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NYS-DEC
REGION 3-NEW PALTZ

April 2, 2001

Mr. Steve Kaminski
New York State Department of
Environmental Conservation
Bureau of Eastern Hazardous Waste Programs
Division of Hazardous Substances Regulations
50 Wolf Road
Albany, New York 12233

4/19

Re: International Business Machines Corporation
~~East Fishkill~~ Facility
Pre-construction Soil Sampling and Analysis Program
Study Areas 12, 14 and 19
"Contained-In" Demonstration

Dear Mr. Kaminski:

The purpose of this letter is to present a "contained-in" demonstration for soil to be excavated as part of proposed construction activities to be undertaken at the International Business Machines Corporation (IBM) East Fishkill facility. This "contained-in" demonstration addresses study areas discussed with the New York State Department of Environmental Conservation (NYSDEC) in August of 2000. Specifically, this "contained-in" demonstration includes soil sampling activities conducted on December 18, 2000 through February 2, 2001 within three study areas located at the East Fishkill facility identified as Study Areas 12, 14 and 19.

Background

As you are aware, IBM has initiated a major construction project at its East Fishkill facility. Referred to as the "300mm Developmental Pilot Line Project," the project calls for the expansion and retrofit of Building 323 (B/323) along with construction associated with a number of support structures including cooling towers, trestles for overhead piping, as well as wastewater treatment and recycling facilities. These construction activities will require the excavation of soil at various locations at the facility. Since some of the proposed areas of excavation are located within or adjacent to areas of concern associated with areas of known or potential soil and

groundwater contamination, the Pre-construction Soil Sampling and Analysis Program is being undertaken in order to determine the appropriate management procedure for the excavated soil. This program is being conducted in a phased approach with the initial phase undertaken in January 1998.

As mentioned above, the initial Pre-construction Soil Sampling and Analysis Program was conducted in January 1998 and included the following eleven study areas located throughout the East Complex of the IBM East Fishkill facility:

Study Area	Description
1	B/317
2	B/316
3	B/315 – Cooling Towers
4	Trestle Nos. 1, 7, 10A, 10B and 12
5	B/323 N
6	B/325 – 3.5 Million Gallon Equalization Tank
7	B/325 – Clarifier/Pump Shed
8	B/325 Nitrification Bays 7 & 8 and Blower Buildings
9	B/325 – Chlorine Contact Tank
10	B/325 – Relocated Salt Storage Barn
11	B/325 – Headworks

The locations of the eleven study areas are provided on Figure 1 presented as Attachment 1. It should be noted that Figure 1 also provides the locations of the study areas with respect to areas of concern associated with areas of known or potential soil and groundwater contamination.

The results of the first phase of the program were submitted to the NYSDEC in a letter report and "contained-in" demonstration dated February 23, 1998. The NYSDEC approved the "contained-in" demonstration on March 4, 1998. At this time, construction has been completed at the industrial wastewater treatment plant and cooling towers (Study Areas 3, 7, 8, 9, 10 and 11).

The supplemental soil sampling and analysis program was conducted in June 1998 and focused on the Air Intake Shafts located adjacent to B/323. This location is identified as Study Area 23B on Figure 1 provided as Attachment 1. As part of the supplemental soil sampling and analysis program, a total of 8 soil samples were collected from the 3 test pits. The completion depths of the test pits ranged from 14 to 20 feet below grade and were estimated to correspond to the planned depths of the proposed construction excavations.

On August 14, 2000, Ms. Michele West of IBM met with representatives of the NYSDEC to outline an additional phase of the program which included collecting soil samples for analytical testing from 10 additional study areas at the IBM East Fishkill facility. After requesting some minor modifications to the proposed sampling plan, the NYSDEC approved the approach and instructed IBM to initiate the program at its discretion.

On August 31, 2000 through September 12, 2000, the additional soil sampling activities discussed with the NYSDEC were undertaken. The program consisted of excavating test pits with a backhoe and advancing soil borings with a drill rig in the following seven study areas located at the East Fishkill facility:

Study Area	Description
13	Low NOx Burner
15	B/323 Electrical Duct Bank
16	B/323 Loading Dock
17	Soda Ash Building
21	Trestle Expansion
22	Wiccopee Well Field Water Main
23A	B/323 Air Intake Shafts

The locations of the seven study areas are shown on Figure 1 provided as Attachment 1. Figure 1 also provides the locations of the study areas with respect to areas of concern associated with areas of known or potential soil and groundwater contamination. As part of the August/ September 2000 phase of the program, a total of 114 soil samples were collected from 24 locations.

The results of the June 1998 and the August/September 2000 phases of the program were submitted to the NYSDEC in a letter report and "contained-in" demonstration dated October 11, 2000. The NYSDEC approved the "contained-in" demonstration on October 16, 2000.

The remaining three study areas outlined in August 2000 are identified as follows, and are the focus of this phase of the program:

Study Area	Description
12	B/325 – B/312 Industrial Waste Line
14	B/317 Equalization Tank
19	B/386 Treatment Plant Expansion

Technical Approach

The objective of the Pre-construction Soil Sampling and Analysis Program is to collect representative soil samples at appropriate depths from within the areas proposed for construction, analyze the soil samples for appropriate constituents of concern and compare the analytical results to the "Contained-In" Action Levels presented in the NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) No. 3028 with an effective date of March 14, 1997. Based on that comparison, IBM will properly classify the soil as either hazardous or nonhazardous waste and develop an appropriate soil management protocol for off-site transportation and disposal, on-site backfilling or other on-site reuse of the excavated soil.

It should be noted that all activities conducted as part of the Pre-construction Soil Sampling and Analysis Program comply with the requirements of the RCRA Facility Investigation Work Plan dated February 1996.

Field Investigation

In each study area, a backhoe was utilized to excavate a test pit to at least six feet below grade to ensure that no utilities were present in each sampling location. Since the maximum depth of the construction excavations proposed for these locations is ten feet below grade, all soil samples were collected utilizing the backhoe; soil borings were not advanced. In accordance with the NYSDEC's request, soil samples collected utilizing the backhoe were duplicated as follows: one sample was collected from the top of the backhoe bucket prior to dumping and another sample was collected from the top of the soil pile subsequent to dumping.

All test pits constructed during this program were excavated utilizing the backhoe with oversight provided by a geologist representing William F. Cosulich Associates, P.C. (WFC). The geologist documented the excavation procedures and prepared a log for each test pit. Copies of all test pit logs completed for this phase of the program are provided in Attachment 2. Notes were kept in both bound field books and on standard log forms. The modified Burmeister Classification System was used to describe the soil samples collected, augmented with additional information using the Unified Soil Classification System.

Soil samples were collected from the backhoe bucket during excavation with soil vapor screening (headspace analysis) utilized to assist in the selection of samples for laboratory analysis. All soil samples were placed directly into precleaned laboratory-supplied sample jars and screened utilizing a photoionization detector (PID) to detect the presence of any volatile organic compounds (VOCs). Soil samples were collected for laboratory analysis from one 2-foot depth interval from each 5 feet of excavation within each test pit. The soil samples selected for

analysis were delivered under chain of custody to Mitkem Corporation for volatile organic compound and priority pollutant metal analyses.

When excavation and sampling of each test pit was complete, the test pit was backfilled using the excavated soil. Once the entire program is complete, all sampling locations will be surveyed for horizontal location and vertical elevation. Horizontal locations will be tied into the site planar coordinate system. Vertical control will be tied into the National Geodetic Vertical Datum of 1929 (NGVD 1929) and reported to an accuracy of ± 0.1 foot.

Ambient air monitoring was performed throughout the course of the excavation and sampling activities. A Photovac MicroTip PID was used to detect total organic vapors. A Dräger 4-gas meter was also used during the excavation and sampling activities. The air monitoring instruments were calibrated on a daily basis. Throughout the course of the field investigation, readings in the workers' breathing zone never exceeded 5 parts per million above background.

Analytical Results

Laboratory analyses performed on the soil samples collected during the field program included volatile organic compounds (VOCs) utilizing EPA Method 8260 and priority pollutant metals utilizing EPA Method 6010. EPA Method 8260 includes, but is not limited to, the following seven compounds listed on Table 1 of Appendix B in Module III of the IBM East Fishkill Part 373 Permit:

- cis-1,2-dichloroethene (cis-1,2-DCE)
- 1,1,1-trichloroethane (TCA)
- trichloroethene (TCE)
- tetrachloroethene (PCE)
- benzene
- ethylbenzene
- xylene

Soil samples selected for laboratory analysis were submitted under chain of custody to Mitkem Corporation, a laboratory participating in the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) and certified by the NYSDOH Contract Laboratory Program (CLP). Copies of the chain of custody forms for all samples collected during this phase of the field program are provided in Attachment 3.

It should be noted that, as a result of encountering a concrete foundation at sample location "SA19F" in Study Area 19, soil samples were collected from the 0 to 2-foot depth interval below

grade only; deeper soil samples were determined to be unnecessary since the existing concrete foundation is to remain in place.

The analytical results of the soil samples were compared to the "Contained-In" Action Levels for soil/sediment provided in the NYSDEC's TAGM 3028 – "'Contained-in Criteria' for Environmental Media," dated November 30, 1992. It should be noted that the "Contained-In" Action Levels listed in TAGM 3028 have an effective date of March 14, 1997. In addition, analytical results of the soil samples were compared to the Soil Cleanup Objectives to Protect Groundwater Quality (VOCs) or the Eastern USA Background levels (metals) presented in Appendix A of the NYSDEC's TAGM 4046 – "Determination of Soil Cleanup Objectives and Cleanup Levels," dated January 24, 1994.

A total of 50 soil samples from 13 sample locations were submitted for VOC and metal analyses during this phase of the program. The tabulated analytical results are presented in Attachment 4, with quality assurance/quality control documentation presented in Attachment 5. In addition to the analytical results, the tables provide a comparison of the analytical results to the "Contained-In" Action Levels for soil/sediment and the Soil Cleanup Objectives to Protect Groundwater Quality (VOCs) or the Eastern USA Background levels (metals), as appropriate.

As shown on Table 1 in Attachment 4, all volatile organic compounds were either not detected or were detected at concentrations below the TAGM 3028 "Contained-In" Action Levels and TAGM 4046 Soil Cleanup Objectives to Protect Groundwater Quality.

As shown on Table 2 in Attachment 4, arsenic and beryllium were detected at concentrations which exceeded the "Contained-In" Action Levels but were below the TAGM 4046 Eastern USA Background levels for all 50 soil samples collected during this phase of the program. In addition, concentrations of nickel (9 samples), selenium (23 samples) and zinc (44 samples) were detected in the soil samples which exceeded the Eastern USA Background levels but were below the "Contained-In" Action Levels.

Discussion

The purpose of the Pre-construction Soil Sampling and Analysis Program is to determine how to manage on-site soil excavated as part of proposed construction activities.

In order to determine whether the soil located within these study areas would be considered a listed hazardous waste as a result of mixing with a particular known listed waste, the "contained-in" policy was used since soil is an environmental media. All volatile organic compounds were either not detected or were detected at concentrations below the "Contained-In" Action Levels. All priority pollutant metals were either not detected or were detected at

concentrations below the "Contained-In" Action Levels with the exception of arsenic and beryllium. However, the known listed hazardous waste which may have potentially mixed with the soil located in these study areas was listed due to the presence of certain halogenated solvents (waste codes F001 and F002). Since arsenic and beryllium are not the "listing constituents" for this waste, their concentrations in excess of the "Contained-In" Action Levels are not significant and are not to be used to determine whether the soil located within these study areas is a listed hazardous waste.

To determine whether a material is a characteristic hazardous waste, the Toxicity Characteristic Leaching Procedure (TCLP) is used to determine the leachable concentrations of constituents in the soil. However, as presented in TAGM 3028, the "20 Times Rule" can be used in place of a TCLP analysis if total concentration results for the soil are available. This approach is based on the fact that when soil samples are prepared for TCLP analysis, the soil is diluted in acid at a 1 to 20 ratio. Assuming that all of the contaminant present in the soil leaches into the acid allows the actual total concentration result detected in the soil sample to be divided by 20 to yield the maximum possible contaminant concentration in the TCLP extract. If this resulting concentration is below the Toxicity Characteristic regulatory level, then the soil would not be a characteristic hazardous waste for toxicity.

Applying the "20 Times Rule" to all individual constituent soil sample concentrations which exceeded their respective Eastern USA Background level and comparing the resulting concentrations to the Toxicity Characteristic regulatory levels demonstrates that the soil located within the areas of proposed excavation in Study Areas 12, 14 and 19 is not a characteristic hazardous waste.

Therefore, based on the analytical results of the soil sampling conducted as a part of this phase of the Pre-construction Soil Sampling and Analysis Program, none of the soil located within the areas of proposed excavation in Study Areas 12, 14 or 19 would be classified as either a listed or characteristic hazardous waste.

Conclusions

Based upon the results of the field activities conducted as part of this phase of the Pre-construction Soil Sampling and Analysis Program, IBM is requesting that the NYSDEC approve the classification of soil proposed for excavation during the construction activities to be undertaken within Study Areas 12, 14 and 19 as nonhazardous waste. IBM is also requesting approval to utilize the soil to backfill the excavations or as regrading material in the general vicinity of the excavations. Furthermore, any excess soil from the excavations and regrading would be used as fill in selected areas of the IBM East Fishkill facility East Complex. In the event the excavated soil will be disposed of off site, the material will be transported off site as a

nonhazardous industrial solid waste to a permitted Part 360 land disposal facility or a permitted hazardous waste landfill.

Additionally, IBM does not consider the proposed construction activities to constitute a "substantial change of use" of the site as defined in 6 NYCRR 375-1.3(v) because the proposed construction activities will not disrupt or expose hazardous waste or increase direct human exposure. As a result, the notification requirements of 6 NYCRR 375-1.6 are not applicable.

It should be noted that during the excavation activities, monitoring will be conducted for health and safety purposes. If this monitoring indicates consistent elevated readings, then the soil will be segregated and sampled for laboratory analysis to confirm that it is below the "Contained-In" Action Levels. If the soil does not meet the "contained-in" criteria, the soil will be managed as a hazardous waste.

After reviewing the attached information, should you have any questions, please call Ms. Michele J. West at (845) 894-5536.

Sincerely,
INTERNATIONAL BUSINESS
MACHINES CORPORATION

Salvatore J. Tranchina

Salvatore J. Tranchina, P.E.
Manager, Environmental
Engineering & Operations

SJT/BMV(t)/ld
Attachments
cc: T. Killeen (NYSDEC – New Paltz)
R. Pergadia (NYSDEC – New Paltz)
M. West (IBM)
R. Walka (WFC)
♦1837\MISC02231SK-LTR.DOC(R01)

ATTACHMENT 1

Figure 1 - Pre-Construction Soil Sampling and Analysis Program

ATTACHMENT 2

Test Pit Logs

William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	Project No.: 1837 - 00 Project Name: IBM Pre - Construction Soil Sampling Program	Boring No.: TP SA14 Sheet 1 of 1 By: J. Schafer
Drilling Contractor: Cicone Driller: Drill Rig: Date Started:	Geologist: John Schafer Drilling Method: Excavator Drive Hammer Weight: - Date Completed: 12/18/00	Boring Completion Depth: " 10' Ground Surface Elevation: Boring Diameter: 6' x 10'

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0		Brown to gray clay, soft plastic, moist, w/ some shale fragments, wood, no odor, no staining	
		B				0.0			
-1.5'-									
-2-									
-3-									
-4-									
-5-									
-6-									
-7-									
-8-		A				0.0		Brown sandy silty to brown silty clay, semi stiff, non plastic, moist to wet, no odor, no staining.	
		B				0.0			
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

A - Soil from top of Excavator Bucket
B - Soil from top of soil pile.

NOTES:

Date: 12/18/00

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

LOCATION SKETCH

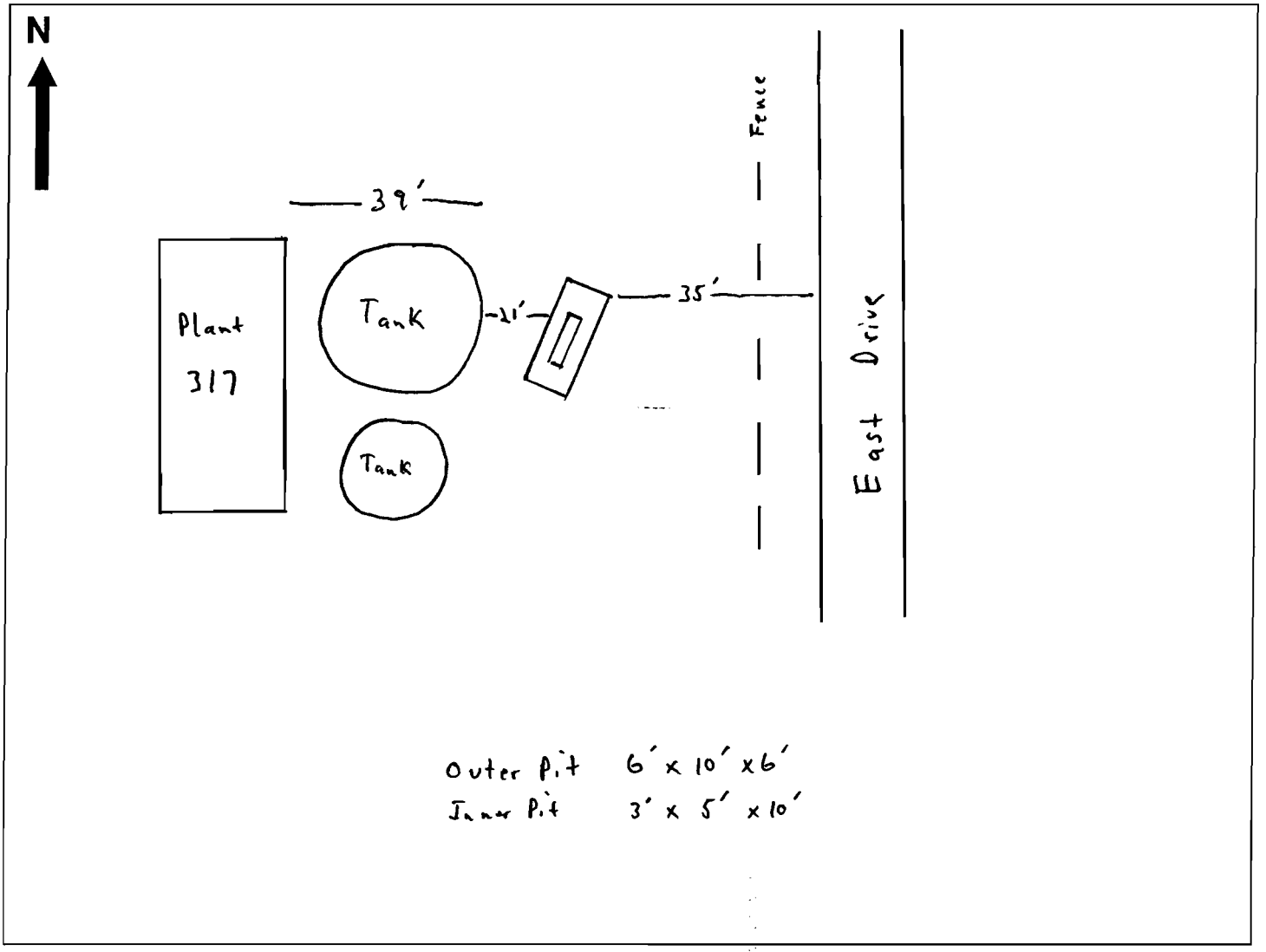
Project IBM Sample Crew T. Schafer

Sample(s) Locations(s) Test Pit Study Area 14

Sample(s) and/or Well Number(s) TP SA 14 (0-2) A+B

TP SA 14 (8-10) A+B

Location of sample points, wells, borings, etc., with reference to three permanent reference points.
Measure all distances, clearly label roads, wells and permanent features.



