

Hudson Valley Research Park 2070 Route 52 Hopewell Junction, NY 12533 6531

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April 2, 2001

NYS-DEC REGION 3-NEW PALTZ

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

314054

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.

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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:

<u>Study Area</u>	Description
13	Low NO _x 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

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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 bucket prior to dumping and another 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

Salustre J. Iranchina

Salvatore & 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/MISC022315K-LTR.DOC(R01)

ATTACHMENT 1

Figure 1 - Pre-Construction Soil Sampling and Analysis Program

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ATTACHMENT 2

Test Pit Logs

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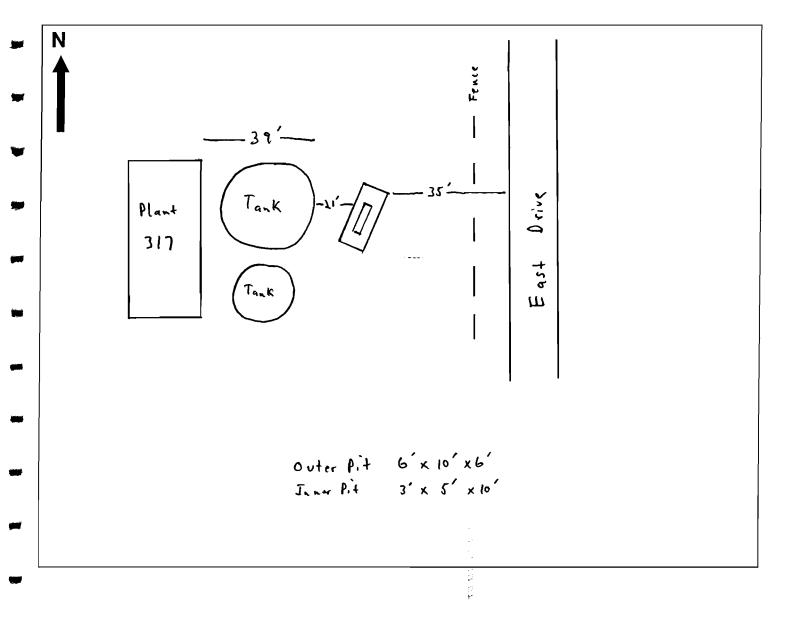
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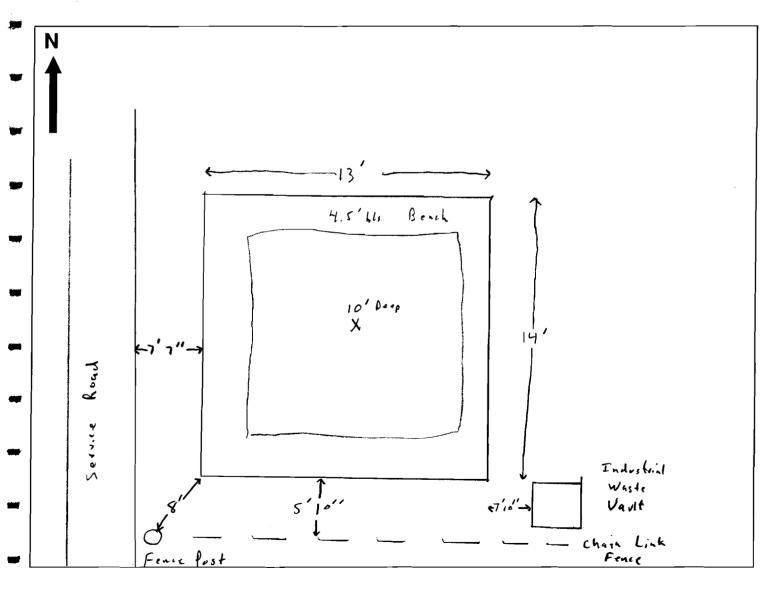
