diesel fuel, acetone, butyl acetate, MIBK, benzene, paint, lacquer, 2-ethoxyethyl acetate)

III. WASTE CONTAMINANTS:

Varies

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	0.7 – 1.2
Appearance	Visual	Varies

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
TSS	EPA 160.2	< 150,000 ppm	N/A
Heat of Combustion	ASTM D2015-77	< 20,000 Btu	N/A
Ash	EPA 160.4	< 1.15%	N/A
Chlorine	EPA SW-846, 9252	< 10%	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
Flash Point	EPA SW-846, 1010	< 140° F	N/A
TOC	EPA SW-846, 9060	< 250,000 ppm	N/A
Organics - 608,624, 625	EPA SW-846, 8080, 8240, 8270 and 40 CFR Part 268/ 6 NYCRR, Part 376	Varies	3510
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Expected waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): M
HAZARD (L,M,H): M
QUANTITY (L,M,H): M

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WASTE ANALYSIS PLAN

I. General Information - Non-RCRA Hazardous

IBM Waste Stream I.D. No.: 421-028-88 Sampling Method Code: 3
Waste Name: Solvent Contaminated Soil Debris
Description: Excavated soil from areas contaminated through spills and leaks.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
Appearance	Visual	Construction/demolition debris

III. For the Frequency Indicated, Perform the Following Analysis:

___	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	X	Other Each Occurrence

Parameter	Test Method and Reference	Expected Concentration
NY LF Ban: Aromatics, TOX, TOM, Low Mol Wt	NYSDEC Land Burial Ban, Appendices A - D	<2%*
Organics: 608, 624, 625	EPA SW-846, 8080, 8240 and 8270	Varies

*NYS requires that the sum total of these constituents be <2% for land disposal.

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Soil (Construction/demolition debris) > 99 %

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Organincs < 1%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): H Hazard: Will Vary
Quantity Generated Annually: 25 Tons

POK102981

WASTE ANALYSIS PLAN

I. General Information - Non-RCRA Hazardous

IBM Waste Stream I.D. No.: 421-028-89 Sampling Method Code: 4
Waste Name: Solvent Tanks and Associated Piping
Description: Scrap from demolition of chemical storage tanks and piping.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
Appearance	Visual	Metal tanks and piping

III. For the Frequency Indicated, Perform the Following Analysis:

___	Semi-Annually	___	Every 3 Years	___	One Time Only
_X_	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
NY LF Ban: Aromatics TOX TOM Low Mol Wt	NYSDEC Land Burial Ban, Appendices A - D	<2%*

*NYS requires that the sum total of these constituents be <2% for land disposal.

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Metal Scraps 95 - 100%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Solvents < 5%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): L Hazard: Will Vary
Quantity Generated Annually: Varies with project

P8K102981

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 184-003-94 Sampling Method Code: 1
Waste Name: Immersion Tin Line Floor Drain Waste
Description: Rinsewater waste from floor spills in the Immersion Tin Line area.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	2.1 - 7.0
SG	ASTM D1429-76.D	1.0 - 1.1
Appearance	Visual	Watery, light

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other:_____

Parameter	Test Method and Reference	Expected Concentration
TOC	EPA 415.1	< 10,000 ppm
TSS	SM-16, 209C	200 - 35,000 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<10 ppm
Cd (TCLP)	EPA SW-486, 1311 and 6010	<1 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<15 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:

H_2O 84 - 100%	Total Acidity < 3%	Sodium persulfate < 5%
Stannous Chloride < 2%	Thiorea < 500 ppm	

2. Expected Contaminants in Waste (Based on Knowledge of Process):

Grease & Oil Heavy Metals

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): M Hazard: Toxic (D008)
Quantity Generated Annually: 30 Tons

P0K1022681

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-102 Sampling Method Code: 3
Waste Name: Industrial Waste Contaminated Debris
Description: Construction material contaminated with industrial waste sludge.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
Appearance	Visual	Demolition debris

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
NY LF Ban	NYSDEC Land Burial Ban,	<2%*
Aromatics	Appendices A-D	
TOX		
TON		
Low Mol Wt		
Ag (TCLP)	EPA SW-846, 1311 and 6010	<0.072 mg/l
Cd (TCLP)	EPA SW-846, 1311 and 6010	<0.066 mg/l
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5.2 mg/l
Ni	EPA SW-846, 6010 (ICP)	<0.32 mg/l
Pb (TCLP)	EPA SW-846, 1311 and 6010	<0.51 mg/l
CN (Total	EPA SW-846, 9010	<590 mg/l
CN (Amenable)	EPA SW-846, 9010	<30 mg/l
Organics: 608, 624, 625	EPA SW-846, 8080, 8240 and 8270	Varies

*NYS requires that the sum total of these constituents be <2% for land disposal

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Construction materials 99-100%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Industrial Waste Sludge <1%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): L Hazard: Toxic (F006, F009)
Quantity Generated Annually: 75 Tons

POK102981

WASTE ANALYSIS PLAN

I. General Information - Non-RCRA Hazardous

IBM Waste Stream I.D. No.: 735-003-103 Sampling Method Code: _____
Waste Name: Debris Contaminated with Potassium Ferricyanide
Description: Debris contaminated with Potassium Ferricyanide.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
Appearance	Visual	Demolition debris

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
CN (Total)	EPA SW-846, 9010	<590 mg/l
CN (Amenable)	EPA SW-846, 9010	<30 mg/l
CN (Free)	EPA SW-846, 9010 (Modified)	<5 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Ni	EPA SW-846, 6010 (ICP)	<5 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Demolition debris (vinyl floor tile, fiberglass ceiling tile, pipe and duct work, maple flooring, steel wall panels, wall board, metal (equipment) 99-100%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Potassium Ferricyanide

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): L Hazard: Toxic (F009)
Quantity Generated Annually: 2 Tons

P8K102381

WASTE ANALYSIS PLAN

I. General Information - Non-RCRA Hazardous

IBM Waste Stream I.D. No.: 723-003-104 Sampling Method Code: 3
Waste Name: Waste Ion Exchange Resin
Description: Resin from regeneration system.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
Appearance	Visual	Tan, solid particles

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
CN (Total)	EPA SW-846, 9010	<590 mg/l
CN (Free)	EPA SW-846, 9010 (Modified)	<5 ppm
CN (Amenable)	EPA SW-846, 9010	<30 mg/l
Fe	EPA SW-846, 6010 (ICP)	10 - 15,000 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Ni	EPA SW-846, 6010 (ICP)	<5 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
NY LF Ban:	NYSDEC Land Burial Ban,	<2%*
Aromatics	Appendices A-D	
TOX		
TON		
Low Mol Wt.		

*NYS requires that the sum total of these constituents be <2% for land disposal

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Styrene divinylbenzene 94 - 100% Filters 0-1%

2. Expected Contaminants in Waste (Based on Knowledge of Process):
   Potassium Ferricyanide <1%

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): L Hazard: Toxic (F009)
Quantity Generated Annually: 1 Ton

POK102981

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 771-450-105 / Spent Carbon from Industrial Waste
EPA CODE(S): F006
PROCESS DESCRIPTION: Activated carbon used to remove trace organics.
GENERATING DEPT./BLDG.: 771/450 STORAGE LOCATION: Bldg. 028, Rms. 118, 125
ANNUAL QUANTITY (Tons): 50 VARIABILITY (L,M,H): L

II. WASTE COMPONENTS: Carbon 99 – 100%

III. WASTE CONTAMINANTS: Organics 0 - 1% Ag Cr

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
Appearance	Visual	Granular Slurry

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
Flash Point	EPA SW-846, 1010	> 140° F.	N/A
CN (Total)	EPA SW-846, 9010 and 40 CFR, Part 268/6 NYCRR Part 376	< 590 mg/l	N/A
CN (Amenable)	EPA SW-846, 9010 and 40 CFR, Part 268/6 NYCRR Part 376	< 30 mg/l	N/A
Organics - 608,624, 625	EPA SW-846, 8080, 8240, 8270 and 40 CFR Part 268/ 6 NYCRR, Part 376	< 100 ppm	3510
Ag (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010
Cd (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 1 ppm	3010
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010
Ni (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010
Pb (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR, Part 376	< 5 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Expected waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): L HAZARD (L,M,H): L QUANTITY (L,M,H): M

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WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-120

Waste Name: Sand Contaminated with Lead Sampling Method Code: 4

Description: Sand contaminated with lead metal particles from an indoor rifle range.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Sand, dirt

III. For the Frequency Indicated, Perform the Following Analysis:

___	Semi-Annually	___	Every 3 Years	___	One Time Only
X	Annually	___	No Analysis	___	Other _____

Parameters	Test Method and Reference	Expected Concentration
Pb (TCLP)	EPA SW-846, 1311 and 6010	> 5 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Sand and Dirt 90 - 99%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Pb

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic (D008)

Quantity Generated Annually: 5 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-120A

Waste Name: Filters and Debris Contaminated with Lead

Sampling Method Code: 4

Description: Filters and debris contaminated with lead metal particles from an indoor rifle range.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Dirt, filters

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

X Annually ___ No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
Pb (TCLP)	EPA SW-846, 6010	> 5 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Filters (fiberglass) and Debris 99-100%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Pb

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic (D008)

Quantity Generated Annually: 1 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 771-450-125 Sampling Method Code: 4
Waste Name: Air Stripper Media
Description: Air stripper media.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameter	Test Method and Reference	Expected Concentration
Appearance	Visual	Plastic Filters

III. For the Frequency Indicated, Perform the Following Analysis:

___	Semi-Annually	___	Every 3 Years	___	One Time Only
X	Annually	___	No Analysis	___	Other _____

Parameter	Test Method and Reference	Expected Concentration
Organic Scan	EPA SW-846, 8080, 8240 and 8270	< 1%
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Ni	EPA SW-846, 6010 (ICP)	<5 ppm
CN (Total	EPA SW-846, 9010	<590 mg/l
CN (Amenable)	EPA SW-846, 9010	<30 mg/l
NY LF Ban	NYSDEC Land Burial Ban,	<2%*
Aromatics	Appendices A-D	
TOX		
TON		
Low Mol Wt		