William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	Project No.: 1837-00 Project Name: IBM - Preconstruction Soil Sampling Program	Boring No.: SA12 TP1 Sheet 1 of 1. By:
Drilling Contractor: Ciccone Driller: Andy Drill Rig: Date Started: 1/4/01	Geologist: J. Schafer Drilling Method: Excavator Drive Hammer Weight: Date Completed: 1/4/01	Boring Completion Depth: " 10' Ground Surface Elevation: Boring Diameter: 13'x14'

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown topsoil loose, moist, w/ some organic matter (grass, roots), some cobbles + cinder blocks, no odor, no staining.	
		B				0.0	0.0		
-1.5'-									
-2-		A				0.0	0.0	Brown silt, soft, moderately plastic, moist, w/ f. to coarse gravel, + cobble, no odor, no staining	
		B				0.0	0.0		
-3-									
-4-		A				0.0	0.0	SAA (2-4)	
		B				0.0	0.0		
-5-									
-6-		A				0.0	0.0	Brown sandy (fine to coarse) silt, w/ f. gravel, moderately soft, slightly plastic, moist, no odor, no staining.	
		B				0.0	0.0		
-7-									
-8-		A				0.0	0.0	SAA (6-8)	
		B				0.0	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES:

Date: 1/4/01

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

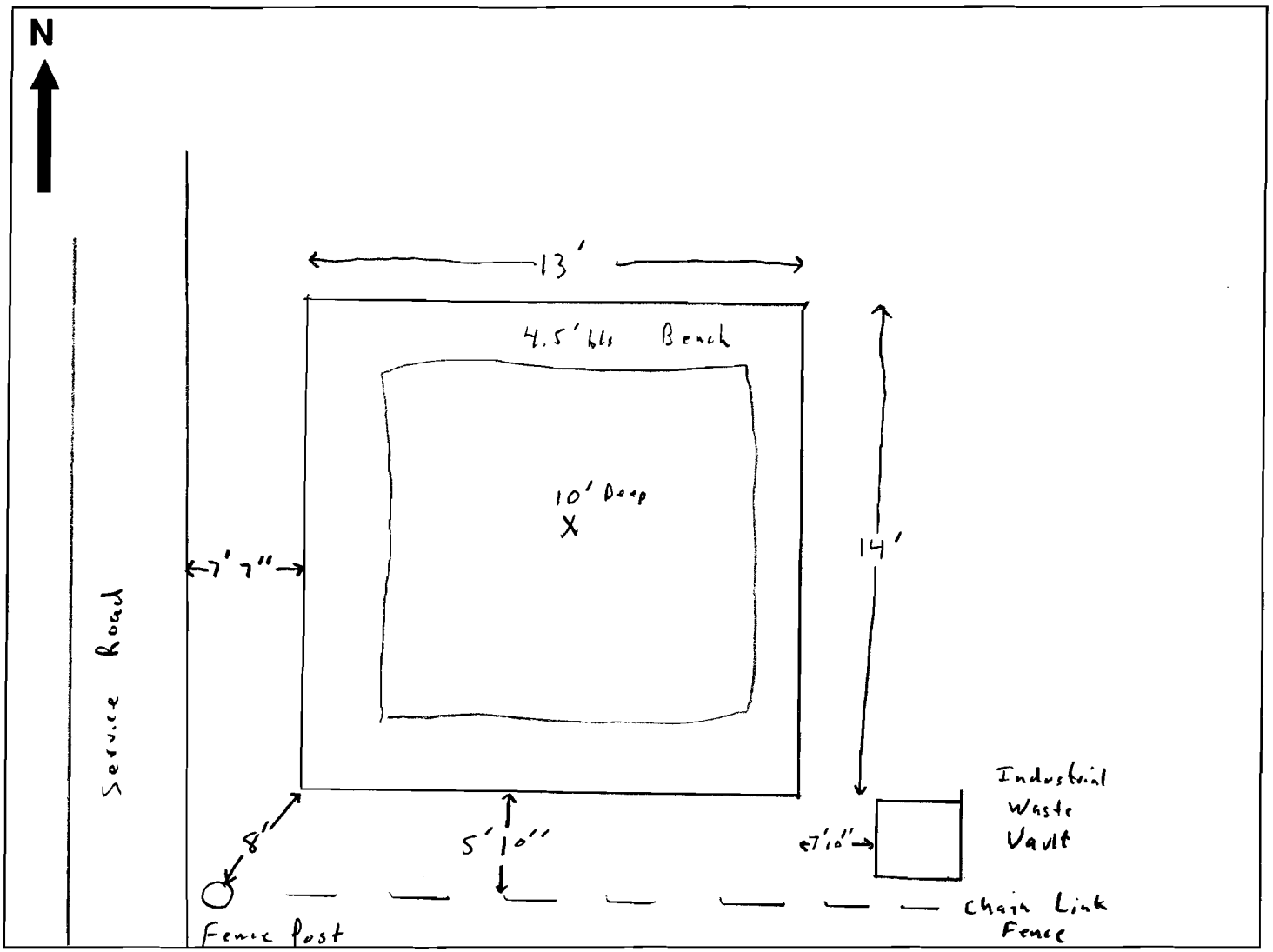
LOCATION SKETCH

Project IBM - Preconstruction Soil Sampling Sample Crew J. Schafer

Sample(s) Locations(s) SA 12 TP 1

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



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

Project No.: 1837-00
Project Name: IBM - Pre construction Soil Sampling Program

Boring No.: SA12 TP1
Sheet 1 of 1.
By: J. Schafer

Drilling Contractor: Ciccone
Driller: Andy
Drill Rig: Excavator
Date Started: 1/5/01

Geologist: J. Schafer
Drilling Method: Excavation
Drive Hammer Weight:
Date Completed: 1/8/01

Boring Completion Depth: " 10'
Ground Surface Elevation:
Boring Diameter: 16"x17"

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				6.0	0.0	Brown gravelly (fine) silt, soft, slightly plastic, moist, no odor, no staining.	
		B				0.0	0.0		
-1.5'-									
-2-		A				0.0	0.0	Brown silt, w/ some fine to coarse gravel, soft, non plastic, moist, no odor, no staining	
		B				0.0	0.0		
-3-									
-4-		A				0.0	0.0	Brown silty sand, (fine to coarse), w/ cobble, loose, moist, no odor, no staining.	
		B				0.0	0.0		
-5-									
-6-		A				0.0	0.0	SAA (4-6)	
		B				0.0	0.0		
-7-								(fine to coarse)	
-8-		A				0.0	0.0	Brown sandy silt, Loose, soft, non plastic, no odor, no staining w/ Coarse gravel + Some cobbles.	
		B				0.0	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Sampled
SA12 TP2 (2-4) A+B
SA12 TP2 (8-10) A+B

Date: 1/8/01

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

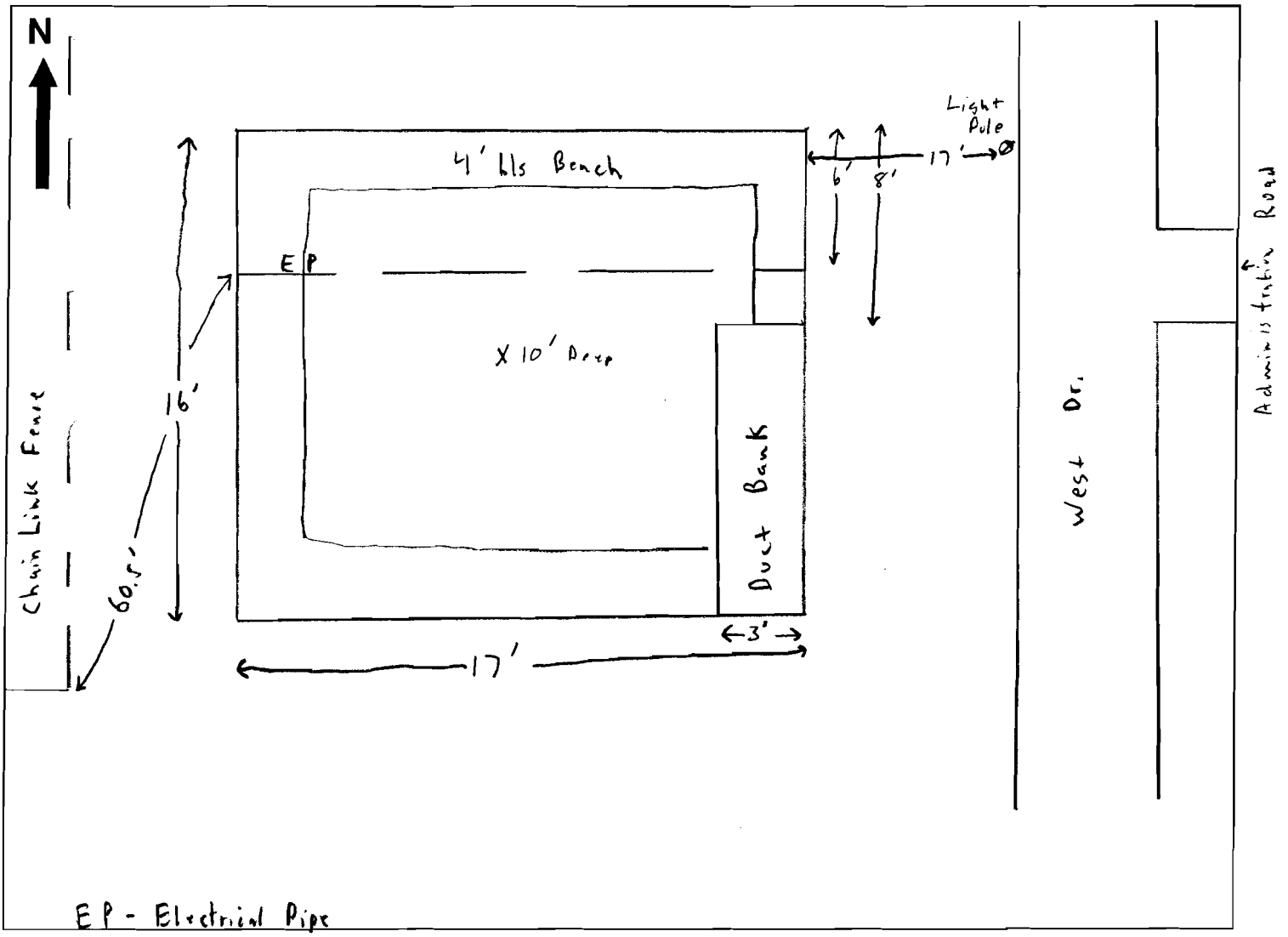
LOCATION SKETCH

Project IBM Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA12 TP2

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



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

Project No.: 1837-00
Project Name: IBM - Pre construction Soil Sampling Program

Boring No.: SA 12 TP3
Sheet 1 of 1
By: J. Schafer

Drilling Contractor: Cicone
Driller: Andy
Drill Rig: CAT - Excavator
Date Started: 1/9/01

Geologist: J. Schafer
Drilling Method: Excavation
Drive Hammer Weight:
Date Completed: 1/9/01

Boring Completion Depth: ~10'
Ground Surface Elevation:
Boring Diameter: 18" x 18"

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown silt, w/ trace fine to coarse sand, + fine gravel, soft, slightly plastic, moist, no odor, no staining.	
		B				0.0	0.0		
-1.5'-								1/4" thick peat layer @ 1.5' bls.	
-2-		A				0.0	0.0	Brown silt, w/ some clay + gravel / cobble, loose, soft, slightly plastic, no odor, no staining	
		B				0.0	0.0		
-3-									
-4-		A				0.0	0.0	Brown silt w/ some fine gravel, + some brown clay, loose, soft, slightly plastic, no odor, no staining.	
		B				0.0	0.0		
-5-									
-6-		A				0.0	0.0	Brown silty sand, fine to medium w/ some coarse sand, w/ cobble + fine gravel, loose, moist, no odor, no staining	
		B				0.0	0.0		
-7-									
-8-		A				0.0	0.0	Brown sand, fine to medium, w/ some coarse sand, loose, moist, no odor, no staining.	
		B				0.0	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Samples obtained @
SA 12 TP3 (2-4) A+B
SA 12 TP3 (8-10) A+B

Date: 1/9/01

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

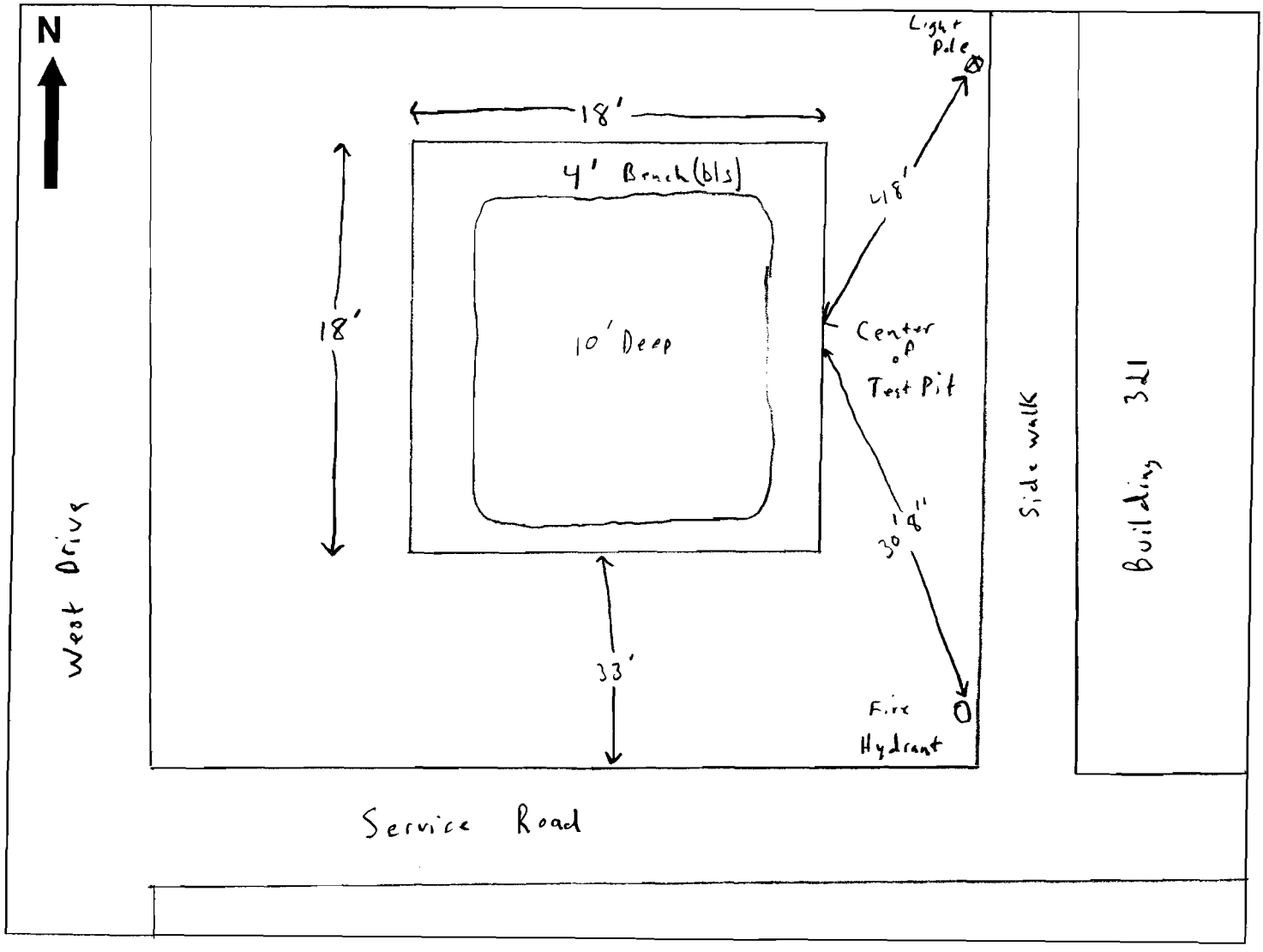
LOCATION SKETCH

Project IBM. Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SAIL TP3

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



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

Project No.: 1837-00
Project Name: IBM - Pre Construction Soil Sampling Program

Boring No.: SAIL TP5
Sheet 1 of 1
By: J. Schafer

Drilling Contractor: Ciccone
Driller: Andy
Drill Rig: CAT Excavator
Date Started: 1/10/01

Geologist: J. Schafer
Drilling Method: Excavation
Drive Hammer Weight:
Date Completed: 1/10/01

Boring Completion Depth: " 10'
Ground Surface Elevation:
Boring Diameter: 14' x 14'

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown silt, soft, moist, semi plastic, w/ some f-c gravel & cobble, no odor, no staining	
		B				0.0	0.0		
-1.5'-									
-2-		A				0.0	0.0	Brown sandy, gravelly silt, soft, slightly plastic, w/ cobbles, loose, moist, no odor, no staining	
		B				0.0	0.0		
-3-									
-4-		A				0.0	0.0	Brown clayey silt, w/ fine to coarse gravel & cobbles, slightly plastic, semi soft, no odor, no staining	
		B				0.0	0.0		
-5-									
-6-		A				0.0	0.0	SAA (4-6)	
		B				0.0	0.0		
-7-									
-8-		A				0.0	0.0	SAA (4-6)	
		B				0.0	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Sampled for analysis:
SAIL TP5 (@ 2-4) A+B
SAIL TP5 (@ 8-10) A+B