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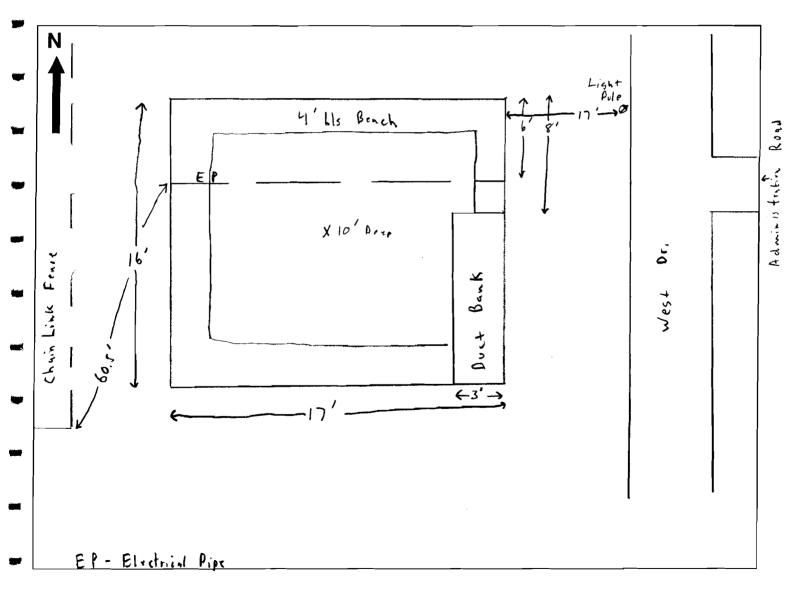
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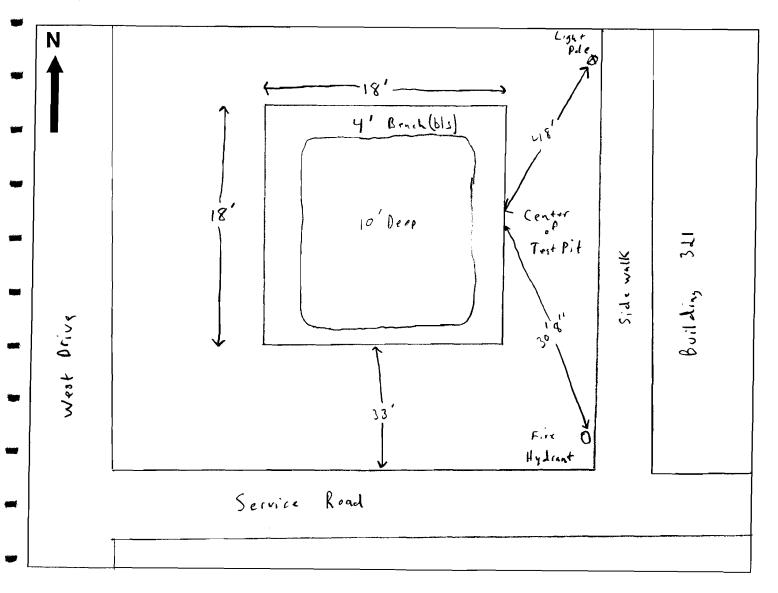
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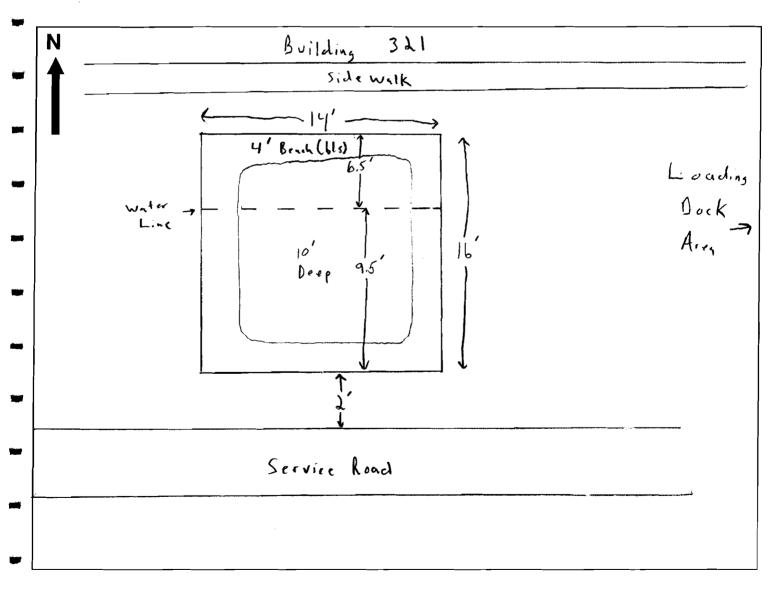
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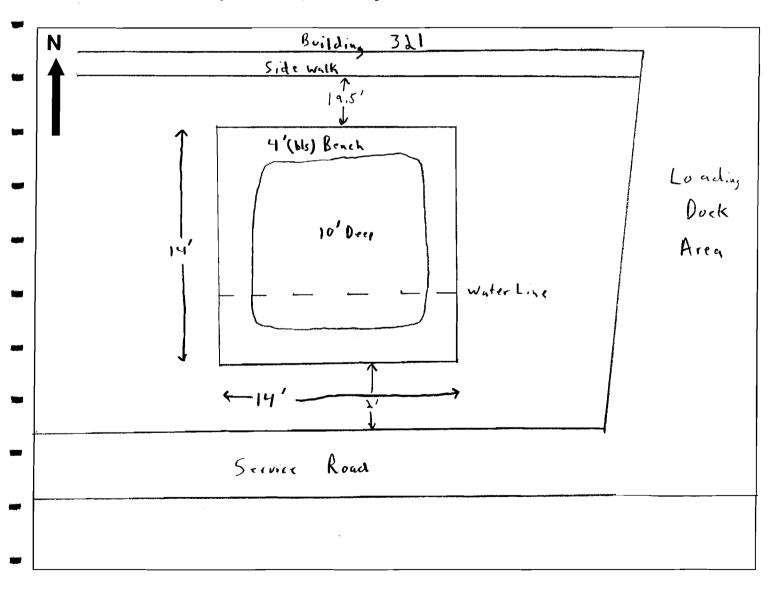
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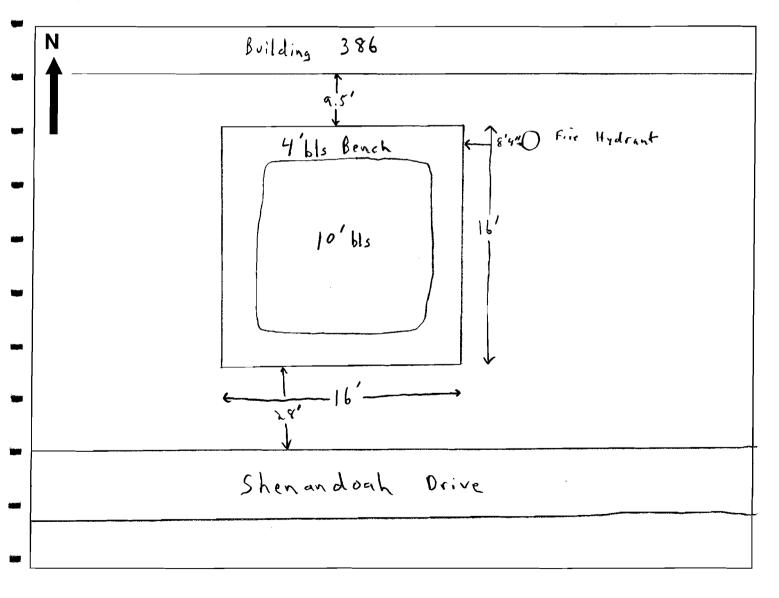
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ملاصحان	IIMr: v	Villiam H	F. Cosulici	h Associates,	P.C.	Proje	ct Name	: IBM		Sheet _1_of _1	
	In B	avironment	al Engineers	and Scientists					logen	By: J. Schofer	
	Drilling	1 Con	tractor	: Ciccont	<u> </u>			ĵ. Se		Boring Completion Depth: " / «	o'
Sec	Driller:		-		•	1	-		Ground Surface Elevation:		
			T Ex	cavalet			_	er Weigh	·		
				/11/01			Comple	-	1/12/01	Dornig Diameter.	
•	Date 5	larleu		I Sample				nalysis			
	Depth		301	Blows		FID		CH4		mple Description	uscs
	(ft.)	No.	Туре		Rec	ppm	ppm	ppm		inpro Docon priori	
Minin	-0-		A			1	0,0	0.0	Brown S. I	t, W/ Some consegravely	