*NYS requires that the sum total of these constituents be <2% for land disposal

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation:
   Plastic Filters 100%

2. Expected Contaminants in Waste (Based on Knowledge of Process):

Acid extractibles	Base neutrals	Cr
Cu	Fe	Mn
Ni	Al	Na

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:
Variability (L, M, H): M Hazard: Toxic (F009)
Quantity Generated Annually: 3 Tons

POK1029811

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-126

Waste Name: Various Caustics Sampling Method Code: 1

Description: Miscellaneous compatible caustics are combined.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	12 - 14
SG	ASTM D1429-76.D	1.0 - 1.1
Appearance	Visual	Brownish orange

III. For the Frequency Indicated, Perform the Following Analysis:

X	Semi-Annually	___	Every 3 Years	___	One Time Only
___	Annually	___	No Analysis	___	Other _____

Parameters	Test Method and Reference	Expected Concentration
pH	EPA SW-846, 9040 or 9045	12 - 14
TSS	SM-16, 209C	<10,000 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
TOC	EPA 415.1	<10,000 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   May include: Sodium hydroxide, Ammonium fluoride, Sodium carbonate, Ammonium hydroxide, Potassium hydroxide, and/or Sodium persulfate

2. Expected Contaminants in Waste (Based on Knowledge of Process)

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): H Hazard: Corrosive (D002)

Quantity Generated Annually: 3 Tons

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-127

Waste Name: Soil and Debris Contaminated with Spilled Fuel Oil Sampling Method Code: 4

Description: Soil and debris contaminated with spilled fuel oil.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Soil

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually ___ No Analysis X Other Each Spill Occurrence

Parameters	Test Method and Reference	Expected Concentration
Cd (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Cr (TCLP)	EPA SW-846, 1311 and 6010	<50 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<50 ppm
NY LF Ban:	NYSDEC Land Burial Ban,	<2%*
Aromatics TOX TON Low Mol Wt	Appendices A-D	

*NYS requires that the sum total of these constitutents be <2% for land disposal

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Soil and Debris (paper, rags, clothing, metal pieces) 99%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   Fuel Oil and Grease Heavy Metals

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic (D008, D007, D006)

Quantity Generated Annually: Varies

WASTE ANALYSIS PLAN

I. General Information - NYSDEC Hazardous

IBM Waste Stream I.D. No.: 421-028-128

Waste Name: Scrapped Business Machines Sampling Method Code: N/A

Description: Scrapped business machines which have been steamed cleaned prior to disposal.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Metal parts

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Metal Parts 100%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   PCBs

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: Toxic (B004)

Quantity Generated Annually: Varies

WASTE ANALYSIS PLAN

I. General Information - NYSDEC Hazardous

IBM Waste Stream I.D. No.: 421-028-136

Waste Name: PCB-Contaminated Debris Sampling Method Code: _____

Description: Debris from ripout and closure activity.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Demolition Debris

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually ___ No Analysis X Other Responsible Project Engineer to order PCB Analysis, as Required

Parameters	Test Method and Reference	Expected Concentration
PCBs	EPA SW-846, 8080	<500 ppm

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Construction/demolition debris 100%
2. Expected Contaminants in Waste (Based on Knowledge of Process)
   PCBs

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): L Hazard: PCBs (B007)

Quantity Generated Annually: 1 Ton

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 783-001-139

Waste Name: Metal Grindings with Oil Sampling Method Code: 4

Description: Contaminated metal chips from tool shop.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Metal chips

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

_X_ Annually ___ No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
Cr (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Ag (TCLP)	EPA SW-846, 1311 and 6010	<5 ppm
Pb (TCLP)	EPA SW-846, 1311 and 6010	<1,000 ppm
Cd (TCLP)	EPA SW-846, 1311 and 6010	<1 ppm
NY LF Ban: Aromatics TOX TON Low Mol Wt	NYSDEC Land Burial Ban, Appendices A-D	<2%*

*NYS requires that the sum total of these constituents be <2% for land disposal

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation

   Metal Grindings (aluminum, steel and/or brass) 99-100%

   Oil and Coolants <1%

2. Expected Contaminants in Waste (Based on Knowledge of Process)

   Cr Cd Pb

   Hg Ag

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Toxic (D008)

Quantity Generated Annually: 4 Tons

IBM POUGHKEEPSIE WASTE ANALYSIS PLAN

I. GENERAL INFORMATION:

WASTE STREAM I.D. NO. / NAME: 783-001-141 / Rust Lick B
EPA CODE(S): D008
PROCESS DESCRIPTION: Discarded rust preventative from tool shop.
GENERATING DEPT./BLDG.: 783/001 STORAGE LOCATION: Bldg. 028, Rms. 118, 125
ANNUAL QUANTITY (Tons): 4 VARIABILITY (L,M,H): M

II. WASTE COMPONENTS:

Amine/Nitrate Mixtures 3 – 20% H_2O 80 – 97%

III. WASTE CONTAMINANTS:

Pb Cr

IV. FOR EVERY CONTAINER RECEIVED BY CHEMICAL DISTRIBUTION BUILDING, THE FOLLOWING ANALYSIS WILL BE PERFORMED BY CHEMICAL DISTRIBUTION PERSONNEL:

Parameter	Test Method/References	Expected Concentration
SG	ASTM D1429-76.D	1.0 - 1.1
Appearance	Visual	Dark Liquid

V. LABORATORY ANALYSIS:

1. SAMPLE TYPE: Grab
2. SAMPLE FREQUENCY / # SAMPLES PER EVENT: Semi-Annual / 1 Sample
3. ANALYSIS PERFORMED BY ANALYTICAL LABORATORY:

Parameter	Test Method/References	Expected Concentration	Sample Preparation
TSS	EPA 160.2	> 20,000 ppm	N/A
TOC	EPA SW-846, 9060	> 10,000 ppm	N/A
Flash Point	EPA SW-846, 1010	> 140° F	N/A
Heat of Combustion	ASTM D2015-77	< 10,000 Btu	N/A
Sulfur	EPA SW-846, 9035	< 1%	N/A
Chlorine	EPA SW-846, 9252	< 1%	N/A
Cr (TCLP)	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 5 ppm	3010
Pb (TCLP	EPA SW-846, 1311, 6010 and 40 CFR Part 268/6 NYCRR Part 376	< 15 ppm	3010

4. RATIONALE FOR SELECTION OF ANALYSIS PARAMETERS:
   Waste components/contaminants (from process knowledge).

5. RATIONALE FOR ANALYSIS FREQUENCY:

VARIABILITY (L,M,H): M HAZARD (L,M,H): L QUANTITY (L,M,H): L

APR 3 1993

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-145

Waste Name: Safety-Kleen Solvent Sampling Method Code: 1

Description: Safety-Kleen solvent.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
None		

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Mineral Spirits 99-100%
2. Expected Contaminants in Waste (Based on Knowledge of Process) Varies

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Ignitable (D001)

Quantity Generated Annually: 1 Ton

WASTE ANALYSIS PLAN

I. General Information

IBM Waste Stream I.D. No.: 421-028-146

Waste Name: Empty Aerosol Cans Sampling Method Code: 1

Description: Empty aerosol cans.

II. For Each Container Received by Chemical Distribution, Perform the Following Analysis:

Parameters	Test Method and Reference	Expected Concentration
Appearance	Visual	Spray Cans

III. For the Frequency Indicated, Perform the Following Analysis:

___ Semi-Annually ___ Every 3 Years ___ One Time Only

___ Annually X No Analysis ___ Other _____

Parameters	Test Method and Reference	Expected Concentration
None		

IV. Rationale for Selection of Parameters for Analysis:

1. Process Formulation
   Various
2. Expected Contaminants in Waste (Based on Knowledge of Process) Varies

V. Rationale for Selection Test Frequency:

The Schedule was Chosen Based on the Following Waste Characteristics:

Variability (L, M, H): M Hazard: Varies

Quantity Generated Annually: 1 Ton

APPENDIX 17B

IBM POUGHKEEPSIE SPDES PERMIT

APR 0 3 1993

New York State Department of Environmental Conservation
Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696
914-255-5453

Thomas C. Jorling
Commissioner

November 13, 1991

L C FARISH
INTERNATIONAL BUSINESS MACHINES CORPORATION
PO BOX 950
POUGHKEEPSIE NY 12602

Re: IBM-Poughkeepsie
SPDES Renewal NY-0005541
DEC # 3-1346-35/76-0

Dear Mr. Farish:

Enclosed is a corrected final permit for discharges at your above facility. This permit reflects the conditions of the final draft circulated on September 4, 1991 and supercedes the permit dated September 24, 1991 (which included portions of previous drafts).

By copy of this letter, all recipients of the September 24, 1991 version are advised to replace it with the attached permit.

Thank you for your attention to this matter.

Sincerely,

Michael D. Merriman
Deputy Regional Permit
Administrator
Region 3

MDM/DJR/dah
Enclosure

cc: w/enclosure
S. Mitchell
J. Marcogliese/E. Zicca
J. Sansalone
R. Hannaford - BWFD
L. Livingston - EPA, NY
R. Spears - EPA, NJ
Dutchess County DOH

DEC 0 1 1992

91-20-2 (1/89)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)

DISCHARGE PERMIT

Special Conditions (Part I)

Industrial Code: 3471
Discharge Class (CL): 03
Toxic Class (TX): T
Major Drainage Basin: 13
Sub Drainage Basin: 01
Water Index Number: H
Compact Area: N/A

SPDES Number: NY-0005541
DEC Number: 3-1346-35/76-0
Effective Date (EDP): November 1, 1991
Expiration Date (ExDP): November 1, 1996
Modification Date(s):
Attachment(s): General Conditions (Part II) Date: 11/90

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act as amended, (33 U.S.C. Section 1251 et. seq.)(hereafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS Attention: DSD V.P. & Site General Mgr.