Date: 1/10/01

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

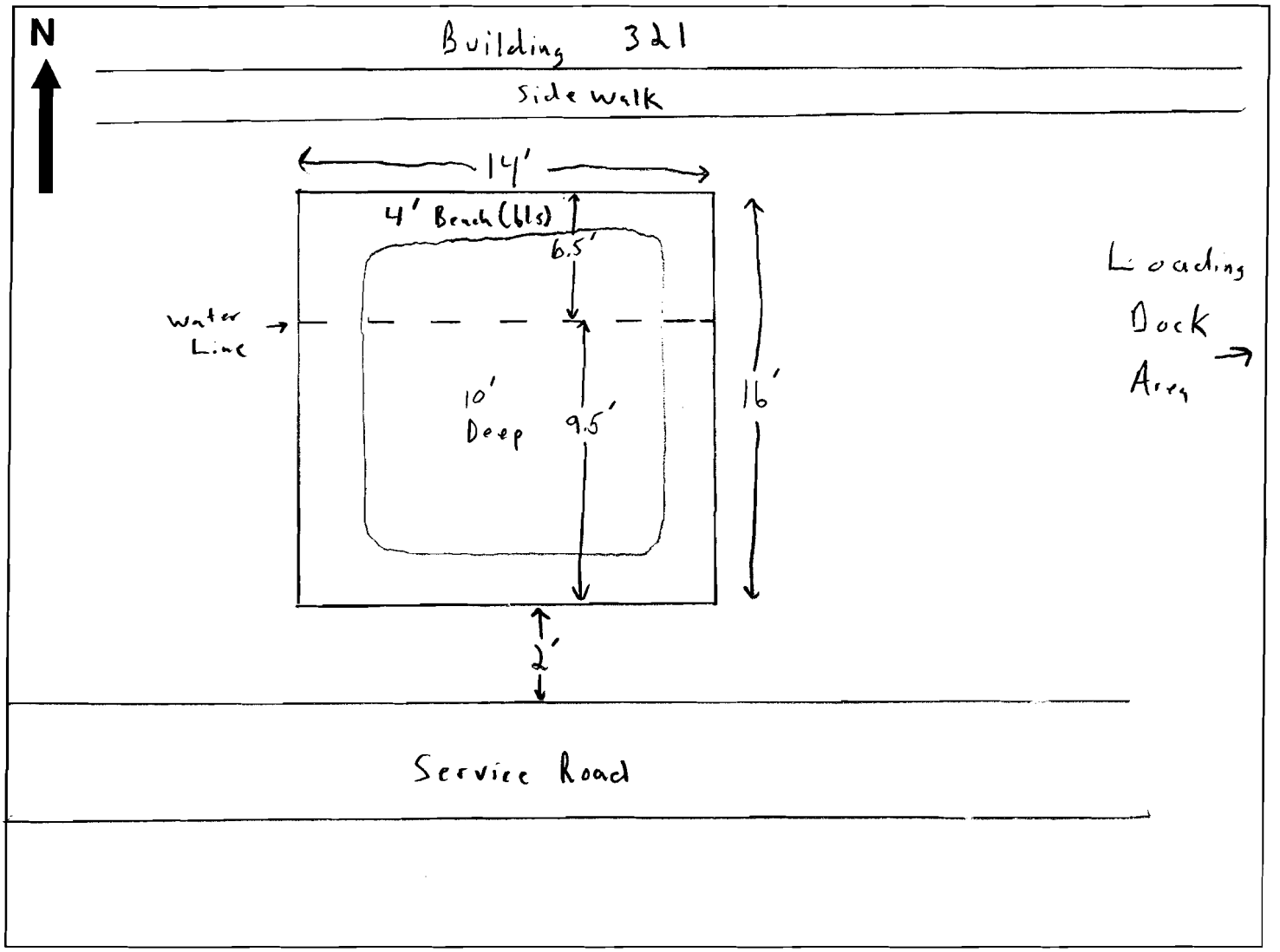
LOCATION SKETCH

Project IBM Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA 12 TP-5

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	Project No.: 1837-00 Project Name: IBM - Preconstruction Soil Sampling Program	Boring No.: SA12TP4 Sheet 1 of 1. By: J. Schafer
Drilling Contractor: Cicone Driller: Andy Drill Rig: CAT Excavator Date Started: 1/11/01	Geologist: J. Schafer Drilling Method: Excavation Drive Hammer Weight: Date Completed: 1/12/01	Boring Completion Depth: ~10' Ground Surface Elevation: Boring Diameter:

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown Silt, w/ some coarse gravel, soft, plastic, moist, no odor, no staining.	
		B				0.0	0.0		
-1.5'-									
-2-		A				0.0	0.0	Brown silt, w/ some sand (coarse) + fine to coarse gravel, w/ some cobbles, soft, slightly plastic, no odor, no staining, moist,	
		B				0.0	0.0		
-3-									
-4-		A				0.0	0.0	Brown silt, w/ some sand (fine to coarse), gravel (fine to coarse) + cobble, moist, no odor, no staining	
		B				0.0	0.0		
-5-									
-6-		A				0.0	0.0	Brown sand, fine to coarse, w/ some fine gravel, loose, moist, no odor, no staining.	
		B				0.0	0.0		
-7-									
-8-		A				0.0	0.0	SAA (6-8)	
		B				0.0	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Samples sent for analysis:
SA12TP4 (2-4) A+B
SA12TP4 (8-10) A+B

Date: 1/12/01

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

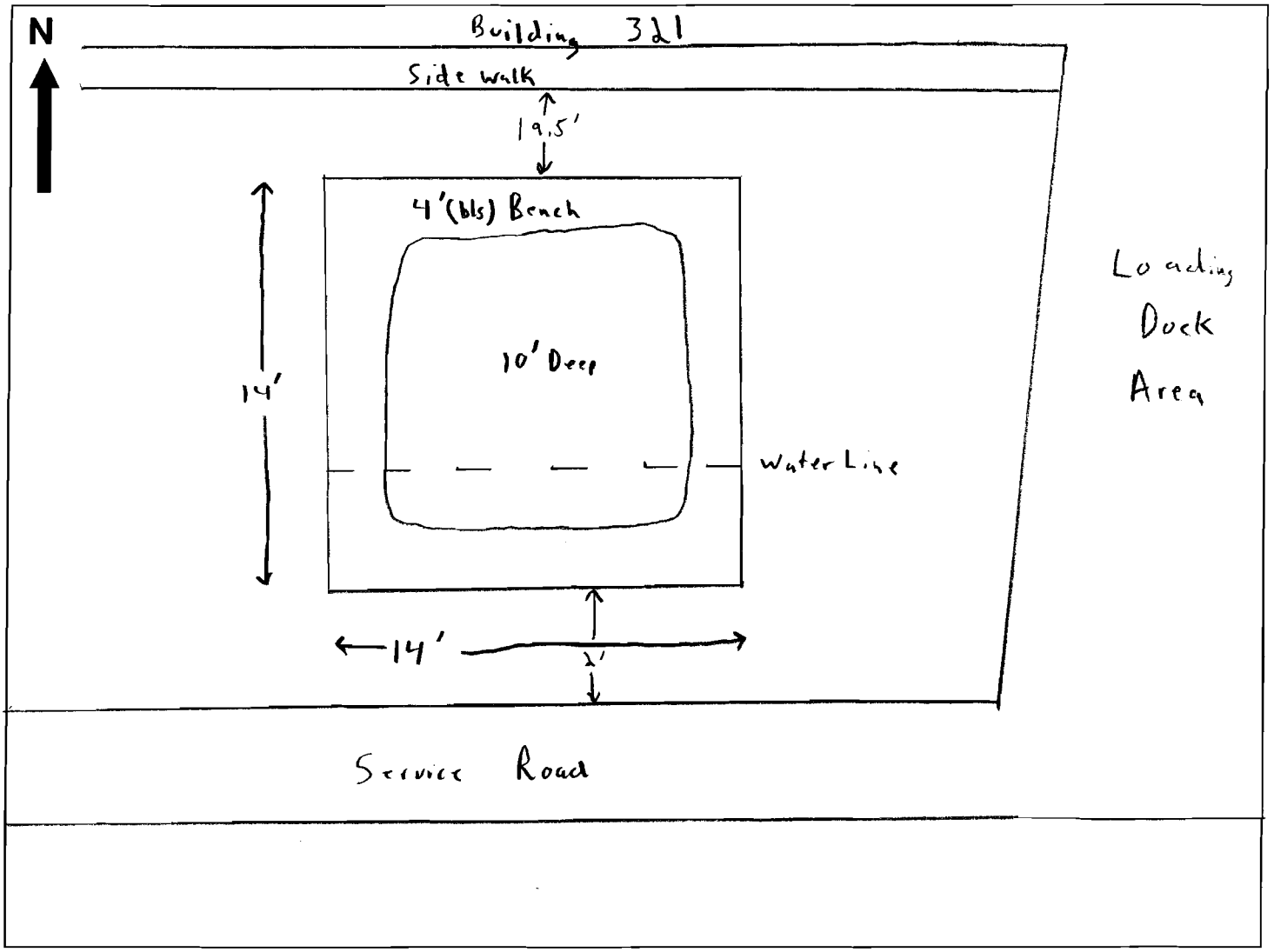
LOCATION SKETCH

Project IBM Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA 12 TP-4

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	Project No.: 1837-00 Project Name: IBM Pre Construction Soil Sampling Program	Boring No.: SA 19 E1 Sheet 1 of 1 By: J. Schafer
Drilling Contractor: Ciccone Driller: Andy Drill Rig: Date Started: 1/15/01	Geologist: J. Schafer Drilling Method: Excavator Drive Hammer Weight: Date Completed:	Boring Completion Depth: " 10' Ground Surface Elevation: Boring Diameter:

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown clayey silt, w/ some coarse gravel + cobble, soft,	
		B				0.0	0.0	Semi plastic, moist, no odor, no	
-1.5'-								staining,	
-2-		A				0.0	0.0	SAA (0-2)	
		B				0.0	0.0		
-3-									
-4-		A				0.0	0.0	Brown silty clay w/ trace of coarse gravel, soft, slightly plastic,	
		B				0.0	0.0	moist, no odor, no staining,	
-5-									
-6-		A				0.5	0.0	Brown silty gravelly (fine to coarse)	
		B				0.5	0.0	Sand (fine to coarse), loose, moist,	
-7-								no odor, no staining,	
-8-		A				0.0	0.0	SAA (6-8)	
		B				0.0	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Samples sent for analysis:
SA19 E1 (2-4) A+B
SA19 E1 (8-10) A+B

Date: 1/15/01

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

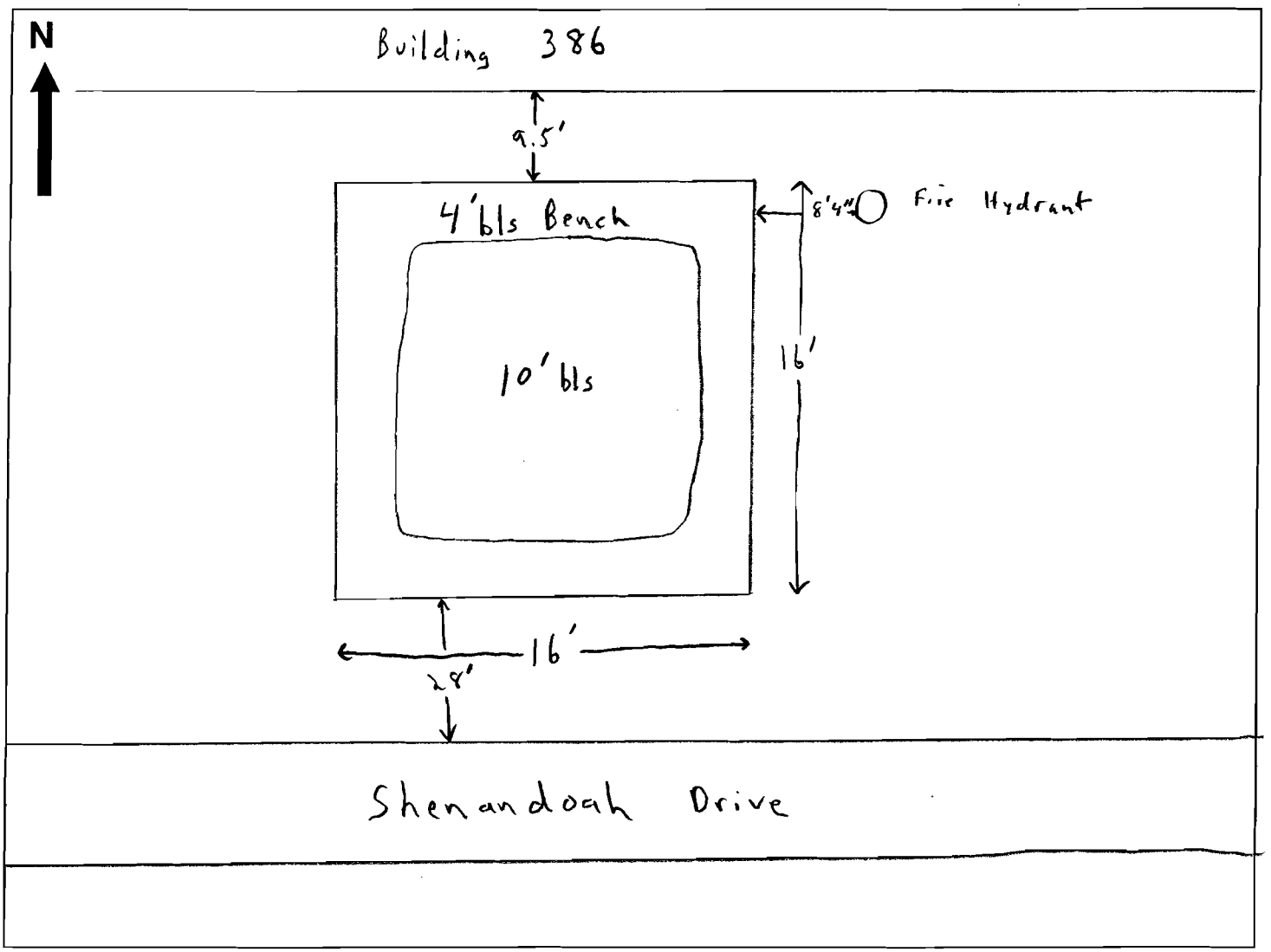
LOCATION SKETCH

Project IBM Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA19E1

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	Project No.: 1837 Project Name: IBM - Pre construction Soil Sampling Program	Boring No.: SA19 E2 Sheet 1 of 1 By: J. Schafer
Drilling Contractor: Ciccone Driller: Andy Drill Rig: CAT Excavator Date Started: 1/17/01	Geologist: J. Schafer Drilling Method: Excavation Drive Hammer Weight: Date Completed:	Boring Completion Depth: " Ground Surface Elevation: Boring Diameter:

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.7	0.0	Brown gravelly (fine to coarse) silt, soft, slightly plastic, moist, no odor, no staining,	
		B				0.8	0.0		
-1.5'-									
-2-		A				4.6	0.0	SAA (0-1)	
		B				2.3	0.0		
-3-									
-4-		A				0.0	0.0	Brown sandy silt, w/ some fine to coarse gravel, trace cobble, slightly plastic, semi soft, no odor, no staining.	
		B				0.0	0.0		
-5-									
-6-		A				0.7	0.0	Brown gravelly sand (fine to coarse) w/ some cobble, loose, moist, no odor, no staining.	
		B				1.3	0.0		
-7-									
-8-		A				1.2	0.0	SAA (6-8)	
		B				0.8	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Samples sent for analysis:
SA19 E2 (1-4) A+B

Date: 1/18/01

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

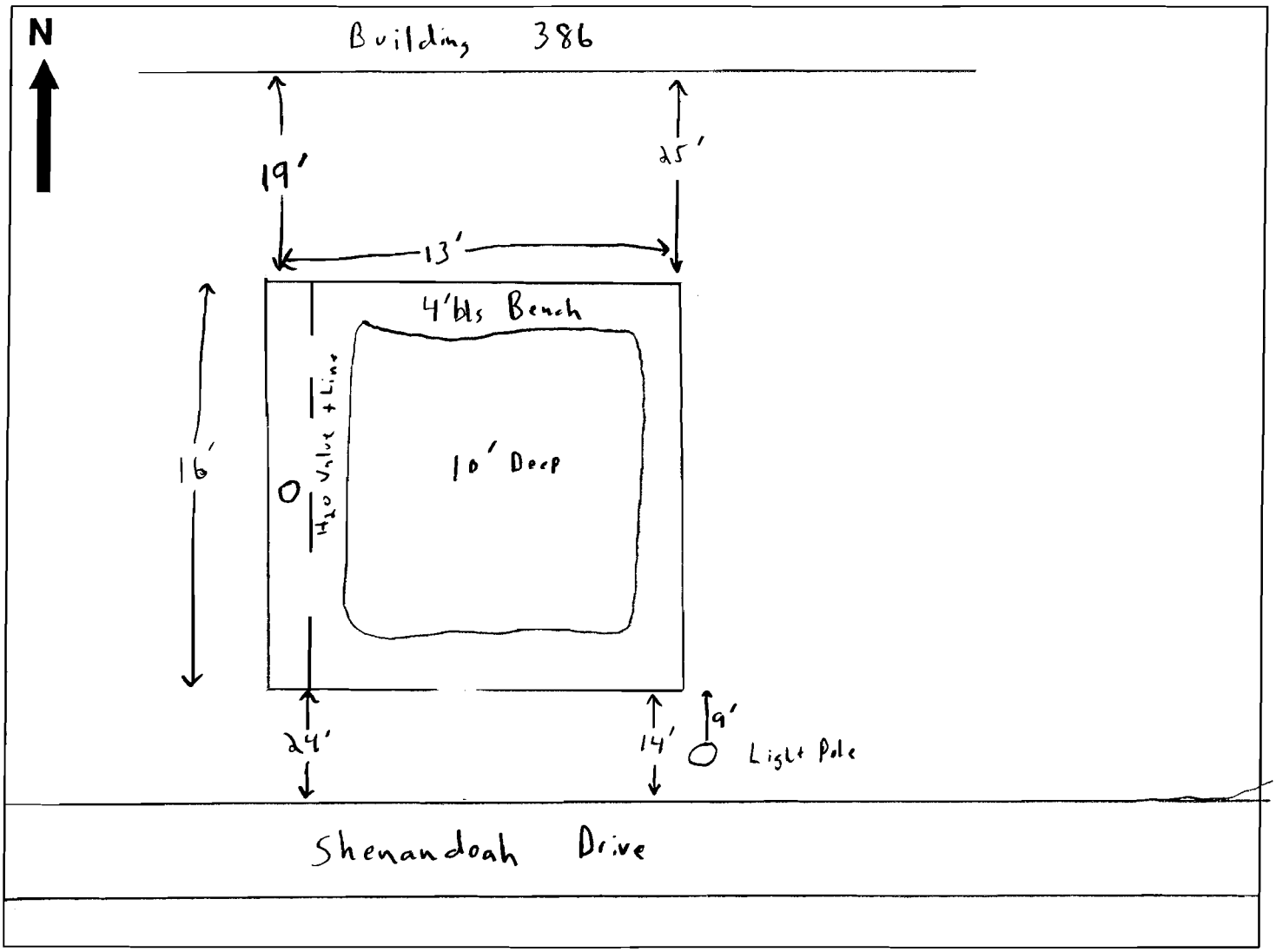
LOCATION SKETCH

Project IBM - Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA 19 E2

Sample(s) and/or Well Number(s)

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



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

Project No.: 1837-00	Boring No.: SA19 F
Project Name: IBM - Pre construction Soil Sampling Program	Sheet 1 of 1.
	By: J. Schafer
Drilling Contractor: Ciccone	Geologist: J. Schafer	Boring Completion Depth: " 10'
Driller: Andy	Drilling Method: Excavation	Ground Surface Elevation:
Drill Rig: CAT Excavator	Drive Hammer Weight: —	Boring Diameter:
Date Started: 1/19/01	Date Completed:	

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown silt w/ some sand, (coarse), gravel (fine to coarse)	
		B				0.0	0.0		
-1.5'-									
-2-		A				0.0	0.0	Brown silt, soft, semi plastic, moist, w/ some fine to coarse gravel, trace cobble. @ ≈1' a fine, angular crushed black material.	
-3-		B				0.0	0.0		
-4-									
-5-									
-6-									
-7-									
-8-									
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: At ≈4' a solid concrete foundation.