_			IT							, muist, hurdar, no	
			ß			ľ	0,0	0,0		, more and the second s	Í
			Þ						Staining.		
-	-1.5'-								ļ		
]		
السنزر							0,0	0."	Revue «	ilt, w/ some sand/coarso	
	-2-		A						. P. I.	in a construction of the	
									It TIME TO LOG	negrand, w/ some cobbles,	
			ß				0,0	0,0	soft, slight	ly plustic, no odor,	
	-3-		9			1		ļ			ľ
									hu staining	, MUIST,	
-						}			0		
			•				0.0	0.0		it, w/ some sound, (fine	
	-4-		A				-	1	La course)	gravel (Fine to conviel 1	
-										, , ,	
			B				0,0	0,0	colle moist	+, no oder, no staining	
	-5-										
	-6-		~				0,0	0,0	Brown	Sand, fine to Corise, W/	
			A				-				
			B				6, •	0.0	some the ge	wel, losse, moist, ho ning.	
	-7-		ע						odos, no sta	ning.	
-	-/-										
									·		
	-8-		A				0,0	℃ , #	SAA	(6-8)	
										•	
			B				0.0	0.0			
	-9-	†									
				}							\
-	-10-										
	1		ļ								
	 Sample	Туре	 s:						NOTES: Samel	13 Sent for qualacia.	
-	SS =								cA 117	15 Sout for gualizsis: [P4 () A+B 2-4 A+B	
	ST =								JAIAI	2-4 A+B	
	D&M =	. .		(5		-)				PY (8-10) A+B	}
-	UC = UI	ndistur	rbed Co	ore (Denn	ison Typ	e)			24111		