Name: International Business Machines Corporation
Street: P.O. Box 950
City: Poughkeepsie State: NY Zip Code: 12602
is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name: IBM Corporation
Location (C,T,V): Poughkeepsie (T) County: Dutchess
Facility Address: P.O. Box 950
City: Poughkeepsie State: NY Zip Code: 12602
NYTM - E: . NYTM - N: 4 .
From Outfall No.: 003 at Latitude: 41° 39′ 00″ & Longitude: 73° 56′ 30″
into receiving waters known as: Lower Hudson River Class: A
and; (list other Outfalls, Receiving Waters & Water Classifications)

Outfalls 001,002,020,023 & 024: Hudson River, Class A; (H)
Outfalls 009,013,018: into Spring Brook, Class D; (H-107)
Outfalls 004 & 017: into Caspar Creek, Class D; (H-105)

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in Special Conditions (Part I) and General Conditions (Part II) of this permit.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name: IBM Corporation
Street: P.O. Box 950
City: Poughkeepsie State: NY Zip Code: 12602
Responsible Official or Agent: L.C. Farish, Manager F.S. Phone: (914)433-9372

This permit and the authorization to discharge shall expire on midnight of the expiration date shown and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for a permit renewal no less than 180 days prior to the expiration date shown above.

DISTRIBUTION:
S. Mitchell
J. Marcogliese/E. Zicca
J. Sansalone
R. Hannaford - BWFD
L. Livingston - EPA, NY
R. Spears - EPA, NJ
Dutchess County DOH

Permit Administrator: DEPUTY Michael D. Merriman	
Address: 21 South Putt Corners Road, New Paltz, NY 12561	
Signature: Michael D. Merriman	Date: 11/13/91

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 001 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	105	°F	Daily	Grab
Outfall 002 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	100	°F	Daily	Grab
Outfall 023 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	105	°F	Daily	Grab
Outfall 024 - Non Contact Cooling Water:					
Flow	Monitor	Monitor	MGD	Continuous	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	105	°F	Daily	Grab

Outfall 020 - Steam Condensate (Screenhouse):

No Monitoring Required

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfalls 001, 002, 023 and 024. If the use of water treatment chemicals is contemplated application must be made to the Department.

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 003 - Process Wastewater[1], Cooling Tower Blowdown and Boiler Blowdown:					
Flow	Monitor	Monitor	GPD	Daily	Calculated
pH (Range)	(6.0 - 9.0)		SU	Daily	Grab
Temperature	Monitor	90	°F	Daily	Grab
BOD_5	Monitor	160	lbs/day	Weekly	Grab[2]
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	Weekly	Grab
Solids, Suspended	Monitor	Monitor	mg/l	Weekly	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	Weekly	Grab
Solids, Settleable	Monitor	0.3	ml/l	Daily	Grab
Ammonia (as N)	Monitor	48	lbs/day	Weekly	Grab[2]
Oil & Grease	Monitor	15	mg/l	Weekly	Grab
Cadmium, Total	Monitor	0.8	lbs/day	Weekly	Grab[2]
Chromium, Total	Monitor	2.0	lbs/day	Weekly	Grab[2]
Chromium, Hexavalent	Monitor	0.2	lbs/day	Weekly	Grab[2]
Copper, Total	Monitor	1.36	lbs/day	Weekly	Grab[2]
Cyanide, Total	Monitor	0.68	lbs/day	Weekly	Grab[2]
Iron, Total	Monitor	2.0	lbs/day	Weekly	Grab[2]
Manganese, Total	Monitor	5.0	lbs/day	Weekly	Grab[2]
Nickel, Total	Monitor	5.0	lbs/day	Weekly	Grab[2]
Silver, Total	Monitor	1.3	lbs/day	Weekly	Grab[2]
Zinc, Total	Monitor	1.5	lbs/day	Weekly	Grab[2]
Phenolics, Total	Monitor	Monitor	lbs/day	Weekly	Grab[2]
1,2-Dichloroethane	0.2	Monitor	lbs/day	Weekly	Grab
Sum of EPA 601[3]	Monitor	2.0	lbs/day	Weekly	Grab[2]
Bis(2-ethylhexyl)Phthalate	Monitor	0.07	lbs/day	Weekly	Grab[2]

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Notes:

1 For the purposes of this permit, specifically outfall 003, process wastewater shall mean wastewater resulting from the sources noted on page 5 of 23.

2 The individual mass loadings of each batch discharge shall be added together for each calendar day, to arrive at a "calculated" daily mass loading. Flow measurement shall be by means of a totalizing flow meter or by measurements of the volume of each batch.

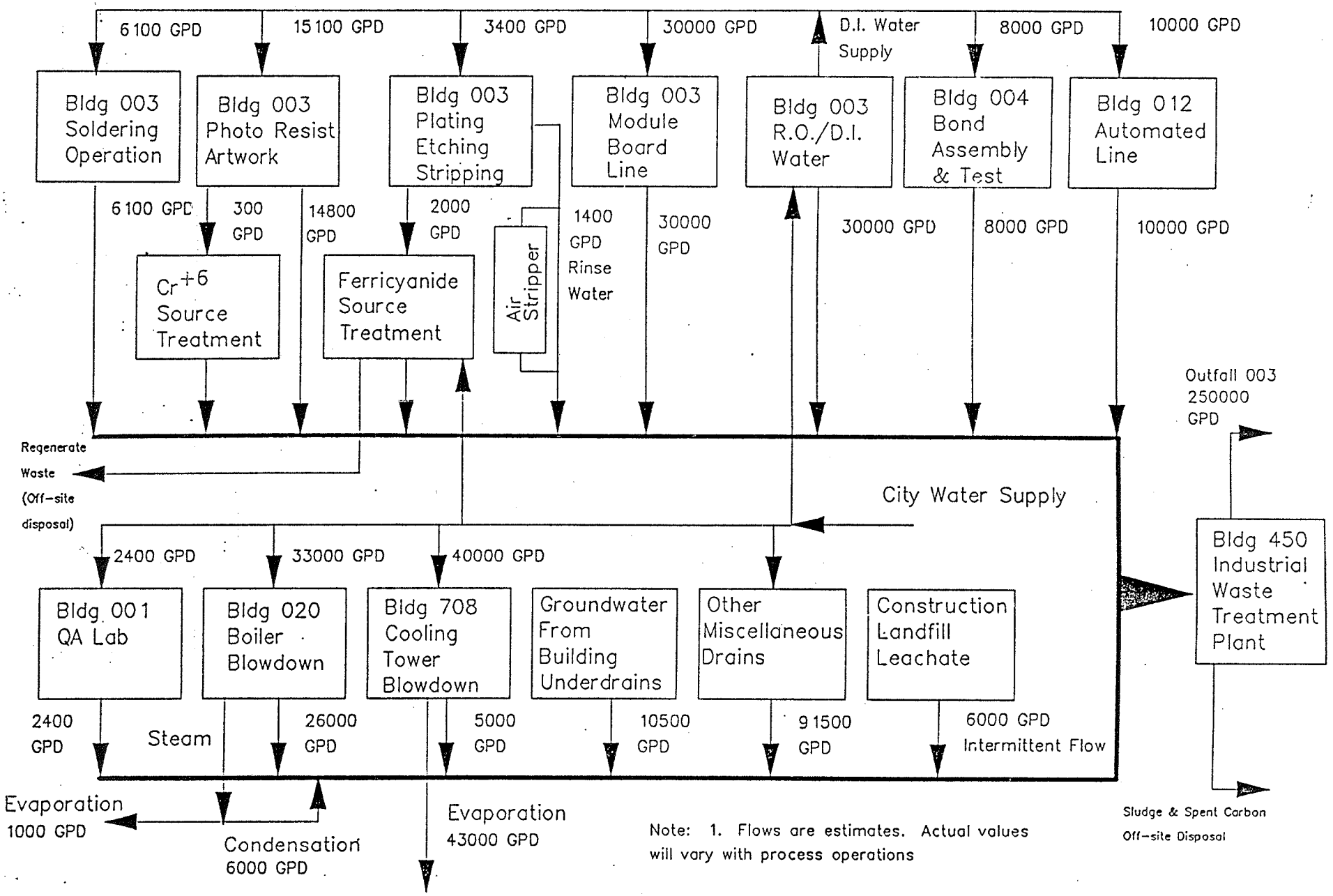
3 The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the mass loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10, 12, 14, 15, 16 17 and 18 of 23 for additional monitoring requirements for outfall 003.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfall 003 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

DEC 0 1 1992

IBM POUGHKEEPSIE
FLOW[(1)] SCHEMATIC FOR OUTFALL 003



Note: 1. Flows are estimates. Actual values will vary with process operations

DEC 01 1992

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until May 1, 1993

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 009A - Building 012 Foundation Drainage:					
Flow	Monitor	Monitor	GPD	Daily	Totalizing Meter
Sum of EPA 601[3]	Monitor	Monitor	ug/l	Monthly	Grab
Outfall 009 - Noncontact Cooling Water, Buildings 003/002/012 Foundation Drainage, Steam Condensate Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Phenolics, Total	Monitor	Monitor	ug/l	2/Month	Grab
Chloroform	Monitor	Monitor	ug/l	2/Month	Grab

Note: [3]The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10, 13, and 14 of 23 for additional monitoring requirements for outfall 009, and to page 8 of 23 for a prohibition.

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1993

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 009A - Building 012 Foundation Drainage:					
Flow	Monitor	Monitor	GPD	Daily	Totalizing Meter
Sum of EPA 601[3]	Monitor	Monitor	ug/l	Monthly	Grab
Outfall 009 - Noncontact Cooling Water, Buildings 003/002/012 Foundation Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Phenolics, Total	Monitor	20	ug/l	2/Month	Grab
Methyl Chloride	Monitor	20	ug/l	2/Month	Grab
Methylene Chloride	Monitor	20	ug/l	2/Month	Grab
Dichlorodifluoromethane	Monitor	20	ug/l	2/Month	Grab
Trichlorofluoromethane	Monitor	20	ug/l	2/Month	Grab
1,1,1-Trichloroethane	Monitor	20	ug/l	2/Month	Grab
Trans-1,2-Dichloroethylene	Monitor	20	ug/l	2/Month	Grab
Trichloroethylene	11	20	ug/l	2/Month	Grab
Tetrachloroethylene	1	20	ug/l	2/Month	Grab
Chloroform	Monitor	20	ug/l	2/Month	Grab
Dichlorobromomethane	Monitor	20	ug/l	2/Month	Grab
1,1-Dichloroethane	Monitor	20	ug/l	2/Month	Grab
1,1,2-Trichloroethane	Monitor	20	ug/l	2/Month	Grab
Vinyl Chloride	Monitor	20	ug/l	2/Month	Grab
N-nitrosodiphenylamine	Monitor	10	ug/l	2/Month	Grab

Note: [3]The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10, 14, 15, 16 and 18 of 23 for additional monitoring requirements for outfall 009, and to page 8 of 23 for a prohibition.