Date: 1/19/01

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

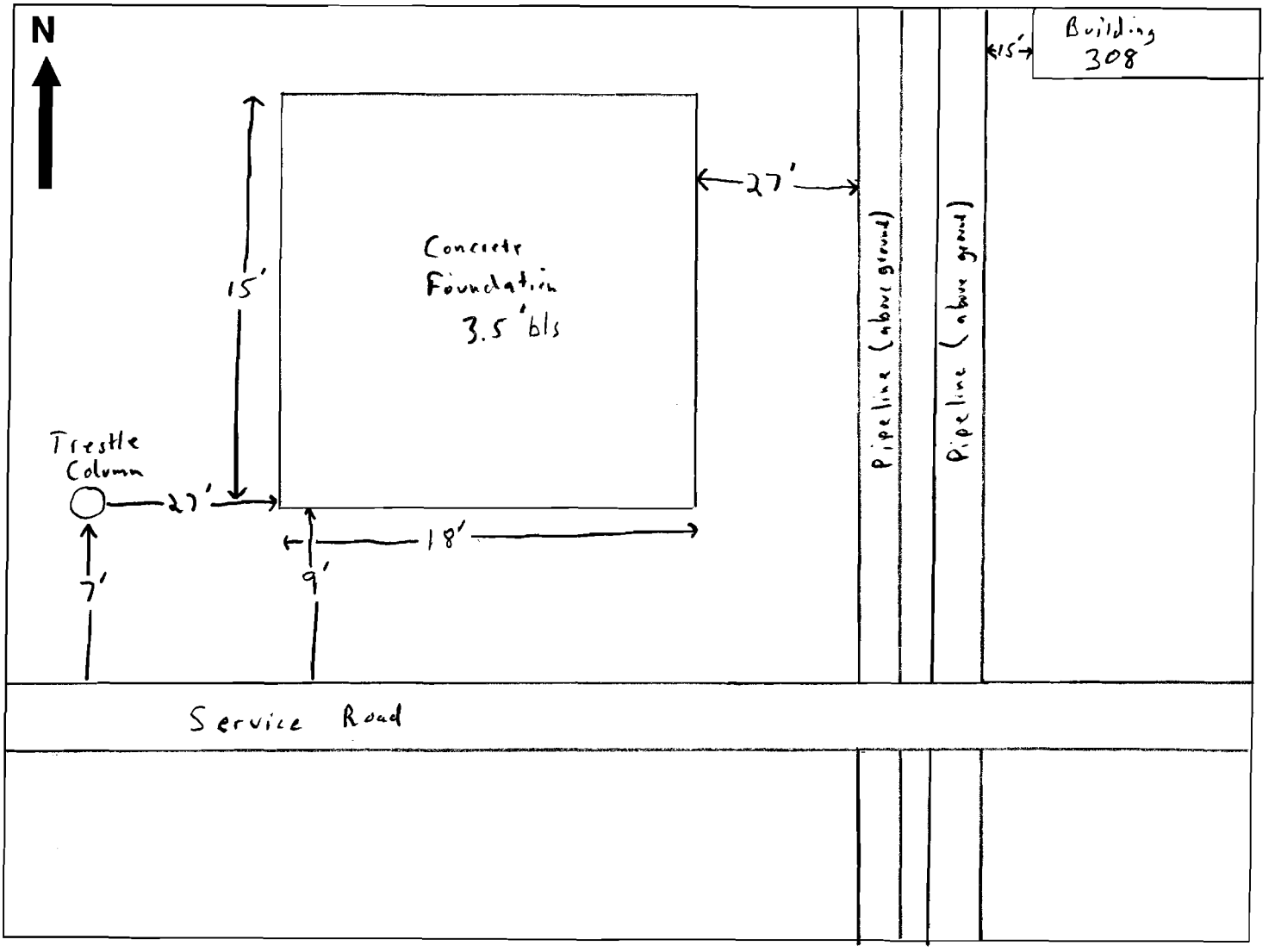
LOCATION SKETCH

Project IBM - Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA 19 F

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



D&B_LS/kb

Rev. 03/09/98

Date: 1/24/01

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

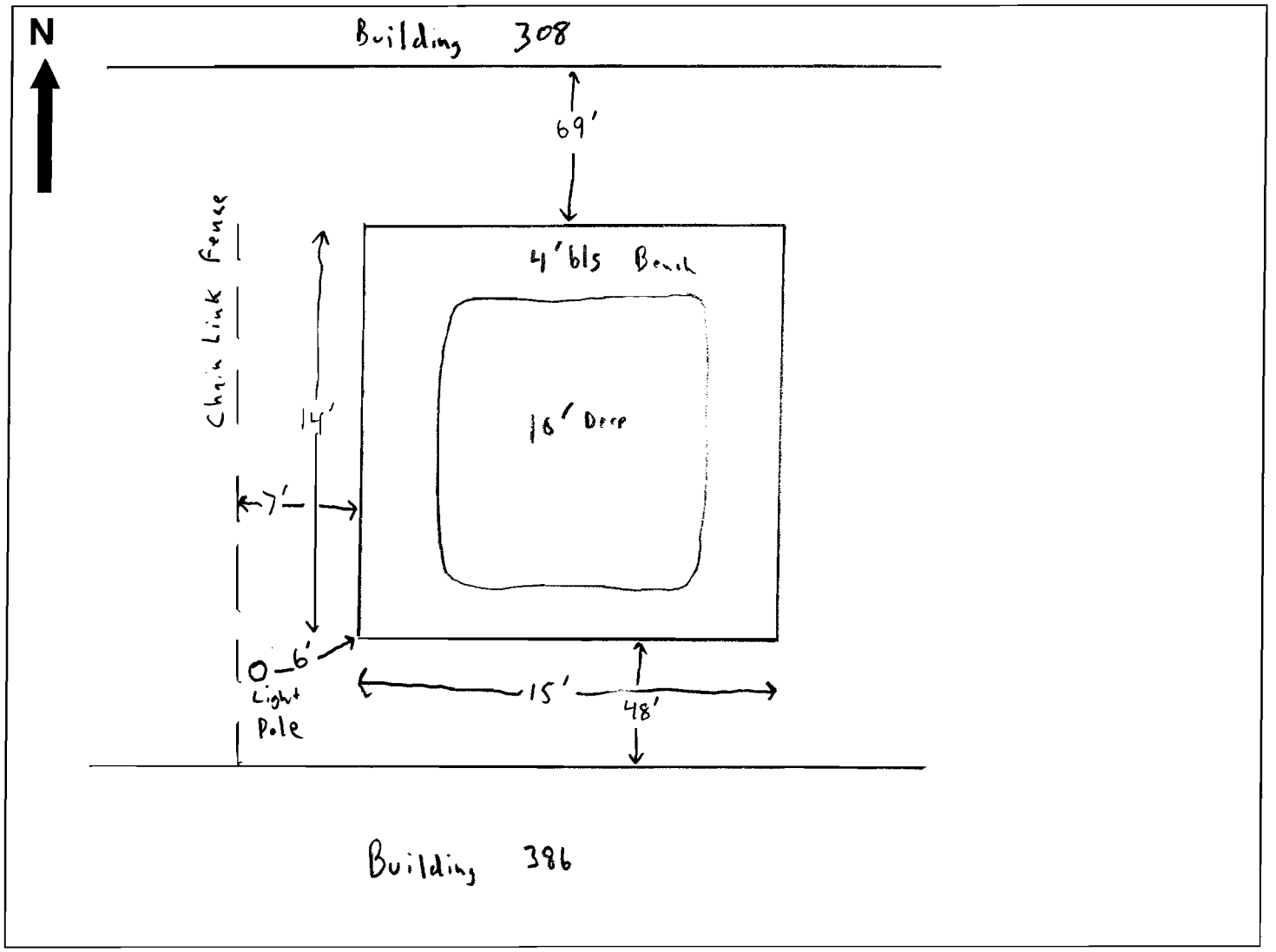
LOCATION SKETCH

Project IBM - Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA 19 A

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



Date: 1/26/01

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

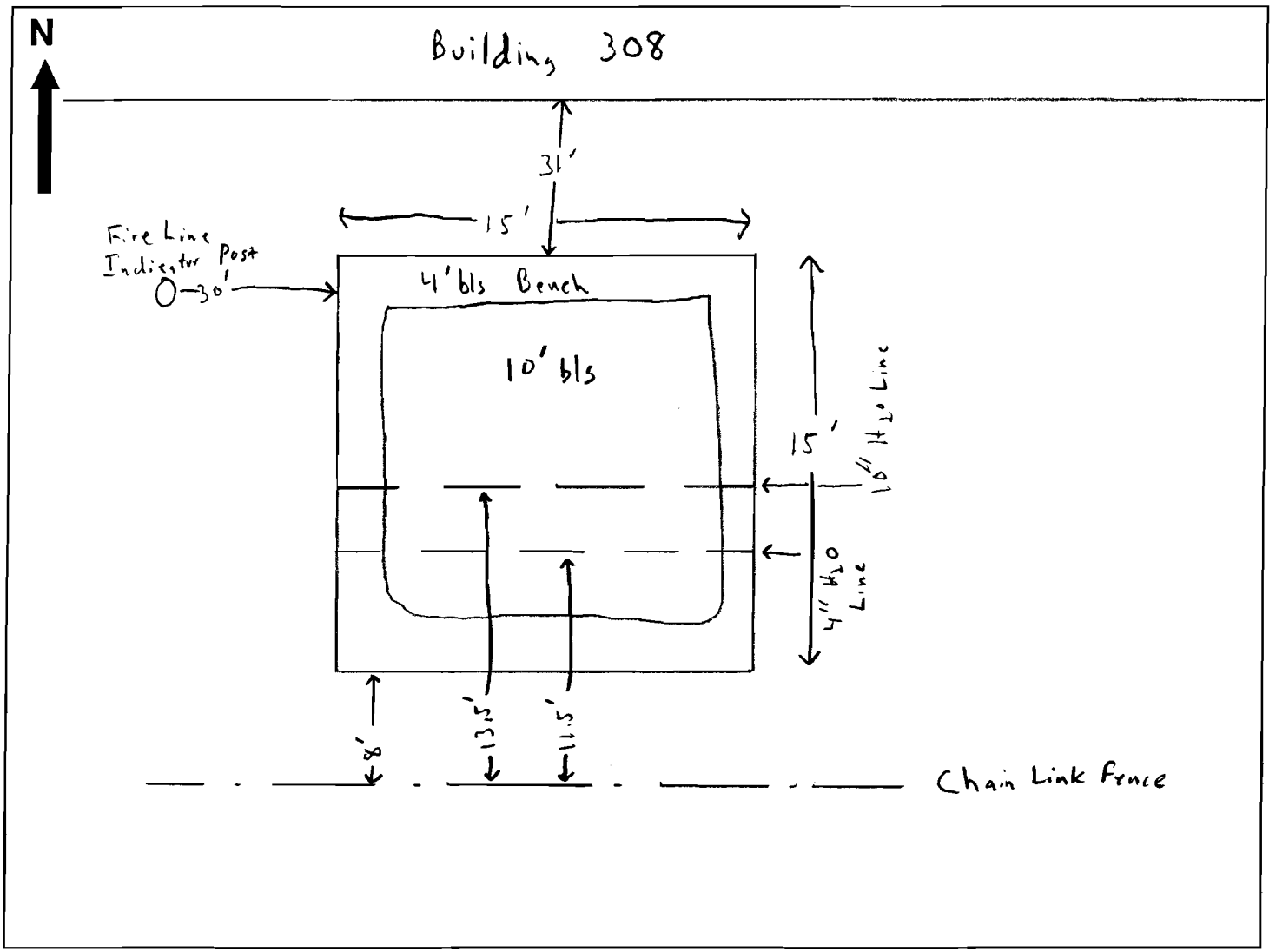
LOCATION SKETCH

Project IBM Preconstruction Soil Sampling Program Sample Crew J. Schafer

Sample(s) Locations(s) SA19B

Sample(s) and/or Well Number(s) _____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.



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

Project No.: 1837-00
Project Name: IBM - Preconstruction Soil Sampling Program

Boring No.: SA 19 A
Sheet 1 of 1
By: J. Schafer

Drilling Contractor: Cicone
Driller: Andy
Drill Rig: CAT Excavator
Date Started: 1/23/01

Geologist: J. Schafer
Drilling Method: Excavation
Drive Hammer Weight:
Date Completed: 1/24/01

Boring Completion Depth: ~10'
Ground Surface Elevation:
Boring Diameter:

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A				0.0	0.0	Brown silt, soft, plastic, trace of gravel, moist, no odor, no staining.	
		B				0.0	0.0	0-6" Asphalt w/ large crushed	
-1.5'-								rock base.	
-2-		A				0.01	0.0	Brown cobbly silt, soft, semi plastic, moist, no odor, no staining,	
-3-		B				0.0	0.0	w/ some boulders. @ 3' large crushed rock stone base, ≈ 6" thick.	
-4-		A				0.2	0.0	Brown silt, w/ gravel (fine to coarse), cobble + some boulders, trace	
		B				0.1	0.0	Sand (coarse), soft, moist, semi	
-5-								plastic.	
-6-		A				0.3	0.0	SAA (4-6)	
		B				0.0	0.0		
-7-									
-8-		A				0.7	0.0	SAA (4-6)	
		B				0.3	0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Samples analyzed:
SA 19A (2-4) A+B
SA 19A (8-10) A+B

D&B_BLOG

William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	Project No.: 1837-00 Project Name: IBM Preconstruction Soil Sampling Program	Boring No.: SA19B Sheet 1 of 1 By: J. Schafer
Drilling Contractor: Ciccone Driller: Andy Deteso Drill Rig: CAT Excavator Date Started: 1/25/01	Geologist: J. Schafer Drilling Method: Excavation Drive Hammer Weight: — Date Completed: 1/26/01	Boring Completion Depth: ~ 10' Ground Surface Elevation: Boring Diameter: 15"x15'

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A			0.1		0.0	Brown silt, w/ some fine to coarse sand, gravel (fine to coarse), + cobble, soft semi plastic, moist, no odor, no staining.	
		B			0.3		0.0		
-1.5'-									
-2-		A			0.0		0.0	Brown silt, soft, moist, non plastic, w/ trace fine sand and some coarse sand, fine to coarse gravel, + cobble.	
		B			0.0		0.0		
-3-									
-4-		A			0.0		0.0	Brown sand (fine to coarse), w/ fine to coarse gravel, + some cobble, trace boulder, moist to wet (@ ~5' bls)	
		B			0.0		0.0		
-5-									
-6-		A			0.1		0.0	Brown gravelly (fine to coarse) sand (fine coarse w/ some medium), w/ some cobble + boulders, wet, loose, no odor, no staining	
		B			0.3		0.0		
-7-									
-8-		A			0.1		0.0	8 - 9.5 SAA (6-8)	
		B			0.1		0.0	9.5'-10' Gray gravelly clay, soft plastic, wet, no odor, no staining.	
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Samples sent for analysis:
SA19B (2-4) A+B
SA19B (8-10) A+B

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

Project No.: 1837-00
Project Name: IBM - Preconstruction Soil Sampling Program

Boring No.: SA19 C
Sheet 1 of 1
By: J. Schafer

Drilling Contractor: Cicone
Driller: Andy DeIeso
Drill Rig: CAT Excavator
Date Started: 1/27/01

Geologist: J. Schafer
Drilling Method: Excavation
Drive Hammer Weight: —
Date Completed:

Boring Completion Depth: ~ 10'
Ground Surface Elevation:
Boring Diameter:

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A			0.0		0.0	Brown silt, w/ trace coarse Sand, some fine-coarse gravel + cobble, soft, semi plastic, moist, no odor, no staining.	
		B			0.0		0.0		
-1.5'-									
-2-		A			0.5		0.0	Brown silt, w/ trace coarse Sand, some fine + coarse gravel + cobble, soft, semi plastic, wet, no odor, no staining.	
		B			0.4		0.0		
-3-									
-4-		A			0.4		0.0	Brown silty Sand, fine to coarse, w/ fine to coarse gravel, loose, wet, no odor, no staining.	
		B			0.3		0.0		
-5-									
-6-		A			0.9		0.0	Brown to gray silty clay, w/ fine to coarse gravel, soft, wet, semi plastic, no odor, no staining	
		B			1.0		0.0		
-7-									
-8-		A			4.5		0.0	SAA (6-8)	
		B			0.9		0.0		
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Sampled
SA19C (2-4) A+B
SA19C (8-10) A+B

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

Project No.: 1837-00
Project Name: IBM - Preconstruction Soil Sampling Program

Boring No.: SA19D
Sheet 1 of 1.
By: J. Schafer

Drilling Contractor: Ciccone
Driller: Andy DeIeso
Drill Rig: CAT Excavator
Date Started: 2/1/01

Geologist: J. Schafer
Drilling Method: Excavation
Drive Hammer Weight: —
Date Completed: 2/1/01

Boring Completion Depth: " 10'
Ground Surface Elevation:
Boring Diameter: 12'x15'

Depth (ft.)	Soil Sample No.	Type	Blows Per 6"	Rec	Headspace Analysis FID ppm	PID ppm	CH4 ppm	Sample Description	USCS
-0-		A			0.0		0.0	Brown silt, w/some fine to coarse sand, + some fine to coarse gravel, + some cobble, semi soft, semi plastic,	
		B			0.0		0.0		
-1.5'-								moist, no odor, no staining.	
-2-		A			0.0		0.0	Brown sand, fine to coarse, w/ some fine to coarse gravel, some cobble, loose	
		B			0.0		0.0	moist, no odor, no stainings.	
-3-									
-4-		A			0.0		0.0	Brown fine to coarse gravelly clay, soft, plastic, wet, no odor,	
		B			0.0		0.0	no staining.	
-5-									
-6-		A			0.0		0.0	Brown/Gray silty clay, w/some coarse gravel/cobble, soft, semi plastic	
		B			0.0		0.0	moist/wet, w/ leaf matter + roots,	
-7-								no odor, no stainings.	
-8-		A			0.0		0.0	Light brown coarse gravelly clay,	
		B			0.0		0.0	soft, plastic, wet, no odor, no staining	
-9-									
-10-									

Sample Types:
SS =
ST =
D&M =
UC = Undisturbed Core (Dennison Type)

NOTES: Sampled
SA19D (2-4) A+B
SA19D (8-10) A+B

ATTACHMENT 3

Laboratory Chain of Custody Forms

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page ___ of ___

REPORT TO			INVOICE TO			
COMPANY	William F. Cosulich	PHONE (516) 364-9890	COMPANY	Same	PHONE	LAB PROJECT #: 72111
NAME	Robin Petrelly	FAX	NAME	Brian Veith	FAX	
ADDRESS	330 Crossways Park Dr.		ADDRESS			TURNAROUND TIME: Standard
CITY/ST/ZIP	Woodbury NY 11797		CITY/ST/ZIP			

CLIENT PROJECT NAME: IBM - East Fish Kill

CLIENT PROJECT #: 1837-00

CLIENT P.O.#: 1837-00

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC (8260)	Priority Pollutant Metals (6010)	COMMENTS
PSA-14(0-2)A	1045 / 12/19/00				X		01	2	X	X	
PSA-14(0-2)B	1045 /				X		02	2	X	X	
PSA-14(8-10)A	1050 /				X		03	2	X	X	
PSA-14(8-10)B	1050 /				X		04	2	X	X	
	/										
	/										
	/										
	/										
	/										
	/										
	/										
	/										

SF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
1	John W. Adler	12/19/00 / 1630	Jathan Arnold	12/20/00 / 0900		6°C
2		/		/		
3		/		/		

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

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175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

REPORT TO		INVOICE TO		
COMPANY Dvirka & Bartilucci	PHONE (516) [illegible]	COMPANY SAME	PHONE	LAB PROJECT #:
NAME John Fortella	FAX	NAME Brian Veith	FAX	
ADDRESS 200 Crossing Park Dr.		ADDRESS		TURNAROUND TIME:
CITY/ST/ZIP Woodbury NY 11797		CITY/ST/ZIP		Standard

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
IBM - Pre construction Soil Sampling Program	1837-00	1837-00

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC (8260)	Priority Poll. Metals (6010)	COMMENTS
SA12TP1(1-4)A	11/1/01 / 0945				X			2	X	X	
SA12TP1(1-4)B	/ 0945				X			2	X	X	
SA12TP1(8-10)A	/ 1110				X			2	X	X	
SA12TP1(8-10)B	/ 1110				X			2	X	X	
SA12TP2(1-4)A	11/1/01 / 1150				X			2	X	X	
SA12TP2(1-4)B	/ 1150				X			2	X	X	
	/										
	/										
	/										
	/										
	/										
	/										

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
1	[signature]	11/5/01 / 1700		/		
2		/		/		
3		/		/		

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CHAIN-OF-CUSTODY RECORD

Page ____ of ____

REPORT TO			INVOICE TO		
COMPANY Dvirka & Bartilucci	PHONE		COMPANY SAME	PHONE	LAB PROJECT #:
NAME Kelly Petrella	FAX		NAME Brian Veith	FAX	
ADDRESS 330 Crossways Park Dr			ADDRESS		TURNAROUND TIME: Standard
CITY/ST/ZIP Woodbury NY 11797			CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
IBM - Remedial Soil Sampling Program	1837-00	1837-00

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC (8260)	Priority Poll. Metals (6010)	COMMENTS
SA1TP2(2-4)A	1/8/01 / 1015				X			2	X	X	
SA1TP2(8-10)B	↓ / 1015				X			2	X	X	
SA1TP3(3-4)A	1/9/01 / 0935				X			2	X	X	
SA1TP3(2-4)B	↓ / 0935				X			2	X	X	
SA1TP3(8-10)A	↓ / 1150				X			2	X	X	
SA1TP3(8-10)B	↓ / 1150				X			1	X	X	
	/										
	/										
	/										
	/										
	/										
	/										

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	[signature]	1/9/01 / 1500		/
2		/		/
3		/		/

ADDITIONAL REMARKS:

COOLER TEMP:

WHITE: LABORATORY COPY **YELLOW**: REPORT COPY **PINK**: CLIENT'S COPY

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email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY Dvirka + Bartilucci	PHONE (516) [illegible]	COMPANY SAME	PHONE	LAB PROJECT #:
NAME Robin [illegible]	FAX	NAME Brian Veith	FAX	
ADDRESS 330 Crossways Park Dr		ADDRESS		TURNAROUND TIME: Standard
CITY/ST/ZIP Woodbury, NY 11797		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
IBM - Pre-construction Soil Sampling Program	1537-00	1537-00

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC (8260)	[illegible] Metals (6010)											COMMENTS
SA12TP5(2-4)A	1/11/01 / 1035				X			2	X	X											
SA12TP5(2-4)B	↓ / 1035				X			2	X	X											
SA12TP5(8-10)A	↓ / 1400				X			2	X	X											
SA12TP5(8-10)B	↓ / 1400				X			2	X	X											
SA12TP4(2-4)A	1/11/01 / 1400				X			2	X	X											
SA12TP4(2-4)B	↓ / 1400				X			2	X	X											
SA12TP4(8-10)A	1/12/01 / 1035				X			2	X	X											
SA12TP4(8-10)B	↓ / 1035				X			2	X	X											
	/																				
	/																				
	/																				
	/																				

Handwritten notes across the GRAB/WATER columns: "0.0" "0.0"; vertically: "MS/MSD (8-10)"

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	[signature]	1/12/01 / 1700		/
2		/		/
3		/		/

ADDITIONAL REMARKS:

COOLER TEMP:

WHITE: LABORATORY COPY **YELLOW**: REPORT COPY **PINK**: CLIENT'S COPY

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Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

REPORT TO			INVOICE TO		
COMPANY		PHONE	COMPANY		PHONE
NAME		FAX	NAME		FAX
ADDRESS			ADDRESS		
CITY/ST/ZIP			CITY/ST/ZIP		

LAB PROJECT #:

TURNAROUND TIME:

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS															COMMENTS
	/																						
	/																						
	/																						
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TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
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3		/		/

ADDITIONAL REMARKS:

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REPORT TO			INVOICE TO		
COMPANY Dvirka + Bartilucci	PHONE (516) 364 7890		COMPANY SAME	PHONE	LAB PROJECT #:
NAME Robin Peterelli	FAX		NAME Brian Martin	FAX	
ADDRESS 330 Crossways Park Dr.			ADDRESS		TURNAROUND TIME: Standard
CITY/ST/ZIP Woodbury NY 11797			CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
JFK - Terminal Soil Sampling Program	1837-06	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES	COMMENTS
SAME1(5-6)A	1/18/01 1045				X			2	X	
SAME2(8-9)B	↓ 1045				X			2	X	
	/									
FB01901	1/19/01 0830			X				3	X	
SAME(2-4)A	↓ 1310				X			2	X	
SAME(2-4)B	↓ 1310				X			2	X	
	/									
	/									
	/									
	/									
	/									
	/									

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
1	[signature]	1/19/01 1500		/	Two Week Turnaround Time	
2		/		/		
3		/		/		

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CHAIN-OF-CUSTODY RECORD

Page ____ of ____

REPORT TO				INVOICE TO				
COMPANY	Dvirka + Bartilucci	PHONE	[illegible]	COMPANY	SAME	PHONE		LAB PROJECT #:
NAME	[illegible]	FAX		NAME	[illegible] Veith	FAX		
ADDRESS	[illegible] Crossways Park Dr			ADDRESS				TURNAROUND TIME: 2 Week
CITY/ST/ZIP	Woodbury, NY 11797			CITY/ST/ZIP				

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
[illegible]	1877.00	1877.00

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC (8260)	[illegible] Metals										COMMENTS
SA19A(2-4) A	1/23/01 / 1100				X			2	X	✓										
SA19A(2-4) B	↓ / 1100				X			2	X	✓										
	/																			
FB 01/24/01	1/24/01 / 0830			X				3	X	✓										
SA19A(8-10)A	↓ / 0955				X			2	X	✓										
SA19A(8-10)B	↓ / 0955				X			2	X	✓										
	/																			
	/																			
	/																			
	/																			
	/																			
	/																			

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	John W. [illegible]	1/24/01 / 1500		/
2		/		/
3		/		/

ADDITIONAL REMARKS:

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CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY [illegible]	PHONE [illegible]	COMPANY SAME	PHONE	LAB PROJECT #:
NAME [illegible]	FAX	NAME [illegible]	FAX	
ADDRESS [illegible] Park Dr.		ADDRESS		TURNAROUND TIME: 2 Week
CITY/ST/ZIP Woodbury, NY 11797		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
[illegible]	1839.00	[illegible]

REQUESTED ANALYSES: VOC ([illegible]); [illegible] ([illegible])

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC ([illegible])	[illegible]										COMMENTS
SA19B(2-4) A	1/26/01 / 0810				✓			2	X	✓										
SA19B(2-4) B	1/26/01 / 0810				✓			2	X	X										
SA19B(3-4) A	↓ / 1330				✓			2	X	✓										
SA19B(3-4) B	↓ / 1330				X			2	X	X										
	/																			
	/																			
	/																			
	/																			
	/																			
	/																			
	/																			
	/																			

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	John M. [illegible]	1/26/01 / 1700		/
2		/		/
3		/		/

ADDITIONAL REMARKS:

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CHAIN-OF-CUSTODY RECORD

Page ____ of ____

REPORT TO			INVOICE TO		
COMPANY W. F. Cook	PHONE (516) [illegible] 7540		COMPANY SAME	PHONE	LAB PROJECT #:
NAME Ryan Petrella	FAX		NAME Brian Voith	FAX	
ADDRESS 330 Crossway Park Dr.			ADDRESS		TURNAROUND TIME: 2 Week
CITY/ST/ZIP Woodbury NY 11797			CITY/ST/ZIP		

CLIENT PROJECT NAME: IRM - Preconstruction Soil Sampling Program

CLIENT PROJECT #: 1877-00

CLIENT P.O.#: 1877-00

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOC (8260)	Priority Pollutant Metals (6010)	COMMENTS
SA19C(2-4)A	11/31/01 / 0735				X			2	X	X	
SA19C(2-4)B	11/31/01 / 0755				X			2	X	X	
SA19C(8-10)A	11/31/01 / 1405				X			2	X	X	
SA19C(8-10)B	11/31/01 / 1405				X			2	X	X	
SA19D(2-4)A	12/1/01 / 1130				X			2	X	X	
SA19D(2-4)B	↓ / 1130				X			2	X	X	
FB012901	↓ / 1215			X				3	X	X	
SA19D(8-10)A	↓ / [illegible]				X			2	X	X	
SA19D(8-10)B	↓ / [illegible]				X			2	X	X	
	/										
	/										
	/										

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
1	[signature]	12/1/01/1700		/		
2		/		/		
3		/		/		