DEC 0 1 1992

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until May 1, 1993

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 013 - Noncontact Cooling Water, Building 004 Foundation Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Ammonia (as N)	Monitor	2.0	mg/l	2/Month	Grab
Iron, Total	2.0	4.0	mg/l	2/Month	Grab
Sum of EPA 601[3]	Monitor	Monitor	lbs/day	2/Month	Grab
Outfall 018 - Stormwater Runoff from Spill Containment for Oil Storage Tanks, Steam Condensate:					
Flow	Monitor	Monitor	GPD	Monthly	Estimate
pH (Range)	(6.0 - 9.0)		SU	Once per disc. event	Grab
Oil & Grease	Monitor	15	mg/l	Once per disc. event	Grab

Note: [3]The "Sum of EPA 601" shall be calculated as the arithmetic sum of each of the loadings of all 29 Purgeable Halocarbons listed under EPA Method 601; the required analysis shall be performed in accordance with EPA Method 601.

Please refer to pages 10 and 13 of 23 for additional monitoring requirements for outfall 013.

Chilled Water System: The permittee may discharge minor amounts of chiller water drained from the system, as outlined in the February 1987 report prepared by Wehran Engineering. Each discharge shall be limited such that the temperature does not exceed 90°F, pH shall be within the range of (6.0-9.0) SU. The permittee shall perform representative sampling of the system weekly for temperature and pH to demonstrate compliance with these requirements. The permittee shall report at the time the monthly DMR is submitted, weekly sampling results and data concerning the nature, duration, estimated amount, location and affected outfalls of each discharge.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfalls 009, 013 and 018 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1993

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 013 - Noncontact Cooling Water, Building 004 Foundation Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor(min)	Monitor(avg)	mg/l	2/Month	Grab
Solids, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Ammonia (as N)	Monitor	2.0	mg/l	2/Month	Grab
Iron, Total	2.0	4.0	mg/l	2/Month	Grab
Trans-1,2-Dichloroethylene	Monitor	20	ug/l	2/Month	Grab
1,1,1-Trichloroethane	Monitor	20	ug/l	2/Month	Grab
Trichloroethylene	11	20	ug/l	2/Month	Grab
Outfall 018 - Stormwater Runoff from Spill Containment for Oil Storage Tanks, Steam Condensate:					
Flow	Monitor	Monitor	GPD	Monthly	Estimate
pH (Range)	(6.0 - 9.0)		SU	Once per disc. event	Grab
Oil & Grease	Monitor	15	mg/l	Once per disc. event	Grab

Please refer to pages 10, 14, 15, 16 and 18 of 23 for additional monitoring requirements for outfall 013.

Chilled Water System: The permittee may discharge minor amounts of chiller water drained from the system, as outlined in the February 1897 report prepared by Wheran Engineering. Each discharge shall be limited such that the temperature does not exceed 90°, pH shall be within the range of (6.0 - 9.0) SU. The permittee shall perform representative sampling of the system weekly for temperature and pH to demonstrate compliance with these requirements. The permittee shall report at the time the monthly DMR is submitted, weekly sampling results and data concerning the nature, furation, estimated amount, location and affected outfall(s) of each such discharge.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfalls 009, 013 and 018 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Sum of Outfalls 003 and 009:					
Chloroform	0.38	Monitor	lbs/day	Weekly	Calculated[4]
Phenolics, Total	Monitor	0.36	lbs/day	Weekly	Calculated[4]
Outfalls 009 and 013:					
Zinc, Total	Monitor	0.3	mg/l	2/Month	Calculated[5]

Notes:

4. The "Sum of Outfalls" loading for this parmater shall be calculated as the arithmetic sum of the individual mass loadings at outfalls 003 and 009 respectively. For the purposes of this monitoring requirement, effluent samples shall be taken at outfalls 003 and 009 simultaneously (on the same sampling day) by the permittee. For the purposes of determining compliance with this effluent limitation, if samples and analysis are only conducted at one outfall on a given sampling day, then the result from that sample shall be considered to be the mass loading for that day.

5. The concentration for this parameter shall be calculated based on the following formula:

$$C_z = \frac{C_9 \times F_9 + C_{13} \times F_{13}}{F_9 + F_{13}}$$ where

C_z = Pro Rated Average Concentration of Zinc to be Reported

C_9 = Concentration of Zinc at Outfall 009

C_{13} = Concentration of Zinc at Outfall 013

F_9 = Measured Daily Flow at Outfall 009

F_{13} = Measured Daily Flow at Outfall 013

DEC 0 1 1992

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 1, 1991

and lasting until November 1, 1996

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Gross Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 004 - Swimming Pool Drainage					
Flow	Monitor	Monitor	gal/batch	Once per Batch	Calculated
pH (Range)	(6.0 - 9.0)		SU	Once per Batch	Grab
Solids, Suspended	Monitor	50	mg/l	Once per Batch	Grab
Solids, Settleable	Monitor	0.1	ml/l	Once per Batch	Grab
Chlorine, Total Residual	Monitor	2.0	mg/l	Once per Batch	Grab
Outfall 017 - Cooling Tower Blowdown, Chilled Water, Foundation Drainage, Reflecting Pool Drainage, Steam Condensate, Stormwater Runoff:					
Flow	Monitor	Monitor	GPD	Daily	Meter
pH (Range)	(6.0 - 9.0)		SU	Weekly	Grab
Temperature	Monitor	90	°F	Weekly	Grab
BOD_5	Monitor	Monitor	mg/l	2/Month	Grab
Dissolved Oxygen	Monitor (min)	Monitor (avg)	mg/l	2/Month	Grab
Solics, Dissolved	Monitor	Monitor	mg/l	2/Month	Grab
Chlorine, Total Residual	Monitor	0.4	mg/l	2/Month	Grab
Sulfite	Monitor	2.0	mg/l	2/Month	Grab
Iron, Total	Monitor	0.82	lbs/day	2/Month	Grab
2,2-dibromo-3-nitrile propionamide	Monitor	1.0	mg/l	2/Month	Grab

Note: Please refer to pages 13 and 14 of 23 for additional monitoring requirements for outfall 017.

Prohibition: No biocides, corrosion control chemicals or other water treatment chemicals are authorized for use in systems contributing to outfall 017 except those noted in the permit application. If the use of other water treatment chemicals is contemplated application must be made to the Department.

DEC 0 1 1992

INTERIM ACTION LEVEL REQUIREMENTS (TYPE I) EFFECTIVE UNTIL EDP + 18 MONTHS

The parameters listed below have been reported present in the discharge but at levels that currently do not require water quality or technology based limits. Action levels have been established which, if exceeded, will result in reconsideration or water quality or technology based limits.

Routine action level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If submission of DMR's is not required by this permit, the results shall be maintained in accordance with instructions on the RECORDING, REPORTING AND MONITORING page of this permit.

If any of the action levels is exceeded, the permittee shall undertake a short-term, high-intensity monitoring program for this parameter. Samples identical to those required for routine monitoring purposes shall be taken on each of at least three operating days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the action level was first exceeded. Results may be appended to the DMR or transmitted under separate cover to the addresses listed on the RECORDING, REPORTING AND MONITORING page of this permit. If levels higher than the actions levels are confirmed the permit may be reopened by the Department for consideration of revised action levels or effluent limits.

The permittee is not authorized to discharge any of listed parameters at levels which may cause or contribute to a violation of water quality standards.

Outfall Number & Effluent Parameter	Gross Action Level	Units	Minimum Monitoring Requirements: Measurement Frequency	Sample Type
Outfall 003				
Antimony, Total	1.0	lbs/day	Monthly	Grab
Mercury, Total	1.0	ug/l	Monthly	Grab
Benzene	0.015	lbs/day	Semi-Annual	Grab
Toluene	0.11	lbs/day	Semi-Annual	Grab
Xylenes, Total	0.38	lbs/day	Semi-Annual	Grab
Ethylbenzene	0.38	lbs/day	Semi-Annual	Grab
Bromochloromethane	0.38	lbs/day	Semi-Annual	Grab
Chlorodibromomethane	0.38	lbs/day	Semi-Annual	Grab
Bromodichloromethane	0.38	lbs/day	Semi-Annual	Grab
Dichlorofluoromethane	0.38	lbs/day	Semi-Annual	Grab
Methyl Chloride	0.38	lbs/day	Semi-Annual	Grab
Carbon Tetrachloride	0.38	lbs/day	Semi-Annual	Grab
1,1-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
Trans-1,2-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
1,1,2-Trichloroethane	0.38	lbs/day	Semi-Annual	Grab
1,4-Dichlorobutane	0.38	lbs/day	Semi-Annual	Grab
Tetrahydrofuran	0.38	lbs/day	Semi-Annual	Grab
Butylbenzyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Diethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Dimethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
D-n-butyl Phthalate	0.38	lbs/day	Semi-Annual	Grab

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INTERIM ACTION LEVEL REQUIREMENTS (TYPE I) EFFECTIVE UNTIL EDP + 18 MONTHS

Outfall Number & Effluent Parameter	Gross Action Level	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 009				
Lead, Total	0.5	lbs/day	Monthly	Grab
Methyl Chloride	0.5	lbs/day	Monthly	Grab
Methylene Chloride	0.5	lbs/day	Monthly	Grab
Dichlorodifluoromethane	0.5	lbs/day	Monthly	Grab
Trichlorofluoromethane	0.5	lbs/day	Monthly	Grab
1,1,1-Trichloroethane	0.5	lbs/day	Monthly	Grab
Trans-1,2-Dichloroethylene	0.5	lbs/day	Monthly	Grab
Trichloroethylene	0.5	lbs/day	Monthly	Grab
Tetrachloroethylene	0.1	lbs/day	Monthly	Grab
Dichlorobromomethane	0.1	lbs/day	Monthly	Grab
1,1-Dichloroethane	0.1	lbs/day	Monthly	Grab
1,1,2-Trichloroethane	0.1	lbs/day	Monthly	Grab
Vinyl Chloride	0.1	lbs/day	Monthly	Grab
N-nitrosodiphenylamine	0.1	lbs/day	Monthly	Grab
Outfall 013				
Chromium, Total	0.5	lbs/day	Monthly	Grab
Nickel, Total	0.5	lbs/day	Monthly	Grab
Trans-1,2-dichloroethylene	0.1	lbs/day	Monthly	Grab
1,1,1-Trichloroethane	0.1	lbs/day	Monthly	Grab
Trichloroethylene	0.5	lbs/day	Monthly	Grab
Outfall 017				
Zinc, Total	0.82	lbs/day	Monthly	Grab
Outfall 009, 013 and 017 each				
Solids, Suspended	50	mg/l	Monthly	Grab
Solids, Settleable	0.1	ml/l	Monthly	Grab
Oil & Grease	15	mg/l	Monthly	Grab
Copper, Total	0.1	mg/l	Monthly	Grab

DEC 0 1 1992

FINAL ACTION LEVEL REQUIREMENTS (TYPE I) EFFECTIVE BEGINNING EDP + 18 MONTHS

Outfall Number & Effluent Parameter	Gross Action Level	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 003				
Antimony, Total	1.0	lbs/day	Monthly	Grab
Mercury, Total	1.0	ug/l	Monthly	Grab
Benzene	0.015	lbs/day	Semi-Annual	Grab
Toluene	0.11	lbs/day	Semi-Annual	Grab
Xylenes, Total	0.38	lbs/day	Semi-Annual	Grab
Ethylbenzene	0.38	lbs/day	Semi-Annual	Grab
Bromochloromethane	0.38	lbs/day	Semi-Annual	Grab
Chlorodibromomethane	0.38	lbs/day	Semi-Annual	Grab
Bromodichloromethane	0.38	lbs/day	Semi-Annual	Grab
Dichlorofluoromethane	0.38	lbs/day	Semi-Annual	Grab
Methyl Chloride	0.38	lbs/day	Semi-Annual	Grab
Carbon Tetrachloride	0.38	lbs/day	Semi-Annual	Grab
1,1-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
Trans-1,2-Dichloroethylene	0.38	lbs/day	Semi-Annual	Grab
1,1,2-Trichloroethane	0.38	lbs/day	Semi-Annual	Grab
1,4-Dichlorobutane	0.38	lbs/day	Semi-Annual	Grab
Tetrahydrofuran	0.38	lbs/day	Semi-Annual	Grab
Butylbenzyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Diethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Dimethyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
D-n-butyl Phthalate	0.38	lbs/day	Semi-Annual	Grab
Outfall 009				
Copper, Total	100	ug/l	Monthly	Grab
Lead, Total	0.5	lbs/day	Monthly	Grab
Outfall 013				
Copper, Total	100	ug/l	Monthly	Grab
Chromium, Total	0.5	lbs/day	Monthly	Grab
Nickel, Total	0.5	lbs/day	Monthly	Grab
Outfall 017				
Copper, Total	100	ug/l	Monthly	Grab
Zinc, Total	0.82	lbs/day	Monthly	Grab
Outfalls 009, 013 and 017 each				
Solids, Suspended	50	mg/l	Monthly	Grab
Solids, Settleable	0.1	ml/l	Monthly	Grab
Oil & Grease	15	mg/l	Monthly	Grab
Copper, Total	0.1	mg/l	Monthly	Grab

DEC 0 1 1992

Toxicity Testing Program
Tier 1 - Acute Test

The permittee shall implement an effluent toxicity monitoring program beginning on the effective date of this permit and lasting for a period of one year. A final determination regarding additional monitoring and/or implementation of a toxicity reduction evaluation will be made by the Department following the completion of this program and given to the permittee in writing by the Regional Water Engineer. The effluent toxicity monitoring program shall be as follows:

Outfall No(s)	Effluent Parameter	Units	Monitoring Requirements Measurement Frequency	Sample Type
003[g]	Flow	GPD	c	d
	Effluent Toxicity[a]	% Effluent[b]	c	d
009 & 013[f]	Flow	GPD	c	d
	Effluent Toxicity[a]	% Effluent[b]	c	d

(a) Effluent Toxicity shall mean the toxicity of the effluent in acute static renewal tests specified as Tier 1 testing in New York State Manual for Toxicity Testing of Industrial and Municipal Effluents, NYSDEC, February 1985. Both a vertebrate and invertebrate species shall be used for the tests. Dilution water shall be collected according to the Manual. Receiving water shall be used as dilution water unless the Department approves a different source.[e] Effluent sampling and holding shall be done as outlined in Sections III-6 to III-8 of the Manual.

(b) The 48-hour EC_{50} in and 48-hour LC_{50} in % Effluent for both a vertebrate and an invertebrate species shall be determined and reported in accordance with the specified frequency. The 48-hour EC_{50} and 48-hour LC_{50} in % Effluent shall be compared to the calculated Instream Waste Concentration (IWC) of the effluent. If evaluation of multiple toxicity test results indicates likely toxicity, the Department may require the permittee to conduct chronic (Tier 2) testing or submit a Toxicity Reduction Evaluation (TRE) study proposal.

(c) Discharge monitoring requirements for effluent toxicity shall be monthly during the one year period beginning on the effective date of this permit. The results of each toxicity test shall be submitted no later than 28 days following the end of each test period. These reports shall be submitted to the Regional Water Engineer at NYSDEC, 21 South Putt Corners Rd., New Paltz, New York 12561 and the Chief, Compliance Section, Bureau of Wastewater Facilities Operations, 50 Wolf Road, Albany, NY 12233-3506.

(d) Monitoring of chemical and physical parameters limited in this permit shall be coordinated so that the resulting analyses are also representative of the sample used for toxicity testing.

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Toxicity Testing Program (con't)
Tier 1 - Acute Test

(e) If any 100% receiving water sample is toxic it must be replaced with an alternate dilution water.

(f) Implementation of an effluent toxicity monitoring program for outfalls 009 & 013 shall begin within 30 days of construction completion or 18 months from the effective date of this permit whichever comes first. A pro-rated composite sample shall be collected from outfalls 009 and 013 for the purposes of this program.

(g) Implementation of an effluent toxicity monitoring program shall begin 3 years from the effective date of this permit.

DEC 0 1 1992

Toxicity Testing Program
Tier 2 - Chronic Test

The permittee shall implement an effluent toxicity monitoring program beginning within 15 days after letter notification from the Regional Water Engineer, or within 45 days following issuance of this permit if Tier 1 (acute) testing is not required. This monitoring program shall continue for a period of one year. A final determination regarding additional monitoring and/or implementation of a toxicity reduction evaluation will be made by the Department following the completion of this program and given to the permittee in writing by the Regional Water Engineer. The effluent toxicity monitoring program is as follows:

Outfall No(s)	Effluent Parameter	Units	Monitoring Requirements Measurement Frequency	Sample Type
003	Effluent Toxicity[a]	% Effluent[b]	c	d

(a) Effluent toxicity shall mean the toxicity of the effluent in chronic tests as specified in New York State Manual for Toxicity Testing of Industrial and Municipal Effluents, NYSDEC, February 1985. Both a vertebrate and invertebrate species shall be used for the tests. Dilution water shall be collected according to the Manual. Receiving water shall be used as dilution water unless the Department approves a different source.[e] Effluent sampling and holding shall be done as outlined in Sections III-6 to III-8 of the Manual.

(b) The Maximum Allowable Waste Concentration (MAWC) in % Effluent for both a vertebrate and an invertebrate species shall be determined and reported. The MAWC in % Effluent shall be compared to the calculated Instream waste Concentration (IWC) of the effluent. The IWC in % Effluent shall be determined using the daily average effluent flow at the time of sampling and a critical receiving water flow of 3000 cfs.

(c) Discharge monitoring requirements for effluent toxicity shall be monthly during the one year period beginning on the effective date of this permit. The results of each toxicity test shall be submitted no later than 28 days following the end of each test period. These reports shall be submitted to the Regional Water Engineer at NYSDEC, 21 South Putt Corners Rd., New Paltz, New York 12561 and the Chief, Compliance Section, Bureau of Wastewater Facilities Operations, 50 Wolf Road, Albany, NY 12233-3506.

(d) Monitoring of chemical and physical parameters limited in this permit shall be coordinated so that the resulting analysis is also representative of the sample used for toxicity testing.

(e) If any 100% receiving water sample is toxic it must be replaced with an alternate dilution water.

DEC 0 1 1992

TOXICITY REDUCTION EVALUATION COMPLIANCE SCHEDULE

(a) Permittee shall perform a TRE as specified in this permit for the permit discharge(s) in accordance with the following schedule:

Outfall Number(s)	Compliance Action	Due Date
003	Submission of a proposal for a Toxicity Reduction Evaluation (TRE)* study to the Department of Environmental Conservation, Bureau of Wastewater Facilities Design, 50 Wolf Road, Albany, New York 12233-3503.	45 days after letter notification from Regional Water Engineer
009 & 013	Submission of a proposal for a Toxicity Reduction Evaluation (TRE)* study to the Department of Environmental Conservation, Bureau of Wastewater Facilities Design, 50 Wolf Road, Albany, New York 12233-3505	45 days after letter notification from Regional Water Engineer

* The proposed TRE shall be directed towards identifying the source of the toxicity, describing procedures to reduce the toxicity to an acceptable level, identifying monitoring parameters suitable for insuring control of the toxicity, and proposing a schedule of compliance.

The TRE, including data findings and recommendations for corrective action, permit limits, and proposed self-monitoring requirements shall be submitted in a form similar to a wastewater facility engineering report. The Department will review the TRE and may redraft the permit to incorporate toxicity limits, monitoring requirements, and a schedule of compliance that will ensure acceptable toxicity levels of the effluent.

(b) The permittee shall submit to the Department of Environmental Conservation the document(s) required in (a) above by the given date(s), and a written notice of compliance or noncompliance with the above schedule date(s) postmarked no later than 14 days following that date. Each notice of the non-compliance shall include the following information:

1. A short description of the noncompliance;

2. A description of any action actions taken or proposed by the permittee to comply with the elapsed schedule requirement without further delay;

3. A description of any factors which tend to explain or mitigate the non-compliance; and

4. An estimate of the date permittee will comply with the elapsed schedule requirement and an assessment of the probability that permittee will meet the next schedule requirement on time.