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ATTACHMENT 4

Tabulated Analytical Results

TABLE 1
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA12TP1				SA12TP2						
SAMPLE IDENTIFICATION	SA12TP124A	SA12TP124B	SA12TP1810A	SA12TP1810B	SA12TP224A	SA12TP224B	SA12TP2810A	SA12TP2810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/04/01	1/04/01	1/04/01	1/04/01	1/05/01	1/05/01	1/08/01	1/08/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	92	87	79	89	91	89	87	87			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	5	----	16,000,000
Chloromethane	U	U	U	U	U	U	U	U	5	----	49,000
Vinyl Chloride	U	U	U	U	U	U	U	U	5	120	340
Bromomethane	U	U	U	U	U	U	U	U	5	----	110,000
Chloroethane	U	U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	U	U	U	U	U	5	----	23,000,000
1,1-Dichloroethene	U	U	U	U	U	U	U	U	5	400	1,100
Acetone	U*	U*	U*	U*	U*	U*	8	8	5	110	7,800,000
Iodomethane	U	U	U	U	U	U	U	U	5	----	----
Carbon Disulfide	U	U	U	U	U	U	U	U	5	2,700	7,800,000
Methylene Chloride	U	U	U	U	U	U	U	U	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	300	1,600,000
Methyl tert-Butyl Ether	U	U	U	U	U	U	U	U	5	----	----
1,1-Dichloroethane	U	U	U	U	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U	U	5	----	78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	----	780,000
2,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	----
2-Butanone	U	U	U	U	U	U	U	U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U	U	U	U	5	----	----
Chloroform	U	U	U	U	U	U	6	5 J	5	300	100,000
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	5	760	7,000,000
1,1-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
Carbon Tetrachloride	U	U	U	U	U	U	U	U	5	600	4,900
1,2-Dichloroethane	U	U	U	U	U	U	U	U	5	100	7,000
Benzene	U	U	U	U	U	U	U	U	5	60	22,000
Trichloroethene	U	U	U	U	U	U	U	U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	9,400
Dibromomethane	U	U	U	U	U	U	U	U	5	----	780,000
Bromodichloromethane	U	U	U	U	U	U	U	U	5	----	10,000
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	5	1,000	6,300,000
Toluene	8	8	6 J	44	9	32	U	U	5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	5	----	11,000
1,3-Dichloropropane	U	U	U	U	U	U	U	U	5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA12TP1				SA12TP2						
SAMPLE IDENTIFICATION	SA12TP124A	SA12TP124B	SA12TP1810A	SA12TP1810B	SA12TP224A	SA12TP224B	SA12TP2810A	SA12TP2810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/04/01	1/04/01	1/04/01	1/04/01	1/05/01	1/05/01	1/08/01	1/08/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	92	87	79	89	91	89	87	87			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U	U	U	U	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U	U	U	5	----	----
Dibromochloromethane	U	U	U	U	U	U	U	U	5	----	7,600
1,2-Dibromoethane	U	U	U	U	U	U	U	U	5	----	7.5
Chlorobenzene	U	U	U	U	U	U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	----	25,000
Ethylbenzene	U	U	U	U	U	U	U	U	5	5,500	7,800,000
Styrene	U	U	U	U	U	U	U	U	5	----	21,000
Xylene (total)	U	U	U	U	U	U	U	U	5	1,200	160,000,000
Bromoform	U	U	U	U	U	U	U	U	5	----	81,000
Isopropylbenzene	U	U	U	U	U	U	U	U	5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	600	3,200
Bromobenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	5	340	470,000
n-Propylbenzene	U	U	U	U	U	U	U	U	5	----	----
2-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
4-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	----
tert-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
sec-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	5	1,550	----
4-Isopropyltoluene	U	U	U	U	U	U	U	U	5	----	----
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	5	----	29
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	5	3,400	780,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	5	----	8,200
Naphthalene	U	U	U	U	U	U	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	5	----	----
TOTAL VOCs	8	8	6	44	9	32	14	13		10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA12TP3				SA12TP4						
SAMPLE IDENTIFICATION	SA12TP324A	SA12TP324B	SA12TP3810A	SA12TP3810B	SA12TP424A	SA12TP424B	SA12TP4810A	SA12TP4810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/09/01	1/09/01	1/09/01	1/09/01	1/11/01	1/11/01	1/12/01	1/12/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	93	86	94	93	90	92	93	91			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	5	----	16,000,000
Chloromethane	U	U	U	U	U	U	U	U	5	----	49,000
Vinyl Chloride	U	U	U	U	U	U	U	U	5	120	340
Bromomethane	U	U	U	U	U	U	U	U	5	----	110,000
Chloroethane	U	U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	U	U	U	U	U	5	----	23,000,000
1,1-Dichloroethene	U	U	U	U	U	U	U	U	5	400	1,100
Acetone	6	32	7	7	U*	U*	U*	U*	5	110	7,800,000
Iodomethane	U	U	U	U	U	U	U	U	5	----	----
Carbon Disulfide	U	U	U	U	3 J	3 J	3 J	3 J	5	2,700	7,800,000
Methylene Chloride	U	U	U	U	U	1 J	U	U	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	300	1,600,000
Methyl tert-Butyl Ether	U	U	U	U	U	U	U	U	5	----	----
1,1-Dichloroethane	U	U	U	U	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U	U	5	----	78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	----	780,000
2,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	----
2-Butanone	U	5 J	U	U	U	U	U	U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U	U	U	U	5	----	----
Chloroform	5	6	5 J	6	U	U	U	U	5	300	100,000
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	5	760	7,000,000
1,1-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
Carbon Tetrachloride	U	U	U	U	U	U	U	U	5	600	4,900
1,2-Dichloroethane	U	U	U	U	U	U	U	U	5	100	7,000
Benzene	U	U	U	U	U	U	U	U	5	60	22,000
Trichloroethene	U	U	U	U	U	U	U	U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	9,400
Dibromomethane	U	U	U	U	U	U	U	U	5	----	780,000
Bromodichloromethane	U	U	U	U	U	U	U	U	5	----	10,000
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	5	1,000	6,300,000
Toluene	2 J	2 J	1 J	U	2 J	2 J	1 J	1 J	5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
1,1,2-Trichloroethane	U	U	U	U	1 J	U	1 J	1 J	5	----	11,000
1,3-Dichloropropane	U	U	U	U	U	U	U	U	5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA12TP3				SA12TP4						
SAMPLE IDENTIFICATION	TP324A	TP324B	TP3810A	TP3810B	SA12TP424A	SA12TP424B	SA12TP4810A	SA12TP4810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/09/01	1/09/01	1/09/01	1/09/01	1/11/01	1/11/01	1/12/01	1/12/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	93	86	94	93	90	92	93	91			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U	U	U	U	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U	U	U	5	----	----
Dibromochloromethane	U	U	U	U	U	U	U	U	5	----	7,600
1,2-Dibromoethane	U	U	U	U	U	U	U	U	5	----	7.5
Chlorobenzene	U	U	U	U	U	U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	----	25,000
Ethylbenzene	U	U	U	U	U	U	U	U	5	5,500	7,800,000
Styrene	U	U	U	U	U	U	U	U	5	----	21,000
Xylene (total)	U	U	U	U	U	U	U	U	5	1,200	160,000,000
Bromoform	U	U	U	U	U	U	U	U	5	----	81,000
Isopropylbenzene	U	U	U	U	U	U	U	U	5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	600	3,200
Bromobenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	5	340	470,000
n-Propylbenzene	U	U	U	U	U	U	U	U	5	----	----
2-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
4-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	----
tert-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
sec-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	5	1,550	----
4-Isopropyltoluene	U	U	U	U	U	U	U	U	5	----	----
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	5	----	29
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	5	3,400	780,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	5	----	8,200
Naphthalene	U	U	U	U	U	U	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	5	----	----
TOTAL VOCs	13	45	13	13	6	6	5	5		10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA12TP5				SA14						
SAMPLE IDENTIFICATION	SA12TP524A	SA12TP524B	SA12TP5810A	SA12TP5810B	SA1402A	SA1402B	SA14810A	SA14810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	0 - 2'	0 - 2'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/10/01	1/10/01	1/10/01	1/10/01	12/18/00	12/18/00	12/18/00	12/18/00			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	90	88	92	92	83	85	76	71			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	5	----	16,000,000
Chloromethane	U	U	U	U	U	U	U	U	5	----	49,000
Vinyl Chloride	U	U	U	U	U	U	U	U	5	120	340
Bromomethane	U	U	U	U	U	U	U	U	5	----	110,000
Chloroethane	U	U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	U	U	U	U	U	5	----	23,000,000
1,1-Dichloroethene	U	U	U	U	U	U	U	U*	5	400	1,100
Acetone	U*	U*	U*	U*	4 J	89	U	12	5	110	7,800,000
Iodomethane	U	U	U	U	U	U	U	U	5	----	----
Carbon Disulfide	7	4 J	2 J	4 J	U	2 J	U	U	5	2,700	7,800,000
Methylene Chloride	2 J	3 J	U	1 J	U	U	U	U	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	300	1,600,000
Methyl tert-Butyl Ether	U	U	U	U	U	U	U	U	5	----	----
1,1-Dichloroethane	U	U	U	U	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U	U	5	----	78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	----	780,000
2,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	----
2-Butanone	U	U	U	U	U	7	U	U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U	U	U	U	5	----	----
Chloroform	U	U	U	U	U	U	U	U	5	300	100,000
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	5	760	7,000,000
1,1-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
Carbon Tetrachloride	U	U	U	U	U	U	U	U	5	600	4,900
1,2-Dichloroethane	U	U	U	U	U	U	U	U	5	100	7,000
Benzene	U	U	U	U	U	U	U	U	5	60	22,000
Trichloroethene	U	1 J	U	U	U	U	U	U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	9,400
Dibromomethane	U	U	U	U	U	U	U	U	5	----	780,000
Bromodichloromethane	U	U	U	U	U	U	U	U	5	----	10,000
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	5	1,000	6,300,000
Toluene	7	22	U	U	U	1 J	U	U	5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
1,1,2-Trichloroethane	2 J	2 J	U	1 J	U	U	U	U	5	----	11,000
1,3-Dichloropropane	U	U	U	U	U	U	U	U	5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA12TP5				SA14						
SAMPLE IDENTIFICATION	SA12TP524A	SA12TP524B	SA12TP5810A	SA12TP5810B	SA1402A	SA1402B	SA14810A	SA14810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	0 - 2'	0 - 2'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/10/01	1/10/01	1/10/01	1/10/01	12/18/00	12/18/00	12/18/00	12/18/00			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	90	88	92	92	83	85	76	71			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U	U	U	U	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U	U	U	5	----	----
Dibromochloromethane	U	U	U	U	U	U	U	U	5	----	7,600
1,2-Dibromoethane	U	U	U	U	U	U	U	U	5	----	7.5
Chlorobenzene	U	U	U	U	U	U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	----	25,000
Ethylbenzene	U	U	U	U	U	U	U	U	5	5,500	7,800,000
Styrene	U	U	U	U	U	U	U	U	5	----	21,000
Xylene (total)	U	U	U	U	U	U	U	U	5	1,200	160,000,000
Bromoform	U	U	U	U	U	U	U	U	5	----	81,000
Isopropylbenzene	U	U	U	U	U	U	U	U	5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	600	3,200
Bromobenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	5	340	470,000
n-Propylbenzene	U	U	U	U	U	U	U	U	5	----	----
2-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
4-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	----
tert-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
sec-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	5	1,550	----
4-Isopropyltoluene	U	U	U	U	U	U	U	U	5	----	----
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	5	----	29
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	5	3,400	780,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	5	----	8,200
Naphthalene	U	U	U	U	U	U	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	5	----	----
TOTAL VOCs	18	32	2	6	4	99	0	12		10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19A				SA19B						
SAMPLE IDENTIFICATION	SA19A24A	SA19A24B	SA19A810A	SA19A810B	SA19B24A	SA19B24B	SA19B810A	SA19B810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/23/01	1/23/01	1/24/01	1/24/01	1/26/01	1/26/01	1/26/01	1/26/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	90	90	90	91	93	92	88	90			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	5	----	16,000,000
Chloromethane	U	U	U	U	U	U	U	U	5	----	49,000
Vinyl Chloride	U	U	U	U	U	U	U	U	5	120	340
Bromomethane	U	U	U	U	U	U	U	U	5	----	110,000
Chloroethane	U	U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	U	U	U	U	U	5	----	23,000,000
1,1-Dichloroethene	U	U	U	U	U	U	U	U	5	400	1,100
Acetone	U	U	U*	U	U	U	U*	U*	5	110	7,800,000
Iodomethane	U	U	U	U	U	U	U	U	5	----	----
Carbon Disulfide	U	U	U	U	U	U	U	U	5	2,700	7,800,000
Methylene Chloride	U	U	U	U	U	U	U	U	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	300	1,600,000
Methyl tert-Butyl Ether	U	U	U	U	U	U	U	U	5	----	----
1,1-Dichloroethane	U	U	U	U	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U	U	5	----	78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	----	780,000
2,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	----
2-Butanone	U	U	U	U	U	U	U	U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U	U	U	U	5	----	----
Chloroform	U	U	U	U	U	U	U	U	5	300	100,000
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	5	760	7,000,000
1,1-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
Carbon Tetrachloride	U	U	U	U	U	U	U	U	5	600	4,900
1,2-Dichloroethane	U	U	U	U	U	U	U	U	5	100	7,000
Benzene	U	U	U	U	U	U	U	U	5	60	22,000
Trichloroethene	U	U	U	U	U	U	U	U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	9,400
Dibromomethane	U	U	U	U	U	U	U	U	5	----	780,000
Bromodichloromethane	U	U	U	U	U	U	U	U	5	----	10,000
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	5	1,000	6,300,000
Toluene	U	U	U	U	U	U	U	U	5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	5	----	11,000
1,3-Dichloropropane	U	U	U	U	U	U	U	U	5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19A				SA19B						
SAMPLE IDENTIFICATION	SA19A24A	SA19A24B	SA19A810A	SA19A810B	SA19B24A	SA19B24B	SA19B810A	SA19B810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/23/01	1/23/01	1/24/01	1/24/01	1/26/01	1/26/01	1/26/01	1/26/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	90	90	90	91	93	92	88	90			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U	U	U	U	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U	U	U	5	----	----
Dibromochloromethane	U	U	U	U	U	U	U	U	5	----	7,600
1,2-Dibromoethane	U	U	U	U	U	U	U	U	5	----	7.5
Chlorobenzene	U	U	U	U	U	U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	----	25,000
Ethylbenzene	U	U	U	U	U	U	U	U	5	5,500	7,800,000
Styrene	U	U	U	U	U	U	U	U	5	----	21,000
Xylene (total)	U	U	U	U	U	U	U	U	5	1,200	160,000,000
Bromoform	U	U	U	U	U	U	U	U	5	----	81,000
Isopropylbenzene	U	U	U	U	U	U	U	U	5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	600	3,200
Bromobenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	5	340	470,000
n-Propylbenzene	U	U	U	U	U	U	U	U	5	----	----
2-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
4-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	----
tert-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
sec-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	5	1,550	----
4-Isopropyltoluene	U	U	U	U	U	U	U	U	5	----	----
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	5	----	29
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	5	3,400	780,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	5	----	8,200
Naphthalene	U	U	U	U	U	U	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	5	----	----
TOTAL VOCs	0	0	0	0	0	0	0	0		10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19C				SA19D						
SAMPLE IDENTIFICATION	SA19C24A	SA19C24B	SA19C810A	SA19C810B	SA19D24A	SA19D24B	SA19D810A	SA19D810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/31/01	1/31/01	1/31/01	1/31/01	2/02/01	2/02/01	2/02/01	2/02/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	89	90	88	86	93	91	84	88			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	5	----	16,000,000
Chloromethane	U	U	U	U	U	U	U	U	5	----	49,000
Vinyl Chloride	U	U	U	U	U	U	U	U	5	120	340
Bromomethane	U	U	U	U	U	U	U	U	5	----	110,000
Chloroethane	U	U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	U	U	U	U	U	5	----	23,000,000
1,1-Dichloroethene	U	U	U	U	U	U	U	U	5	400	1,100
Acetone	U	U	9	17	6	U	8	5 J	5	110	7,800,000
Iodomethane	U	U	U	U	U	U	U	U	5	----	----
Carbon Disulfide	8	8	10	6	18	16	38	2 J	5	2,700	7,800,000
Methylene Chloride	U	2 J	U*	U*	3 J	3 J	7	U*	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	300	1,600,000
Methyl tert-Butyl Ether	U	U	U	U	U	U	U	U	5	----	----
1,1-Dichloroethane	U	U	U	U	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U	U	5	----	78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	----	780,000
2,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	----
2-Butanone	U	U	U	U	U	U	U	U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U	U	U	U	5	----	----
Chloroform	U	U	U	U	U	U	U	U	5	300	100,000
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	5	760	7,000,000
1,1-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
Carbon Tetrachloride	U	U	U	U	U	U	U	U	5	600	4,900
1,2-Dichloroethane	U	U	U	U	U	U	U	U	5	100	7,000
Benzene	U	U	U	U	U	U	U	U	5	60	22,000
Trichloroethene	U	U	U	U	U	U	U	U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	9,400
Dibromomethane	U	U	U	U	U	U	U	U	5	----	780,000
Bromodichloromethane	U	U	U	U	U	U	U	U	5	----	10,000
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	5	1,000	6,300,000
Toluene	U	U	U	U	U	U	4 J	2 J	5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	5	----	11,000
1,3-Dichloropropane	U	U	U	U	U	U	U	U	5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19C				SA19D						
SAMPLE IDENTIFICATION	SA19C24A	SA19C24B	SA19C810A	SA19C810B	SA19D24A	SA19D24B	SA19D810A	SA19D810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/31/01	1/31/01	1/31/01	1/31/01	2/02/01	2/02/01	2/02/01	2/02/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	89	90	88	86	93	91	84	88			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U	U	U	U	U	8	5 J	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U	U	U	5	----	----
Dibromochloromethane	U	U	U	U	U	U	U	U	5	----	7,600
1,2-Dibromoethane	U	U	U	U	U	U	U	U	5	----	7.5
Chlorobenzene	U	U	U	U	U	U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	----	25,000
Ethylbenzene	U	U	U	U	U	U	U	U	5	5,500	7,800,000
Styrene	U	U	U	U	U	U	U	U	5	----	21,000
Xylene (total)	U	U	U	U	U	U	U	U	5	1,200	160,000,000
Bromoform	U	U	U	U	U	U	U	U	5	----	81,000
Isopropylbenzene	U	U	U	U	U	U	U	U	5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	600	3,200
Bromobenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	5	340	470,000
n-Propylbenzene	U	U	U	U	U	U	U	U	5	----	----
2-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
4-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	----
tert-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
sec-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	5	1,550	----
4-Isopropyltoluene	U	U	U	U	U	U	U	U	5	----	----
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	5	----	29
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	5	3,400	780,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	5	----	8,200
Naphthalene	U	U	3 J	U	U	U	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	5	----	----
TOTAL VOCs	8	10	22	23	27	19	65	14		10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19E1				SA19E2						
SAMPLE IDENTIFICATION	SA19E124A	SA19E124B	SA19E1810A	SA19E1810B	SA19E224A	SA19E224B	SA19E2810A	SA19E2810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/15/01	1/15/01	1/16/01	1/16/01	1/17/01	1/17/01	1/18/01	1/18/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	94	92	92	92	88	89	95	93			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	5	----	16,000,000
Chloromethane	U	U	U	U	U	U	U	U	5	—	49,000
Vinyl Chloride	U	U	U	U	U	U	U	U	5	120	340
Bromomethane	U	U	U	U	U	U	U	U	5	----	110,000
Chloroethane	U	U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	U	U	U	U	U	5	----	23,000,000
1,1-Dichloroethene	U	U	U	U	U	U	U	U	5	400	1,100
Acetone	U*	U*	U*	U*	U*	U*	U*	U	5	110	7,800,000
Iodomethane	U	U	U	U	U	U	U	U	5	----	----
Carbon Disulfide	U	U	U	U	U	U	U	U	5	2,700	7,800,000
Methylene Chloride	U	U	U	U	U	U	4 J	1 J	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	300	1,600,000
Methyl tert-Butyl Ether	U	U	U	U	U	U	U	U	5	----	----
1,1-Dichloroethane	U	U	U	U	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U	U	5	----	78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	5	----	780,000
2,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	----
2-Butanone	U	U	U	U	U	U	U	U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U	U	U	U	5	----	----
Chloroform	U	U	U	U	U	U	U	U	5	300	100,000
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	5	760	7,000,000
1,1-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
Carbon Tetrachloride	U	U	U	U	U	U	U	U	5	600	4,900
1,2-Dichloroethane	U	U	U	U	U	U	U	U	5	100	7,000
Benzene	U	U	U	U	U	U	U	U	5	60	22,000
Trichloroethene	U	U	U	U	U	U	U	U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U	5	----	9,400
Dibromomethane	U	U	U	U	U	U	U	U	5	----	780,000
Bromodichloromethane	U	U	U	U	U	U	U	U	5	----	10,000
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	5	1,000	6,300,000
Toluene	U	U	U	U	U	U	U	U	5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	5	----	----
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	5	----	11,000
1,3-Dichloropropane	U	U	U	U	U	U	U	U	5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19E1				SA19E2						
SAMPLE IDENTIFICATION	SA19E124A	SA19E124B	SA19E1810A	SA19E1810B	SA19E224A	SA19E224B	SA19E2810A	SA19E2810B	CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/15/01	1/15/01	1/16/01	1/16/01	1/17/01	1/17/01	1/18/01	1/18/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	94	92	92	92	88	89	95	93			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U	U	U	U	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U	U	U	5	----	----
Dibromochloromethane	U	U	U	U	U	U	U	U	5	----	7,600
1,2-Dibromoethane	U	U	U	U	U	U	U	U	5	----	7.5
Chlorobenzene	U	U	U	U	U	U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	----	25,000
Ethylbenzene	U	U	U	U	U	U	U	U	5	5,500	7,800,000
Styrene	U	U	U	U	U	U	U	U	5	----	21,000
Xylene (total)	U	U	U	U	U	U	U	U	5	1,200	160,000,000
Bromoform	U	U	U	U	U	U	U	U	5	----	81,000
Isopropylbenzene	U	U	U	U	U	U	U	U	5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	5	600	3,200
Bromobenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	5	340	470,000
n-Propylbenzene	U	U	U	U	U	U	U	U	5	----	----
2-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
4-Chlorotoluene	U	U	U	U	U	U	U	U	5	----	----
tert-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	5	----	----
sec-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	5	1,550	----
4-Isopropyltoluene	U	U	U	U	U	U	U	U	5	----	----
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U	U	U	5	----	----
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	5	----	29
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	5	3,400	780,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	5	----	8,200
Naphthalene	U*	U	U*	U	U	U	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	5	----	----
TOTAL VOCs	0	0	0	0	0	0	4	1		10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19F								CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE IDENTIFICATION	SA19F24A	SA19F24B									
SAMPLE DEPTH	2' - 4'	2' - 4'									
DATE OF COLLECTION	1/19/01	1/19/01									
DILUTION FACTOR	1	1									
PERCENT SOLIDS	86	88									
UNITS	(ug/kg)	(ug/kg)							(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U							5	----	16,000,000
Chloromethane	U	U							5	----	49,000
Vinyl Chloride	U	U							5	120	340
Bromomethane	U	U							5	----	110,000
Chloroethane	U	U							5	1,900	49,000
Trichlorofluoromethane	U	U							5	----	23,000,000
1,1-Dichloroethene	U	U							5	400	1,100
Acetone	U*	U*							5	110	7,800,000
Iodomethane	U	U							5	----	----
Carbon Disulfide	U	U							5	2,700	7,800,000
Methylene Chloride	4 J	4 J							5	100	85,000
trans-1,2-Dichloroethene	U	U							5	300	1,600,000
Methyl tert-Butyl Ether	U	U							5	----	----
1,1-Dichloroethane	U	U							5	200	7,800,000
Vinyl Acetate	U	U							5	----	78,000,000
cis-1,2-Dichloroethene	U	U							5	----	780,000
2,2-Dichloropropane	U	U							5	----	----
2-Butanone	U	U							5	300	47,000,000
Bromochloromethane	U	U							5	----	----
Chloroform	U	U							5	300	100,000
1,1,1-Trichloroethane	U	U							5	760	7,000,000
1,1-Dichloropropene	U	U							5	----	----
Carbon Tetrachloride	U	U							5	600	4,900
1,2-Dichloroethane	U	U							5	100	7,000
Benzene	U	U							5	60	22,000
Trichloroethene	U	U							5	700	58,000
1,2-Dichloropropane	U	U							5	----	9,400
Dibromomethane	U	U							5	----	780,000
Bromodichloromethane	U	U							5	----	10,000
cis-1,3-Dichloropropene	U	U							5	----	----
4-Methyl-2-pentanone	U	U							5	1,000	6,300,000
Toluene	U	U							5	1,500	16,000,000
trans-1,3-Dichloropropene	U	U							5	----	----
1,1,2-Trichloroethane	U	U							5	----	11,000
1,3-Dichloropropane	U	U							5	300	----

TABLE 1 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	SA19F								CONTRACT REQUIRED DETECTION LIMITS	TAGM 4046 SOIL CLEANUP OBJECTIVES TO PROTECT GROUNDWATER	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE IDENTIFICATION	SA19F24A	SA19F24B									
SAMPLE DEPTH	2' - 4'	2' - 4'									
DATE OF COLLECTION	1/19/01	1/19/01									
DILUTION FACTOR	1	1									
PERCENT SOLIDS	86	88									
UNITS	(ug/kg)	(ug/kg)							(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	U	U							5	1,400	12,000
2-Hexanone	U	U							5	----	----
Dibromochloromethane	U	U							5	----	7,600
1,2-Dibromoethane	U	U							5	----	7.5
Chlorobenzene	U	U							5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U							5	----	25,000
Ethylbenzene	U	U							5	5,500	7,800,000
Styrene	U	U							5	----	21,000
Xylene (total)	U	U							5	1,200	160,000,000
Bromoform	U	U							5	----	81,000
Isopropylbenzene	U	U							5	----	3,100,000
1,1,2,2-Tetrachloroethane	U	U							5	600	3,200
Bromobenzene	U	U							5	----	----
1,2,3-Trichloropropane	U	U							5	340	470,000
n-Propylbenzene	U	U							5	----	----
2-Chlorotoluene	U	U							5	----	1,600,000
1,3,5-Trimethylbenzene	U	U							5	----	----
4-Chlorotoluene	U	U							5	----	----
tert-Butylbenzene	U	U							5	----	----
1,2,4-Trimethylbenzene	U	U							5	----	----
sec-Butylbenzene	U	U							5	----	----
1,3-Dichlorobenzene	U	U							5	1,550	----
4-Isopropyltoluene	U	U							5	----	----
1,4-Dichlorobenzene	U	U							5	8,500	27,000
n-Butylbenzene	U	U							5	----	----
1,2-Dichlorobenzene	U	U							5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U							5	----	29
1,2,4-Trichlorobenzene	U	U							5	3,400	780,000
Hexachlorobutadiene	U	U							5	----	8,200
Naphthalene	U	U							5	13,000	310,000
1,2,3-Trichlorobenzene	U	U							5	----	----
TOTAL VOCs	4	4								10,000	

Qualifiers:
U: Compound analyzed for but not detected.
U*: Result qualified as non-detect based on validation criteria.
B: Compound found in the method blank as well as the sample.
J: Compound found at a concentration below the detection limit.