DEC 0 1 1992

SCHEDULE OF COMPLIANCE

a) The permittee shall comply with the following schedule.

	Outfall Number(s)	Compliance Action	Due Date
	009 & 013	Submit an approvable engineering report and plans necessary for achievement of final effluent limitations for VOC's. Complete construction and comply with final effluent limitations for VOC's	EDP + 18 mos.

b) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice under terms of the General Conditions (Part II), Section 5. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of non-compliance shall include the following information:

1. A short description of the non-compliance;
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
3. A description or any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.

c) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer at the location listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS, unless otherwise specified in this permit or in writing by the Department.

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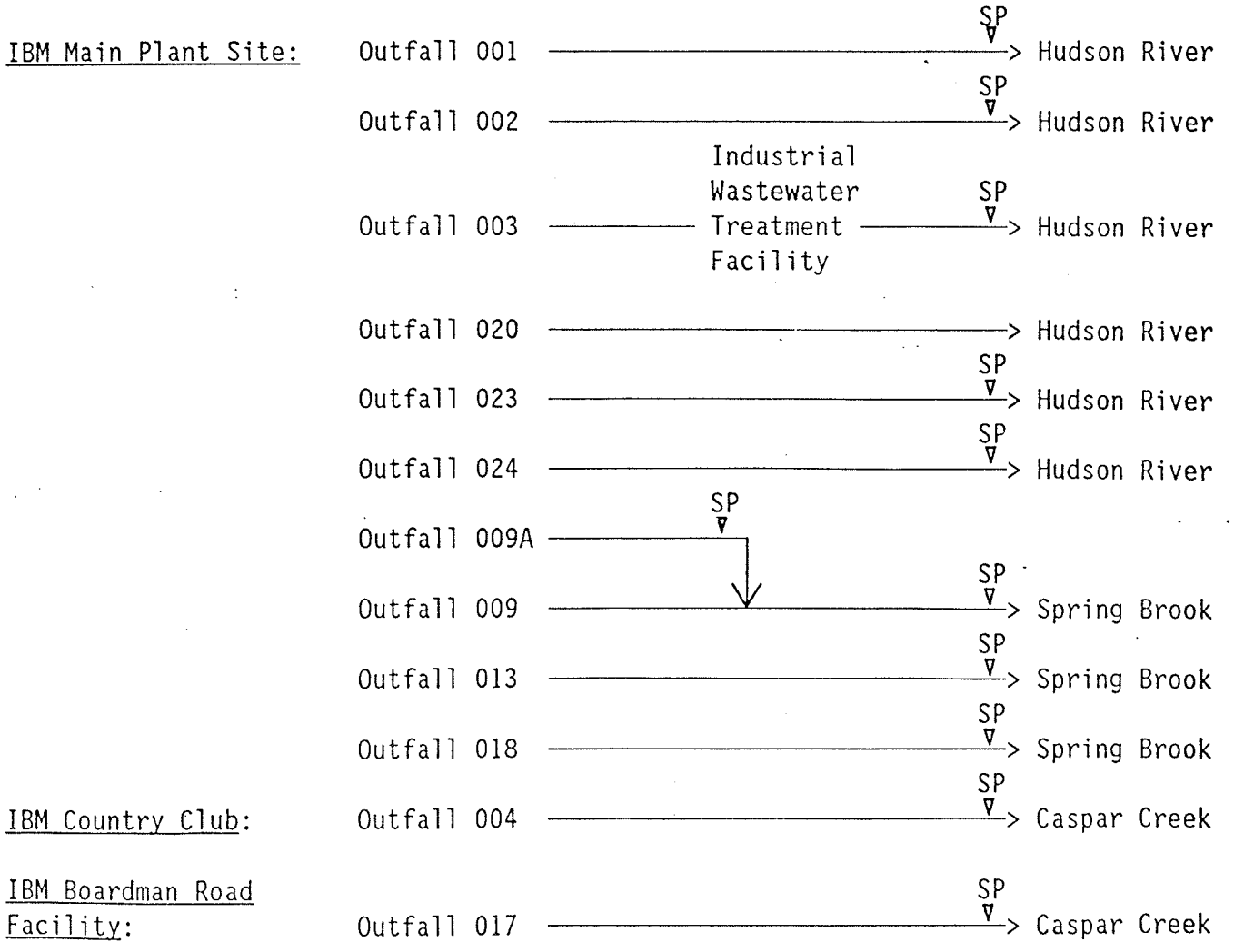
DEFINITIONS OF DAILY AVERAGE AND DAILY MAXIMUM

The daily average discharge is the total discharge by weight or in other appropriate units as specified herein, during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges in appropriate units as specified herein divided by the number of days during the calendar month when measurements were made.

The daily maximum discharge means the total discharge by weight or in other appropriate units as specified herein, during any calendar day.

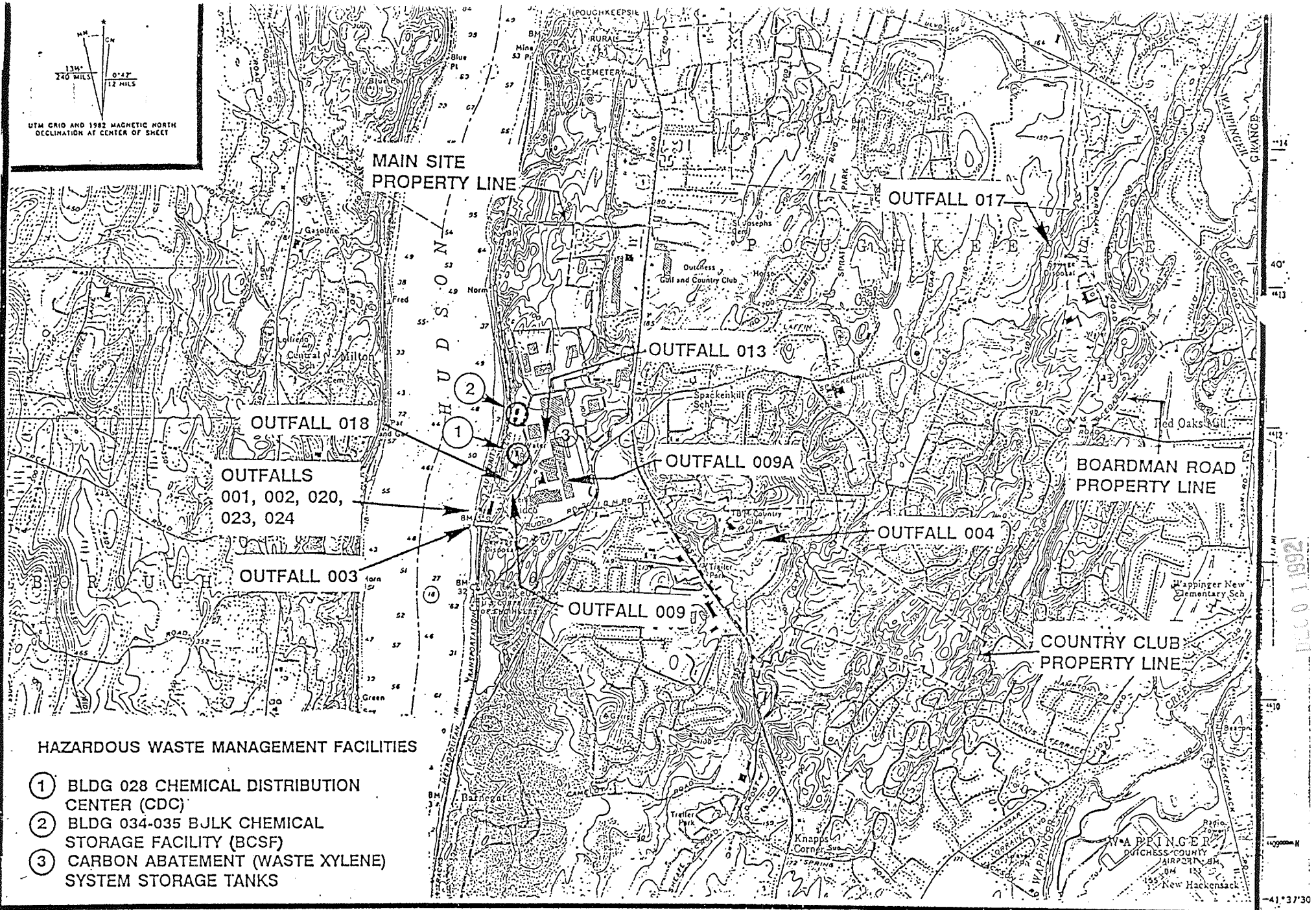
MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the location(s) indicated below: (Show sampling locations and outfalls with sketch or flow diagram as appropriate). ("SP" identifies the sampling points).



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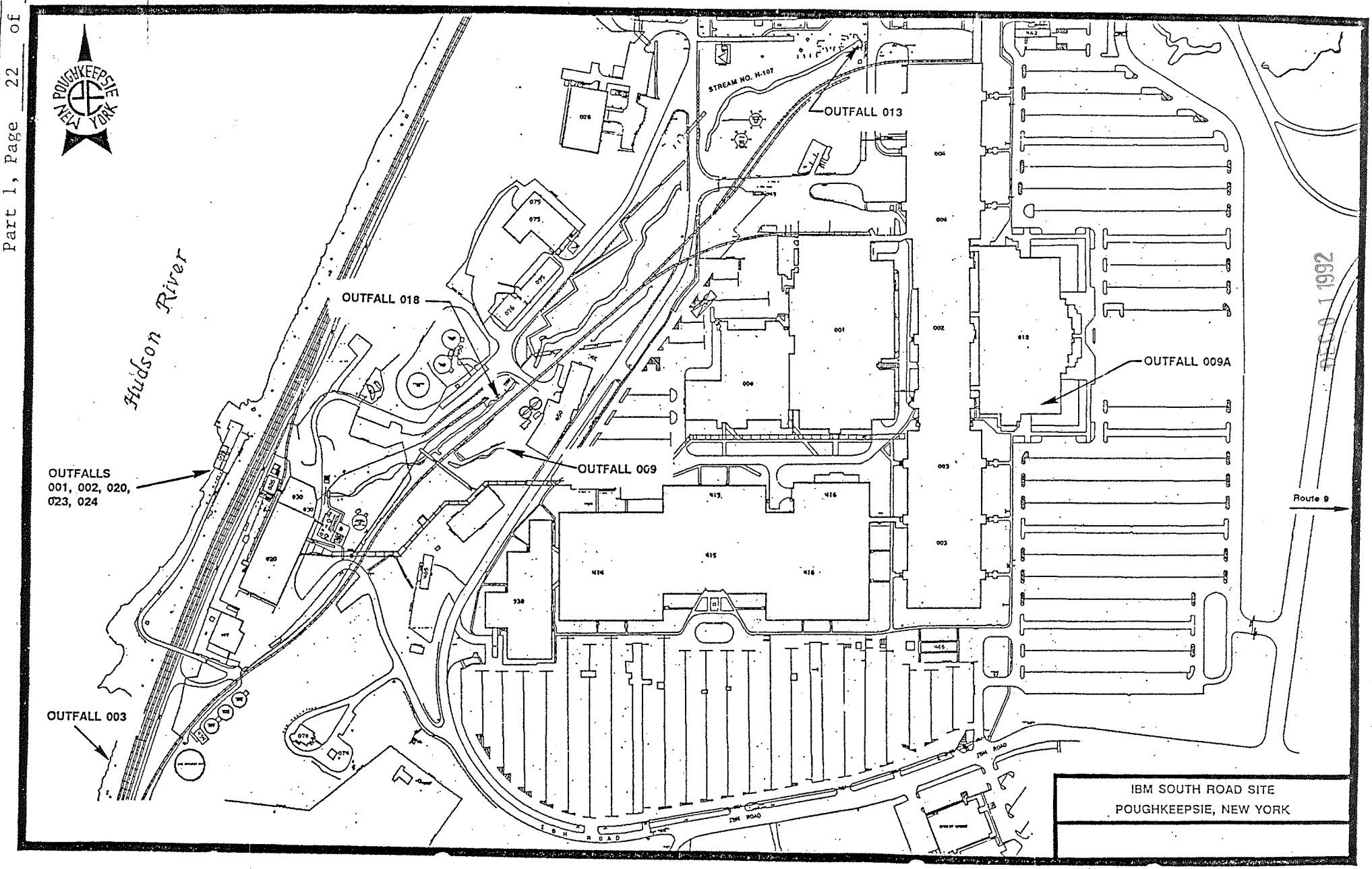


(TAKEN FROM USGS POUGHKEEPSIE, N.Y. QUADRANGLE - 1982)

LOCATION MAP

IBM CORPORATION

POUGHKEEPSIE, NEW YORK


POUGHKEEPSIE NEW YORK
Hudson River
STREAM NO. H-107
OUTFALL 013
OUTFALL 018
OUTFALL 009A
OUTFALL 009
OUTFALLS
001, 002, 020,
023, 024
OUTFALL 003
Route 9
IBM ROAD
IBM ROAD
IBM ROAD
IBM SOUTH ROAD SITE
POUGHKEEPSIE, NEW YORK

DEC 01 1992

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

a) The permittee shall also refer to the General Conditions (Part II) of this permit for additional information concerning monitoring and reporting requirements and conditions.

b) The monitoring information required by this permit shall be summarized, signed and retained for a period of three years from the date of the sampling for subsequent inspection by the Department or its designated agent. Also;

[x] (if box is checked) monitoring information required by this permit shall be summarized and reported by submitting completed and signed Discharge Monitoring Report (DMR) forms for each one month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

Send the original (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water
Bureau of Wastewater Facilities Operations
50 Wolf Road
Albany, New York 12233-3506

Phone: (518) 457-3790

Dutchess Co. Health Department
22 Market Street
Poughkeepsie, New York 12601

Send the first copy (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer - Region 3
21 South Putt Corners Rd.
New Paltz, New York 12561

c) A monthly "Wastewater Facility Operation Report..." (form 92-15-7) shall be submitted (if box is checked) to the [ ] Regional Water Engineer and/or [ ] County Health Department or Environmental Control Agency listed above.

d) Noncompliance with the provisions of this permit shall be reported to the Department as prescribed in the attached General Conditions (Part II)

e) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

f) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculations and recording of the data on the Discharge Monitoring Reports.

g) Calculation for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

h) Unless otherwise specified, all information recorded on the Discharge Monitoring Report shall be based upon measurements and sampling carried out during the most recently completed reporting period.

i) Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section five hundred two of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be sent to the Environmental Laboratory Accreditation Program, New York State Health Department Center for Laboratories and Research, Division of Environmental Sciences , The Nelson A. Rockerfeller Empire State Plaza, Albany, New York 12201.

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APPENDIX 17C

ANALYTICAL LABORATORY QA/QC

APR 0 3 1993

APPENDIX 17D

SAMPLE HOLDING TIMES

APR 3 1993

APPENDIX 17E

SAMPLE PREPARATION METHODS

APR 0 3 1990

HAZARDOUS WASTES SUBJECT TO 40 CFR PART 268 (AS OF JUNE 23, 1989)

Waste Stream Number	Waste Name	EPA Number
723-003-02A	Sodium Ferricyanide/Ferrocyanide Regenerant Waste	F009
723-003-03 (03A)	Potassium Ferricyanide Solution	F009
735-003-04	Stripper L-90	D002
735-003-05	Methyl Chloroform	F001
735-003-08	Nickel Sulfamate Plating Bath	D006
735-003-10 (10A)	Solvent Filters and Rags	F001 F002 F005
735-003-11	PF Etchant	D002
735-003-13	Sodium Persulfate	D002
735-003-14	PR 941	D002 F002 F003
735-003-18	Hydrochloric Acid Rinse	D002
735-003-19	10 Percent Sulfuric Acid Bath	D002
184-003-34	Mixed Freons	F001 F002 F003
124-004-44	Spent Activated Carbon	F002
124-004-47	Waste Xylene	F003
124-004-48	FC-72 Waste	F003 F005
953-953-49	Aircraft Washdown	F001 F005
421-028-55	Various Acids	D002

HAZARDOUS WASTES SUBJECT TO 40 CFR PART 268
(AS OF JUNE 23, 1989)

421-028-57	Contaminated Washwater	F002 F005
532-028-60	Electric Storage Batteries	D002
421-028-67	Packaged Lab Chemicals	Will Vary
771-450-70	Industrial Waste Sludge	F006
771-450-76	Dewatered Industrial Waste Sludge	F006
421-028-84	Capacitors with Phthalates	U102 U107 U108
421-028-85	Mixed Flammables	F003 F005
421-028-88	Solvent Contaminated Soil	F005
421-028-89	Solvent Tanks and Assoc. Piping	F002
421-028-102	Industrial Waste Contaminated Debris	F006
723-003-103	Debris Contaminated with Potassium Ferricyanide	F009
723-003-104	Waste Ion Exchange Resin	F009
421-028-115	Mixed Oxidizers	D002
421-028-121	Sanitary Septic Tank Waste	F001
421-028-131	Dewatered Sanitary Septic Tank Waste	F001 F005
421-028-140	Perchloroethylene	F002

SAMPLE FORM

CyanoKEM

AMERICAN NUKEM CORPORATION

GENERATOR RESTRICTED WASTE NOTIFICATION
LAND DISPOSAL RESTRICTION COMPLIANCE

This form meets generator restricted waste notification to CyanoKEM, Inc. of Detroit, Michigan as required by 40 CFR Part 268.7. The notification statement under category IV below is not required by law. However, we strongly request that you adhere to the intent. It has been written and included by CyanoKEM for the safety and benefit of our customers and our employees.

Please use one form for each line of a manifest. Ex. If four entries are made on a manifest four (4) forms are needed.

Generator Name/Location IBM Poughkeepsie

EPA or State ID Number NYD080480734 Manifest Number _____

Waste Analysis Available? Yes X No _____. If yes, attach copy per 40CFR Part 268.7 (a) (1) (iv).

I. **RESTRICTED WASTE NOTIFICATION** (Corresponding Treatment Standard(s)) Certain wastes have been restricted from land disposal effective June 8, 1989, but are treatable at CyanoKEM. Restricted wastes treatable at CyanoKEM are listed in Tables 1 and 2. If your waste is classified as any of those listed in Table 1 or 2, please check the following certification statement and circle the appropriate code in Table 1 or 2.

X **I notify that I personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this notification that the waste does not comply with the treatment standards specified in 40 CFR 268, Subpart D and all applicable prohibitions set forth in 40 CFR 268.41, 268.43 or RCRA Section 3004(d). Therefore the waste must be treated by the appropriate regulatory treatment standard or in such a manner which renders it non-liquid by chemical fixation or solidification prior to land disposal.**

W Number W-11532 Code: F009 W Number _____ Code: _____ W Number _____ Code: _____

Schedule A # 723-003-02A

II. **WASTE SPECIFIC PROHIBITIONS.** (California list wastes.) If your waste contains any of these constituents or meets any of these properties, please check below.

_____ **1)** pH ≤ 2.0 _____ **2)** PCB ≥ 50 ppm _____ **3)** Halogenated organic carbon, (HOC's) ≥ 1000 mg/l

_____ **4)** Liquids or any free liquids associated with any solid or sludge, containing the following metals or compounds of these metals:

_____ Arsenic (As) ≥ 500 mg/l
_____ Cadmium (Cd) ≥ 100 mg/l
_____ Chromium, (Cr VI) ≥ 500 mg/l
_____ Lead (Pb) ≥ 500 mg/l
_____ Free Cyanides ≥ 1000 mg/l
_____ Mercury (Hg) ≥ 20 mg/l
_____ Nickel (Ni) ≥ 134 mg/l
_____ Selenium (Se) ≥ 100 mg/l
_____ Thallium (Tl) ≥ 130 mg/l

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III. **SOFT HAMMER RESTRICTIONS** If your waste is one of the codes listed in Table 3, please check the following notification statement and circle the appropriate waste code in Table 3:

_____ **I certify under penalty of law that the requirements of 40 CFR 268.8 (a) (1) have been met and that I have contracted to treat my wastes (or will otherwise provide treatment) by the practically available technology which yields the greatest environmental benefit, as indicated in my demonstration. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.**

W Number _____ Code: _____ W Number _____ Code: _____ W Number _____ Code: _____

IV. **UNRESTRICTED WASTE NOTIFICATION** If waste does not fall into the categories listed above in Items I, II and III, check the following notification statement.