Notes:
---- : Not established.

TABLE 2
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA12TP1				SA12TP2						
SAMPLE IDENTIFICATION	SA12TP124A	SA12TP124B	SA12TP1810A	SA12TP1810B	SA12TP224A	SA12TP224B	SA12TP2810A	SA12TP2810B	INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/04/01	1/04/01	1/04/01	1/04/01	1/05/01	1/05/01	1/08/01	1/08/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	92	87	79	89	91	89	87	87			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	0.47 B	U	0.28 B	0.47 B	0.44 B	0.39 B	U	U	0.003	----	31
Arsenic	4.8	4.0	4.0	5.7	9.9	5.8	3.4	4.9	0.004	3 - 12*	0.4
Beryllium	0.34 B	0.33 B	0.33 B	0.39 B	0.40 B	0.48 B	0.27 B	0.34 B	0.002	0 - 1.75	0.15
Cadmium	1.6	1.3	1.4	1.5	1.5	1.6	2.1	3.0	0.0004	0.1 - 1, (10***)	78
Chromium	10.0	10.0	10.0	10.0	14.1	13.7	8.1	11.6	0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	27.0	25.6	23.1	25.3	29.9	23.4	20.7	31.5	0.005	1 - 50	----
Lead	22.7	70.9	17.9	35.2	24.1	21.0	1.9	3.0	0.0023	200 - 500**	400
Mercury	0.019 B	U	U	U	0.023 B	0.036 B	0.022 B	0.012 B	0.0001	0.001 - 0.2	23
Nickel	21.2	21.3	21.7	22.2	27.5	25.4	15.0	22.7	0.0005	0.5 - 25	1,600
Selenium	7.9	7.3	7.9	8.6	10.0	8.9	3.5	5.1	0.004	0.1 - 3.9	390
Silver	2.0 B	1.9 B	2.0 B	2.1 B	2.8	2.2 B	0.82 B	1.3 B	0.002	----	390
Thallium	U	U	U	U	U	U	U	U	0.003	----	7.8
Zinc	63.6	63.4	63.7	67.1	80.6	75.5	54.6	77.7	0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

TABLE 2 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA12TP3				SA12TP4						
SAMPLE IDENTIFICATION	SA12TP324A	SA12TP324B	SA12TP3810A	SA12TP3810B	SA12TP424A	SA12TP424B	SA12TP4810A	SA12TP4810B	INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/09/01	1/09/01	1/09/01	1/09/01	1/11/01	1/11/01	1/12/01	1/12/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	93	86	94	93	90	92	93	91			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	U	U	U	U	0.49 B	0.36 B	0.26 B	0.54 B	0.003	----	31
Arsenic	3.7	4.8	4.2	4.6	4.4	3.5	4.0	4.3	0.004	3 - 12*	0.4
Beryllium	0.27 B	0.40 B	0.33 B	0.34 B	0.32 B	0.28 B	0.33 B	0.32 B	0.002	0 - 1.75	0.15
Cadmium	2.5	3.0	3.0	3.0	2.6	2.5	3.2	2.9	0.0004	0.1 - 1, (10***)	78
Chromium	10.1	12.5	12.5	12.6	10.2	9.1	12.4	11.5	0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	23.4	24.5	28.8	29.8	26.7	23.7	29.8	27.3	0.005	1 - 50	----
Lead	4.9	4.8	0.96	2.0	U	1.2	U	U	0.0023	200 - 500**	400
Mercury	0.011 B	0.021 B	0.022 B	0.016 B	0.021 B	U	0.019 B	U	0.0001	0.001 - 0.2	23
Nickel	18.4	21.1	22.8	23.3	21.0	19.5	25.8	23.9	0.0005	0.5 - 25	1,600
Selenium	4.6	5.2	4.9	5.2	2.4	2.0	3.4	2.3	0.004	0.1 - 3.9	390
Silver	0.91 B	1.2 B	1.1 B	1.2 B	U	U	U	U	0.002	----	390
Thallium	U	U	U	U	U	0.57 B	U	U	0.003	----	7.8
Zinc	62.2	75.7	75.3	76.3	69.6	65.1	82.2	75.9	0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

TABLE 2 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA12TP5				SA14						
SAMPLE IDENTIFICATION	SA12TP524A	SA12TP524B	SA12TP5810A	SA12TP5810B	SA1402A	SA1402B	SA14810A	SA14810B	INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	0 - 2'	0 - 2'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/10/01	1/10/01	1/10/01	1/10/01	12/18/01	12/18/01	12/18/01	12/18/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	90	88	92	92	83	85	76	71			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	0.47 B	0.41 B	0.61 B	0.75 B	U	U	U	U	0.003	----	31
Arsenic	3.9	3.7	4.4	4.9	3.8	3.3	3.5	5.7	0.004	3 - 12*	0.4
Beryllium	0.32 B	0.51	0.40	0.38 B	0.46	0.47	0.36 B	0.37 B	0.002	0 - 1.75	0.15
Cadmium	2.5	2.6	3.0	2.6	1.9	1.8	1.8	2.8	0.0004	0.1 - 1, (10***)	78
Chromium	11.2	10.8	10.5	8.3	14.2	12.1	11.1	11.8	0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	22.6	18.2	22.3	18.5	19.8	15.6	22.7	26.5	0.005	1 - 50	----
Lead	1.9	3.0	U	U	5.4	13.8	2.5	10.5	0.0023	200 - 500**	400
Mercury	0.021 B	0.044 B	U	U	0.038 B	0.043 B	0.016 B	U	0.0001	0.001 - 0.2	23
Nickel	20.5	19.7	22.3	19.5	25.4	24.0	27.5	30.9	0.0005	0.5 - 25	1,600
Selenium	2.3	2.4	2.3	1.4	8.2	7.8	7.6	8.8	0.004	0.1 - 3.9	390
Silver	U	U	U	U	U	U	U	U	0.002	----	390
Thallium	U	U	0.42 B	1.0	3.3	3.0	3.0	3.7	0.003	----	7.8
Zinc	63.9	64.9	60.5	48.9	65.8	65.2	70.0	87.1	0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

TABLE 2 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA19A				SA19B						
SAMPLE IDENTIFICATION	SA19A24A	SA19A24B	SA19A810A	SA19A810B	SA19B24A	SA19B24B	SA19B810A	SA19B810B	INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/23/01	1/23/01	1/24/01	1/24/01	1/26/01	1/26/01	1/26/01	1/26/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	90	90	90	91	93	92	88	90			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	0.43 B	0.39 B	0.36 B	0.39 B	U	0.23 B	U	U	0.003	----	31
Arsenic	3.5	4.6	4.5	5.6	5.6	4.5	5.9	3.4	0.004	3 - 12*	0.4
Beryllium	0.26 B	0.33 B	0.30 B	0.32 B	0.34 B	0.30 B	0.40	0.23 B	0.002	0 - 1.75	0.15
Cadmium	2.7	3.5	3.1	3.3	U	U	U	U	0.0004	0.1 - 1, (10***)	78
Chromium	8.3	11.7	9.1	10.0	10.8	9.8	12.8	7.6	0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	20.6	25.0	22.8	23.6	30.4	20.4	24.9	16.0	0.005	1 - 50	----
Lead	U	U	U	U	16.1	16.4	15.5	11.3	0.0023	200 - 500**	400
Mercury	U	U	U	U	0.037 B	0.018 B	0.014 B	0.015 B	0.0001	0.001 - 0.2	23
Nickel	16.6	22.9	19.1	21.7	18.0	15.8	19.6	12.1	0.0005	0.5 - 25	1,600
Selenium	6.5	8.8	7.9	8.5	0.39 B	0.33 B	U	U	0.004	0.1 - 3.9	390
Silver	U	U	U	U	U	U	U	U	0.002	----	390
Thallium	0.91	U	0.74	0.44 B	0.41 B	0.29 B	0.20 B	U	0.003	----	7.8
Zinc	50.4	70.1	60.3	64.3	62.5	54.5	63.6	39.4	0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

TABLE 2 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA19C				SA19D						
SAMPLE IDENTIFICATION	SA19C24A	SA19C24B	SA19C810A	SA19C810B	SA19D24A	SA19D24B	SA19D810A	SA19D810B	INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/31/01	1/31/01	1/31/01	1/31/01	2/02/01	2/02/01	2/02/01	2/02/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	89	90	88	86	93	91	84	88			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	0.13 B	U	0.23 B	U	U	U	0.20 B	U	0.003	----	31
Arsenic	5.7	4.5	4.9	5.5	5.6	5.4	3.4	3.0	0.004	3 - 12*	0.4
Beryllium	0.30 B	0.24 B	0.52 B	0.43	0.22 B	0.28 B	0.42 B	0.38 B	0.002	0 - 1.75	0.15
Cadmium	0.37 B	0.45	0.36 B	0.51	0.40	0.29 B	0.23 B	0.11 B	0.0004	0.1 - 1, (10***)	78
Chromium	10.5	7.6	11.5	10.1	8.8	9.4	10.3	10.1	0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	22.5	12.0	19.5	18.8	22.7	20.6	7.1	6.7	0.005	1 - 50	----
Lead	18.6	3.5	18.3	16.5	12.0	12.7	14.9	12.8	0.0023	200 - 500**	400
Mercury	U	U	0.027 B	0.023 B	U	0.026 B	U	U	0.0001	0.001 - 0.2	23
Nickel	18.0	19.1	18.7	16.7	15.9	15.4	12.5	13.6	0.0005	0.5 - 25	1,600
Selenium	U	0.54 B	U	0.57 B	0.39 B	U	U	U	0.004	0.1 - 3.9	390
Silver	U	0.33 B	U	U	U	U	U	U	0.002	----	390
Thallium	U	U	0.24 B	U	U	U	U	U	0.003	----	7.8
Zinc	62.8	43.7	52.8	48.1	51.5	52.0	44.1	45.5	0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

TABLE 2 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA19E1				SA19E2						
SAMPLE IDENTIFICATION	SA19E124A	SA19E124B	SA19E1810A	SA19E1810B	SA19E224A	SA19E224B	SA19E2810A	SA19E2810B	INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'			
DATE OF COLLECTION	1/15/01	1/15/01	1/16/01	1/16/01	1/17/01	1/17/01	1/18/01	1/18/01			
DILUTION FACTOR	1	1	1	1	1	1	1	1			
PERCENT SOLIDS	94	92	92	92	88	89	95	93			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	0.97 B	0.88 B	0.72 B	0.89 B	0.70 B	0.53 B	0.57 B	0.50 B	0.003	----	31
Arsenic	5.5	6.3	5.0	6.0	4.4	3.8	4.7	4.8	0.004	3 - 12*	0.4
Beryllium	0.36 B	0.38 B	0.33 B	0.40 B	0.35 B	0.30 B	0.37 B	0.34 B	0.002	0 - 1.75	0.15
Cadmium	2.8	3.0	2.5	3.2	2.7	2.3	3.7	3.6	0.0004	0.1 - 1, (10***)	78
Chromium	12.2	13.7	10.5	13.7	12.2	10.8	12.8	12.7	0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	25.7	26.1	27.8	31.7	24.0	19.8	30.7	28.4	0.005	1 - 50	----
Lead	6.3	4.7	3.2	2.6	2.5	2.4	U	5.2	0.0023	200 - 500**	400
Mercury	0.035 B	0.032 B	0.024 B	0.024 B	0.023 B	0.011 B	0.021 B	0.022 B	0.0001	0.001 - 0.2	23
Nickel	22.3	22.2	21.1	25.5	22.4	19.0	27.2	25.8	0.0005	0.5 - 25	1,600
Selenium	3.1	3.0	2.6	3.4	3.2	2.4	10.0	9.5	0.004	0.1 - 3.9	390
Silver	0.45 B	0.21 B	0.26 B	0.23 B	0.25 B	0.23 B	U	U	0.002	----	390
Thallium	U	U	U	U	U	U	U	U	0.003	----	7.8
Zinc	85.8	86.3	68.5	84.1	75.8	67.4	82.1	80.7	0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

TABLE 2 (continued)
INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY
PRE-CONSTRUCTION SOIL SAMPLING AND ANALYSIS PROGRAM
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE LOCATION	SA19F										
SAMPLE IDENTIFICATION	SA19F24A	SA19F24B							INSTRUMENT DETECTION LIMITS	TAGM 4046 EASTERN USA BACKGROUND LEVELS	TAGM 3028 SOIL/SEDIMENT CONTAINED-IN ACTION LEVELS
SAMPLE DEPTH	2' - 4'	2' - 4'									
DATE OF COLLECTION	1/19/01	1/19/01									
DILUTION FACTOR	1	1									
PERCENT SOLIDS	86	88									
UNITS	(mg/kg)	(mg/kg)							(mg/L)	(mg/kg)	(mg/kg)
Antimony	U	U							0.003	----	31
Arsenic	6.4	5.7							0.004	3 - 12*	0.4
Beryllium	0.37 B	0.39 B							0.002	0 - 1.75	0.15
Cadmium	2.9	3.1							0.0004	0.1 - 1, (10***)	78
Chromium	12.5	14.6							0.002	1.5 - 40*, (50***)	78,000 (III), 390 (VI)
Copper	30.2	25.6							0.005	1 - 50	----
Lead	0.96 B	U							0.0023	200 - 500**	400
Mercury	0.038 B	0.028 B							0.0001	0.001 - 0.2	23
Nickel	20.9	22.3							0.0005	0.5 - 25	1,600
Selenium	7.4	7.9							0.004	0.1 - 3.9	390
Silver	U	U							0.002	----	390
Thallium	0.64 B	0.35 B							0.003	----	7.8
Zinc	70.3	77.3							0.004	9 - 50	23,000

Qualifiers:
U: Compound analyzed for but not detected.
B: Compound concentration is less than the CRDL, but greater than the IDL.

Notes:
---- : Not established.
* : New York State Background.
** : Background for metropolitan or suburban areas.
*** : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
: Value exceeds TAGM 3028 Contained-in Action Level.
: Value exceeds TAGM 4046 Eastern USA Background level.

ATTACHMENT 5

Data Validation Sheets

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

_____

_____

_____

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
320BSB701	2/3/01		2/7/01	No
320BSB801	2/3/01		2/7/01	No
320BSB601	2/3/01		2/7/01	No
320BSB523	2/3/01		2/7/01	No
SA-19C(2-4)A	2/3/01		2/7/01	No
SA-19C(2-4)B	2/3/01		2/7/01	No
SA-19C(8-10)A	2/3/01		2/7/01	No
SA-19C(8-10)B	2/3/01		2/7/01	No
SA-19D(2-4)A	2/3/01		2/7/01	No
SA-19D(2-4)B	2/3/01		2/7/01	No
SA-19D(8-10)A	2/3/01		2/7/01	No
SA-19D(8-10)B	2/3/01		2/7/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific qc not provided

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and meet QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: File ID:

Compound	Concentration	≤ CROL	Comments
Methylene chloride 2 (VBLK2Q)		<	Effects sample SA19C810A, SA19C810B, SA19D810B, Methylene chloride qualified as non-detect due to blank contamination

List the samples associated with this method blank.

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/31,2/13,1/31

Date of Continuing Calibration: 2/06, 2/7, 2/8,2/13, 2/5

File ID: V2D8041
V2D8071
V2D8101,
V2D8232,
V6B0721A

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments:

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments:

B. Overall assessment of Continuing Calibration
(list associated samples)

Protocol allows up to 4 %D to be outside limits if <40%

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/31, 2/13, 1/31

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

_____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

_____

_____

D. Overall assessment of the initial calibration:
(list the associated samples)

Initial calibration meets CQ requirements, no qualification of the data is required

_____

_____

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/31, 2/13, 1/31

A. Standard Data Files

Standard 1 ID:	V2D7792, V2D8233, V6B0511	Conc:	5
Standard 2 ID:	V2D7795, V2D8237, V6B0514	Conc:	10
Standard 3 ID:	V2D7791, V2D8232, V6B0515	Conc:	50
Standard 4 ID:	V2D7794, V2D8236, V6B0513	Conc:	100
Standard 5 ID:	V2D7793, V2D8235, V6B0512	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D7790	YES	INITIAL (SOIL)
2. V2D8040	YES	SAMPLES (SOIL)
3. V2D8070	YES	SAMPLES (SOIL)
4. V2D8100	YES	SAMPLES (SOIL)
5. V2D8230	YES	INITIAL & SAMPLES
6. V6B0510	YES	INITIAL (WATER)
7. V6B0720	YES	SAMPLES(FB)
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
320BSB701	2/3/01		2/5-13	NO
320BSB801	2/3/01		2/5-13	NO
320BSB601	2/3/01		2/5-13	NO
320BSB523	2/3/01		2/5-13	NO
SA-19C(2-4)A	2/3/01		2/5-13	NO
SA-19C(2-4)B	2/3/01		2/5-13	NO
SA-19C(8-10)A	2/3/01		2/5-13	NO
SA-19C(8-10)B	2/3/01		2/5-13	NO
SA-19D(2-4)A	2/3/01		2/5-13	NO
SA-19D(2-4)B	2/3/01		2/5-13	NO
SA-19D(8-10)A	2/3/01		2/5-13	NO
SA-19D(8-10)B	2/3/01		2/5-13	NO

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80225

12 soils for Voa and metals and 1 FB.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
SA-19B(2-4)A	1/27/01		1/31/01	No
SA-19B(2-4)B	1/27/01		1/31/01	No
SA-19B(8-10)A	1/27/01		1/31/01	No
SA-19A(8-10)B	1/25/01		1/31/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific qc not provided

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and meet QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: File ID:

Compound	Concentration	≤ CROL	Comments
Acetone (VBLK2F)	3	<	Effects sample SA19B810A, SA19B810B Acetone qualified as non-detect due to blank contamination
Benzene (VBLK2F)	1	<	

List the samples associated with this method blank.

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/31

Date of Continuing Calibration: 2/3 File ID: V2D7961

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments: _____

_____

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments: _____

_____

B. Overall assessment of Continuing Calibration
(list associated samples)

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/31

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

_____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

_____

_____

D. Overall assessment of the initial calibration:
(list the associated samples)

Initial calibration meets CQ requirements, no qualification of the data is required

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/31

A. Standard Data Files

Standard 1 ID:	V2D7792	Conc:	5
Standard 2 ID:	V2D7795	Conc:	10
Standard 3 ID:	V2D7791	Conc:	50
Standard 4 ID:	V2D7794	Conc:	100
Standard 5 ID:	V2D7793	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D7790	YES	INITIAL (SOIL)
2. V2D7960	YES	SAMPLES (SOIL)
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
SA-19B(2-4)A	1/27/01		2/3/01	NO
SA-19B(2-4)B	1/27/01		2/4/01	NO
SA-19B(8-10)A	1/27/01		2/4/01	NO
SA-19B(8-10)B	1/27/01		2/4/01	NO

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80176

4 soils for Voa and metals

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
SA-19A(2-4)A	1/25/01		1/26/01	No
SA-19A(2-4)B	1/25/01		1/26/01	No
SA-19A(8-10)A	1/25/01		1/26/01	No
SA-19A(8-10)B	1/25/01		1/26/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific qc not provided

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and meet QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: _____ File ID: _____

Compound	Concentration	≤ CROL	Comments
Acetone (VBLK2F) 3		<	Effects sample SA19A810A, Acetone qualified as non-detect due to blank contamination
Benzene (VBLK2F) 1		<	

List the samples associated with this method blank.