_____ **I notify that I personally have examined and am familiar with the waste through analysis and testing or through notification that the waste is not restricted as specified in 40 CFR 268, Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA 3004(d).**

W Number _____ Code: _____ W Number _____ Code: _____ W Number _____ Code: _____

Signature: _____ Date: _____

Print Name: B. H. MacBrien Title: Facilities Eng.

ONLY NOTIFICATIONS WITH ORIGINAL SIGNATURE WILL BE ACCEPTED

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6/89

CyanoKEM

TABLE I
HARD HAMMER WASTE

This restricted waste category is banned from land disposal under 40 CFR 268.30 and is subject to one or more treatment standards under 40 CFR 268 D. Complete information in Table 1 below by circling the appropriate treatment standard(s).

Treatment Standard For First and Second-Third's Land Disposal Restriction for Wastes Acceptable to CyanoKEM

Constituent	Concentration Standard in Extract, mg/1						
	F006	F007	F008	F009	F011	F012	K062
1. Cadmium	0.066	0.066	0.066	0.066	0.066	0.066	----
2. Chromium	5.2	5.2	5.2	5.2	5.2	5.2	0.094
3. Lead	0.51	0.51	0.51	0.51	0.51	0.51	0.37
4. Nickel	0.32	0.32	0.32	0.32	0.32	0.32	----
5. Silver	0.072	0.072	0.072	0.072	0.072	0.072	----
6. Cyanide Total	590	590	590	590	590	590	----
7. Cyanide Amenable	30	30	30	30	30	30	----

TABLE II
HARD HAMMER "P" WASTE

This restricted waste category is banned from land disposal under 40 CFR 268.30 and is subject to one or more treatment standards under 40 CFR 268 D. Complete information in Table 2 below by circling the appropriate treatment standard(s).

Waste Code	Waste Description	Cyanide Concentration Standard in Extract, mg/1	
		Total	Amenable
P013	Barium cyanide	110	4.1
P021	Calcium cyanide	110	4.1
P029	Copper cyanides	110	4.1
P030	Cyanides (soluable cyanide salts)	110	4.1
P063	Hydrogen cyanide	110	4.1
P074	Nickel(II) cyanide	110	4.1
P098	Potassium cyanide	110	4.1
P099	Potassium silver cyanide	110	4.1
P104	Silver cyanide	110	4.1
P106	Sodium cyanide	110	4.1
P121	Zinc cyanide	110	4.1

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TABLE III
SOFT HAMMER WASTE

The following waste codes are subject to soft hammer provisions and are acceptable (based on sample review) to CyanoKEM. EPA has set treatment requirements. The following wastes are banned from land disposal effective August 8, 1988. Complete the information in Table 3 below by circling the appropriate waste code.

Waste Code	Waste Description
261.33 (e) Wastes	
P010	Arsenic acid
P011	Arsenic (V) oxide
P012	Arsenic (III) oxide
P013	Thallium oxide (I,II)
P114	Thallium I selenide

Waste Code	Waste Description
261.33 (f) Wastes	
U134	Hydrofluoric acid
U135	Sulfur hydride
U205	Sulfur selenide (R,T)
U214	Thallium I acetate
U215	Thallium I carbonate

Waste Code	Waste Description
U216	Thallium I chloride
U217	Thallium I nitrate
F019	Wastewater treatment sludge from chemical conversion of aluminum

For more information contact the regional sales office in your area:

Midwest
Southfield, Michigan
(313) 353-5880

Southeast
Rock Hill, South Carolina
(803) 329-9690

Northeast
Mahwah, New Jersey
(201) 818-0900

SAMPLE FORM "HARD-HAMMER" WASTES * Schedule A #02A

LAND DISPOSAL RESTRICTIONS NOTIFICATION AND CERTIFICATION FORM

Generator Name: IBM Poughkeepsie Manifest Number: _____

EPA Hazardous Waste Code(s): F009 Ensco Profile Number: 109450

This form is submitted to Ensco, El Dorado, Ark. in accordance with 40 CFR Part 268, which restricts the land disposal of cer hazardous wastes. I have marked the appropriate box below to indicate how my waste must be managed to conform to the land disposal restrictio

☒ **A. RESTRICTED WASTE REQUIRES TREATMENT**

I am the initial generator of a restricted waste (i.e. solvent/dioxin, California List, or scheduled waste) identified above which must be trea to the applicable treatment standard set forth in 40 CFR Part 268 Subpart D and all applicable prohibition set forth in 40 CFR 268.32 or RC Section 3004(d) prior to land disposal.

☐ **B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS**

The waste identified above has been treated in compliance with the applicable performance standards specified in 40 CFR Part 268 Subpar Supporting data is available to be provided as requested by the receiving facility.

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatm process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining t information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specif in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without dilution of prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine imprisonment."

☐ **B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSEDAS A SPECIFIE TECHNOLOGY**

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

☐ **C. RESTRICTED WASTE SUBJECT TO A VARIANCE**

The waste identified above is subject to a national capacity variance, a treatability variance, or a case-by-case extension which expires on _____. If disposal occurs in a landfill or surface impoundment, the unit must meet the minium technolog requirements. (Note: Wastes destined for deep well injection are subject to a separate set of variances. See instructions or 40 CFR Part 1

☐ **D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT**

I am the initial generator of the waste identified above. I have determined that the waste meets all applicable treatment standards set forth 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore can land disposed without further treatment.

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowle of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Subpart D and all applic prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and compl I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate to the best of knowledge and information.

Signature _____ Title _____ Date _____

*A WASTE FOR WHICH TREATMENT STANDARDS HAVE BEEN SET

HARD-HAMMER NOTIFICATION ADDENDUM Schedule A #02A

If you checked box A on the Hard-Hammer Notification form , "Restricted Waste Requires Treatment", then you must also indicate ALL of the restrictions by checking all of the applicable boxes below.

********** SECTION I - CALIFORNIA LIST **********

A. This waste was a liquid hazardous waste, when it was initially generated, and any of the following statements are true (check all that apply):

___ 1. (Metals) - the waste currently fails the paint filter test, and it contains any of the following metals in concentrations greater than or equal to the amount listed here (check each that applies):
___Arsenic : 500 ppm, ___Lead ...: 500 ppm, ___Selenium: 100 ppm,
___Cadmium : 100 ppm, ___Nickel .: 134 ppm, ___Thallium: 130 ppm
___Chromium: 500 ppm, ___Mercury : 20 ppm,
___ 2. (Acids) - the waste currently fails the paint filter test, and is an acid (aqueous solution with pH less than or equal to 2.0)
___ 3. (Cyanides) - the waste currently fails the paint filter test, and it contains greater than or equal to 1,000 ppm "free" cyanides.
___ 4. (PCBs) - the waste contains PCBs (Polychlorinated Biphenyls) in concentrations greater than or equal to 50 ppm.

B. This waste was a liquid or nonliquid hazardous waste, when it was initially generated, and the following statement is true:
___ 1. (HOCs) - the waste contains HOCs (Halogenated Organic Compounds listed in 40 CFR Part 268, Appendix III) in total concentration greater than or equal to 1,000 ppm.

********** SECTION II - CYANIDES **********

If cyanides are present in this waste, list the Total and Amenable levels in this shipment:
Total: <16,000 ppm, Amenable: <50 ppm.

********** SECTION II - SOLVENT AND OTHER HARD-HAMMER WASTES *******

This waste is a (check one): X wastewater, ____ nonwastewater.

This waste may be in any physical form (solid, liquid, sludge, gas, etc but it requires treatment for the constituents listed in 40 CFR Part 26 Subpart D that are related to the following codes. Check all codes that apply to this waste and require treatment:

___ F001	___ K011**	___ K039	___ K101	___ P074*	___ U221
___ F002	___ K013**	___ K040	___ K102	___ P085	___ U223**
___ F003	___ K014	___ K043**	___ K103	___ P089	___ U235
___ F004	___ K015**	___ K044**	___ K104	___ P094	
___ F005	___ K016	___ K045**	___ K113**	___ P097	* - CWM-Emelle
___ F006	___ K018	___ K046**	___ K114**	___ P098**	does not accept
___ F007	___ K019	___ K047**	___ K115**	___ P099**	these wastes
___ F008	___ K020	___ K060**	___ K116	___ P104**	for disposal.
X F009	___ K021**	___ K061	___ P013**	___ P106**	
___ F010	___ K022	___ K062	___ P021*	___ P109	** - CWM-Emelle
___ F011	___ K023	___ K069-a	___ P029*	___ P111	does not accept
___ F012**	___ K024	___ K083-b	___ P030*	___ P121**	these wastes
___ F024**	___ K025**	___ K086**	___ P039	___ U028	for storage
___ K001	___ K027**	___ K087	___ P040	___ U058	and/or disposal
___ K004**	___ K028	___ K093	___ P041	___ U069	
___ K005**	___ K029	___ K094	___ P043	___ U087	Accept:
___ K007**	___ K030	___ K095	___ P044	___ U088	a - Ca sulfate
___ K008**	___ K036**	___ K096	___ P062	___ U102	category only
___ K009	___ K037	___ K099**	___ P063	___ U107	b - High ash
___ K010	___ K038	___ K100**	___ P071	___ U190	category only

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IBM POUGHKEEPSIE
6NYCRR PART 373 PERMIT APPLICATION

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18.0 SITE EXPANSION PLANS

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IBM POUGHKEEPSIE
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19.0 WASTE MINIMIZATION PROGRAM CERTIFICATION

IBM Poughkeepsie provides certification, no less often than annually, that a program is in place to reduce the volume and toxicity of hazardous waste that is generated, and the methods used are the most practicable. Copies of this certification are maintained in the files at IBM Poughkeepsie.