_____

_____

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/25, 1/31

Date of Continuing Calibration: 2/01, 2/3, 2/3 File ID: V2D7841
V2D7931
V2D7961

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments:

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments:

B. Overall assessment of Continuing Calibration
(list associated samples)

Protocol allows up to 4 %D to be outside limits if <40%

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/25, 1/31

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

_____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

_____

_____

D. Overall assessment of the initial calibration:
(list the associated samples)

Initial calibration meets CQ requirements, no qualification of the data is required

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/25, 1/31

A. Standard Data Files

Standard 1 ID:	V2D7512, V2D7792	Conc:	5
Standard 2 ID:	V2D7515, V2D7795	Conc:	10
Standard 3 ID:	V2D7511, V2D7791	Conc:	50
Standard 4 ID:	V2D7514, V2D7794	Conc:	100
Standard 5 ID:	V2D7513, V2D7793	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D7510	YES	INITIAL(WATER)
2. V2D7790	YES	INITIAL (SOIL)
3. V2D7840	YES	SAMPLES (FB)
4. V2D7930	YES	SAMPLES (SOIL)
5. V2D7960	YES	SAMPLES (SOIL)
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
SA-19A(2-4)A	1/25/01		2/3/01	NO
SA-19A(2-4)B	1/25/01		2/3/01	NO
SA-19A(8-10)A	1/25/01		2/3/01	NO
SA-19A(8-10)B	1/25/01		2/3/01	NO

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80161

4 soils for Voa and metals and 1 FB.

In SA19A(2-4)A and B there are some methylnaphthalene isomers present as TICs

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

_____

_____

_____

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes NO

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
19E124A	1/18/01		1/20/01	
19E124B	1/18/01		1/20/01	
19E1810A	1/18/01		1/20/01	
19E1810B	1/18/01		1/20/01	
19E224A	1/18/01		1/20/01	
19E224B	1/18/01		1/20/01	

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific QC not provided with this data pkg

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and met QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: File ID:

Compound	Concentration	≤ CROL	Comments
Acetone (VBLK6S)	4	<	Qualified as non-detect in associated samples
Naphthalene (VBLK6S)	3	<	Qualified as non-detect in SA19E124A and SA19E1810A
Acetone (VBLK6T)	4	<	Qualified as non-detect in associated samples
Naphthalene (VBLK6S)	2	<	Qualified as non-detect in SA19E124A and SA19E1810A

List the samples associated with this method blank.

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 11/26/00

Date of Continuing Calibration: 1/25,01/26 File ID: V6B0351, V6B0371

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments: _____

_____

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments: _____

_____

B. Overall assessment of Continuing Calibration
(list associated samples)

Protocol allows 4 %D to be outside QC limits if <40%, no action required.

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 11/26/00

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

D. Overall assessment of the initial calibration:
(list the associated samples)

ALL QC requirements were met for this calibration

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 11/26/00

A. Standard Data Files

Standard 1 ID:	V6A9248	Conc:	5
Standard 2 ID:	V6A9247	Conc:	20
Standard 3 ID:	V6A9243	Conc:	50
Standard 4 ID:	V6A9246	Conc:	100
Standard 5 ID:	V6A9245	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: voa

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V6A9240	YES	INITIAL
2. V6B0350	YES	SAMPLES
3. V6B0370	YES	SAMPLES
4.		
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
19E124A	1/18/01		1/25/01	No
19E124B	1/18/01		1/25/01	No
19E1810A	1/18/01		1/25/01	No
19E1810B	1/18/01		1/26/01	No
19E224A	1/18/01		1/26/01	No
19E224B	1/18/01		1/26/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80111

6 soils for VOA and metals

LATE eluting hydrocarbons (dimethylnaphthalenes) are present in 19E1810A

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
E2810A	1/20/01		1/24-26/01	No
E2810B	1/20/01		1/24-26/01	No
F24A	1/20/01		1/24-26/01	No
F24B	1/20/01		1/24-26/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific qc not provided

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and meet QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: _____ File ID: _____

Compound	Concentration	< CROL	Comments
Acetone (VBLK2Z) 4		<	Effects sample SA19E2810A, SA19F24A, SA19F24B Acetone qualified as non-detect due to blank contamination
Benzene (VBLK2F) 1		<	

List the samples associated with this method blank.

_____

_____

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/31, 1/30

Date of Continuing Calibration: 1/31, 1/30 File ID: V2D7801
V6B0441,

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments:

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments:

B. Overall assessment of Continuing Calibration
(list associated samples)

Protocol allows up to 4 %D to be outside limits if <40%

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/31, 1/30

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

D. Overall assessment of the initial calibration:
(list the associated samples)

Initial calibration meets CQ requirements, no qualification of the data is required

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/31, 1/30

A. Standard Data Files

Standard 1 ID:	V2D7792, V6B0442	Conc:	5
Standard 2 ID:	V2D7795, V6B0444	Conc:	10
Standard 3 ID:	V2D7791, V6B0441	Conc:	50
Standard 4 ID:	V2D7794, V6B0443	Conc:	100
Standard 5 ID:	V2D7793, V6B0445	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D7790	YES	INITIAL (SOIL)
2. V2D7800	YES	SAMPLES (SOIL)
3. V6B0440A	YES	INITIAL & SAMPLES (FB)
4.		
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
E2810A	1/20/01		1/31/01	NO
E2810B	1/20/01		1/31/01	NO
F24A	1/20/01		1/31/01	NO
F24B	1/20/01		1/31/01	NO

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80137

4 soils for Voa and metals and 1 FB.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

Mercury had a recovery of 75% no action is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes NO

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
12TP524A	1/13/01		1/18/01	
12TP524B	1/13/01		1/18/01	
12TP5810A	1/13/01		1/18/01	
12TP5810B	1/13/01		1/18/01	
12TP424A	1/13/01		1/18/01	
12TP424B	1/13/01		1/18/01	
12TP4810A	1/13/01		1/18/01	
12TP4810B	1/13/01		1/18/01	

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific QC not provided with this data pkg

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and met QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: _____ File ID: _____

Compound	Concentration	≤ CROL	Comments
Acetone (VBLK2K)	2	<	Qualified as non-detect in all samples in this SDG

List the samples associated with this method blank.

_____

_____

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/2/01

Date of Continuing Calibration: 1/16 File ID: V2D7321

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments: _____

_____

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments: _____

_____

B. Overall assessment of Continuing Calibration
(list associated samples)

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/02/01

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

_____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

_____

_____

D. Overall assessment of the initial calibration:
(list the associated samples)

ALL QC requirements were met for this calibration

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/02/01

A. Standard Data Files

Standard 1 ID:	V2D6943	Conc:	5
Standard 2 ID:	V2D6946	Conc:	20
Standard 3 ID:	V2D6941	Conc:	50
Standard 4 ID:	V2D6945	Conc:	100
Standard 5 ID:	V2D6944	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: voa

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D6940	YES	INITIAL
2. V2D7320	YES	SAMPLES
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
12TP524A	1/13/01		1/16/01	No
12TP524B	1/13/01		1/16/01	No
12TP5810A	1/13/01		1/16/01	No
12TP5810B	1/13/01		1/16/01	No
12TP424A	1/13/01		1/16/01	No
12TP424B	1/13/01		1/16/01	No
12TP4810A	1/13/01		1/16/01	No
12TP4810B	1/13/01		1/16/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80094

8 soils for VOA and metals

LATE eluting hydrocarbons (dimethylnaphthalenes) are present in 19E1810A

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes NO

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
SA12TP2(8-10)A	1/10/01		1/11/01	
SA12TP2(8-10)B	1/10/01		1/11/01	
SA12TP3(2-4)A	1/10/01		1/11/01	
SA12TP3(2-4)B	1/10/01		1/11/01	
SA12TP3(8-10)A	1/10/01		1/11/01	
SA12TP3(8-10)B	1/10/01		1/11/01	

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific QC not provided with this data pkg

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and met QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: _____ File ID: _____

Compound	Concentration	≤ CROL	Comments
No compounds found			

List the samples associated with this method blank.

_____

_____

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/2/01

Date of Continuing Calibration: 1/11/01 File ID: V2D7221

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments:

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments:

B. Overall assessment of Continuing Calibration
(list associated samples)

Protocol allows 4 %D to be outside QC limits if <40%, no action required.

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/2/01

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

_____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

_____

_____

D. Overall assessment of the initial calibration:
(list the associated samples)

ALL QC requirements were met for this calibration

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/2/01

A. Standard Data Files

Standard 1 ID:	V2D6943	Conc:	5
Standard 2 ID:	V2D6946	Conc:	20
Standard 3 ID:	V2D6941	Conc:	50
Standard 4 ID:	V2D6945	Conc:	100
Standard 5 ID:	V2D6944	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: voa

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D6940	YES	INITIAL
2. V2D7220	YES	SAMPLES
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
SA12TP2(8-10)A	1/10/01		1/1/01	No
SA12TP2(8-10)B	1/10/01		1/1/01	No
SA12TP3(2-4)A	1/10/01		1/1/01	No
SA12TP3(2-4)B	1/10/01		1/1/01	No
SA12TP3(8-10)A	1/10/01		1/1/01	No
SA12TP3(8-10)B	1/10/01		1/1/01	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 80048

6 soils for VOA and metals

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
SA12TP1(2-4)A	1/8/01		1/10-1/11	No
SA12TP1(2-4)B	1/8/01		1/10-1/11	No
SA12TP1(8-10)A	1/8/01		1/10-1/11	No
SA12TP1(8-10)B	1/8/01		1/10-1/11	No
SA12TP2(2-4)A	1/8/01		1/10-1/11	No
SA12TP2(2-4)B	1/8/01		1/10-1/11	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific qc not provided

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and meet QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: File ID:

Compound	Concentration	≤ CROL	Comments
Acetone (VBLK2A)	4	<	Effects all samples Acetone qualified as non-detect due to blank contamination

List the samples associated with this method blank.

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 1/2

Date of Continuing Calibration: 1/8 File ID: V2D7141

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments:

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments:

B. Overall assessment of Continuing Calibration
(list associated samples)

Protocol allows up to 4 %D to be outside limits if <40%

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 1/2

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

D. Overall assessment of the initial calibration:
(list the associated samples)

Initial calibration meets CQ requirements, no qualification of the data is required

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 1/02

A. Standard Data Files

Standard 1 ID:	V2D6943	Conc:	5
Standard 2 ID:	V2D6946	Conc:	20
Standard 3 ID:	V2D6941	Conc:	50
Standard 4 ID:	V2D6945	Conc:	100
Standard 5 ID:	V2D6944	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V2D6940	YES	INITIAL (SOIL)
2. V2D7140	YES	SAMPLES (SOIL)
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
SA12TP1(2-4)A	1/8/01		1/8/01	NO
SA12TP1(2-4)B	1/8/01		1/8/01	NO
SA12TP1(8-10)A	1/8/01		1/8/01	NO
SA12TP1(8-10)B	1/8/01		1/8/01	NO
SA12TP2(2-4)A	1/8/01		1/8/01	NO
SA12TP2(2-4)B	1/8/01		1/8/01	NO

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG ~~80137~~ 80035

6 soils for Voa and metals.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VIII. Laboratory Control Sample Analysis

1. Was a laboratory control sample analyzed at the contract required frequency?

   Yes

   Comments:

2. Were the percent recoveries within the control limits of 80-120% (except for Ag and Sb) for each analyte?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary (continued):

4. Was the ICP interference check sample analyzed at the contract specified frequency:

   Yes

   Comments:

5. Were the ICP interference check sample results within the control limit of ±w-20% of the mean value?

   Yes

   If "No", not analytes

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

VII. ICP Interference Check Sample Summary

1. Was the ICP serial dilution analyzed at the contract specified frequency?

   Yes

   Comments:

2. Were the serial dilution differences within the contract specified limits of ±w 10%?

   Yes

   Comments:

3. Was the ICP CRDL check standard analyzed at the contract specified frequency for the analytes required?

   Yes

   Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

VI. Matrix Spike Analysis

1. Was a matrix spike prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were the matrix spike recoveries within the contract specified control limits (75-125%)?

   Yes No

   If "No", note analytes _____

   Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Site specific QC not provided

V. Duplicate Analysis

1. Was a duplicate prepared and analyzed at the contract specified frequency?

   Yes No

   Comments:

2. Were control limits for the relative percent differences (RPD) met for each analyte?

   Yes No

   Comments:

For sample values >5 times the CRDL, the RPD control limit is ±20%.

For sample values >5 times the CRDL, the RPD control limit is ±CRDL.

If sample results were outside of the control limits, all data associated with that duplicate sample should have been flagged with a "*".

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

IV. Blank Summary

A. Method Blanks

1. Was a method blank prepared and analyzed at the contract specified frequency?

   Yes

2. Were all the analytes below the CRDL in the method blank?

   Yes

Comments:

B. Calibration Blanks

1. Were all initial and continuing calibration blanks analyzed at the contract specified frequency/

   Yes

2. Were all the analytes below the CRDL in all the calibration blanks?

   Yes

Comments:

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

III. Continuing Calibration

1. Were the continuing calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

2. Were the continuing calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Associated Samples: _____

II. Initial Calibration

1. Were all initial instrument calibrations performed?

   Yes

   Comments:

_____

_____

_____

2. Were the initial calibration verification standards analyzed at the contract specified frequency?

   Yes

   Comments:

_____

_____

_____

3. Were the initial calibration results within the control limits listed below?

   For tin and mercury: 80-120% of the true value
   For all other metals: 90-110% of the true value

   Yes

   If "No", note analytes _____

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

I. Holding times

Sample	Date Received	Date Digested	Date Analyzed	Holding Time Exceeded?
TPSA-14(0-2)A	12/21/00		12/22, 12/23	No
TPSA-14(0-2)B	12/21/00		12/22, 12/23	No
TPSA-14(8-10)A	12/21/00		12/22, 12/23	No
TPSA-14(8-10)B	12/21/00		12/22, 12/23	No

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

Site specific qc not provided

XI. Matrix Spike/Matrix Spike Duplication Summary

Sample ID: _____ Matrix: _____

Did the MS/MSD recovery data meet the contract recommended requirements ?

Yes No

If No, please note below.

Blank spikes were provided and meet QC requirements

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

X. Surrogate Recovery Summary

Were all surrogate recoveries within the contract limits ?

Yes

If No, please note below.

Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IX. Blank Summary

Date/Time of Analysis: _____ File ID: _____

Compound	Concentration		≤ CROL	Comments
Acetone (VBLK6J)	3		<	
1,1-DCE (VBLK6K)	1		<	Effects sample SA14810B, 1,1-DCE qualified as non-detect due to blank contamination

List the samples associated with this method blank.

_____

_____

_____

_____

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	Comments

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

VI. Continuing Calibration Summary (GC/MS)

Date of Initial Calibration: 11/26

Date of Continuing Calibration: 12/29, 12/30, 12/31 File ID: V6B0042, V6B0071, V6B0101

A. 1. All SPCC met criteria ?

Yes

Calculate a SPCC RRF

Comments:

2. All CCC met criteria ?

Yes

Calculate a CCC % D

Comments:

B. Overall assessment of Continuing Calibration (list associated samples)

Protocol allows up to 4 %D to be outside limits if <40%

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

Fraction: VOA

Date of Calibration: 11/26

IV. Initial Calibration Summary (continued)

2. All CCC met Criteria ?

Yes

Comments: _____

Calculate a CCC % RSD

C. 1. Was the tune for the initial calibration acceptable ?

Yes

2. Was the calibration conducted within 12 hours of the tune

Yes

Comments: _____

D. Overall assessment of the initial calibration:
(list the associated samples)

Initial calibration meets CQ requirements, no qualification of the data is required

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

IV. Initial Calibration Summary (GC/MS)

Date of Calibration: 11/26/00

A. Standard Data Files

Standard 1 ID:	V6A9248	Conc:	5
Standard 2 ID:	V6A9247	Conc:	10
Standard 3 ID:	V6A9243	Conc:	50
Standard 4 ID:	V6A9246	Conc:	100
Standard 5 ID:	V6A9245	Conc:	200

B. 1. All SPCC met Criteria ?

Yes

2. Calculate a SPCC average RRF

Comments:

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 02/01

Fraction: VOA

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
1. V6A9240	YES	INITIAL
2. V6B0040	YES	SAMPLES
3. V6B0070	YES	SAMPLES
4. V6B0100	YES	SAMPLES
5.		
6.		
7.		
8.		
9.		
10.		

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

II. Holding Times

Sample I.D.	Date Received	Date Extracted	Date Analyzed	Holding Time Exceeded?
TPSA-14(0-2)A	12/21/00		12/30/00	NO
TPSA-14(0-2)B	12/21/00		12/30/00	NO
TPSA-14(8-10)A	12/21/00		12/30/00	NO
TPSA-14(8-10)B	12/21/00		12/31/00	NO

DATA VALIDATION – ORGANICS

Site Name: IBM- East Fishkill Laboratory Name: Mitkem

Reviewer: R.Petrella Date of Review: 2/01

I. Data Deliverable Requirements

A. Legible	Yes
B. Paginated	Yes
C. Arranged in order	Yes
D. Consistent dates	Yes
E. Case Narrative	Yes
F. Chain-of-Custody Record	Yes
G. Sample Data Complete	Yes
H. Standard Date Complete	Yes
I. Raw QC Data Complete	Yes

Comments: SDG 72111

4 soils for Voa and metals.

Memorandum

To: Project File 1837-00

From: Robbin Petrella RP 2/28/01

RE: IBM East Fishkill Pre-Construction Soil Program
Data Validation

D&B 1837-00

Soil samples were collected from test pits constructed as part of the Pre-Construction Soil Program at the IBM East Fishkill Facility. The samples were analyzed for Volatile Organic Compounds (VOCs) and Priority Pollutant (PP) Metals. Sample analysis was preformed by Mitkem Corporation, a subcontractor to Dvirka and Bartilucci.

The data packages submitted by Mitkem have been reviewed for completeness and compliance with the specified methods. All samples results have been reviewed for transcription and calculation errors to yield a "100% validation" as required. The findings of the validation process are summarized below:

All samples were analyzed within the method specified holding times.

Acetone, methylene chloride and naphthalene have been qualified as non detect in several samples due to laboratory contamination. That is, the method blanks associated with the qualified samples also contained these compounds and the sample concentrations were less than five times the concentration found in the blank. The results which have been qualified are flagged 'U*' on the data summary tables.

No other problems were found with the data and all results have been deemed valid and usable for environmental assessment purposes.