William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	LOCATION SKETCH	Date: 1/12/01
Project IBM Preconstruction Soil	Sampling Program Sample Crew	J. Schafer
Sample(s) Locations(s)	SAIL TP-4	
Sample(s) and/or Well Number(s)		



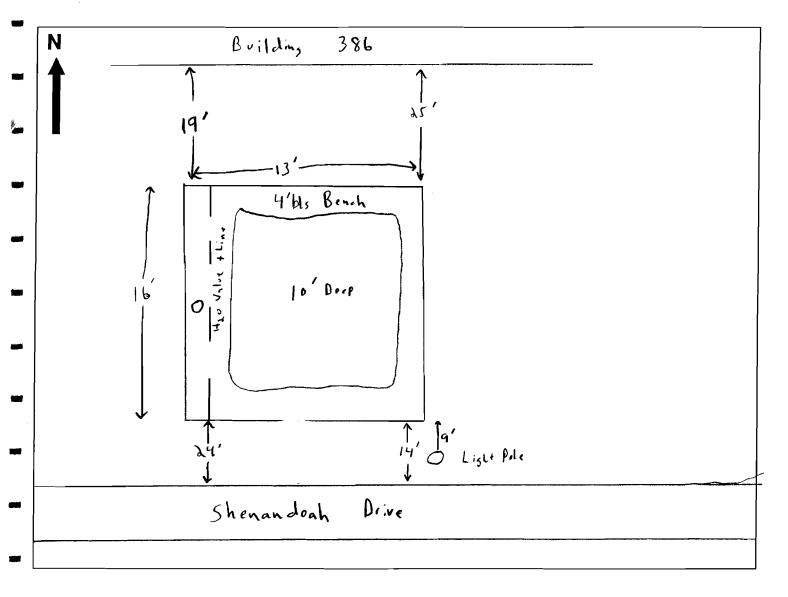
[302] ^B	William F. Cosulich Associates, P.C. Environmental Engineers and Scientists				Proje \$۰.1	ct Name Scmpl.	1837 e: I6 , Pr.	p PreConstruction grom h afer	By: J. Jchater		
Driller: Drill Ri	Driller: Andy Drill Rig: Date Started: 1/15/ •1			. ୧	Drillin Drive	ig Meth	od: Ev er Weigl	Ground Surface Elevatio		•	
Depth (ft.)	No.		Sample Blows Per 6"	Rec	Heads FID ppm	PID	Analysis CH4 ppm	Sa	mple Description	US	
-0-		A B				0.6 0.6	0.0	Conse grandy. Conse grandy. Semi plastic	claying silt, w/ some + Cobble, soft, moist, no oder, no		
-1.5'-		A				0.6	0 . 6	Staining,			
-3-		ß				ē, i	6.1				
-4-		A				C, Ø	e, u	Biown . Coarstgeard, maint he	silty clay w/ trace of sufl, slightly plastic, outer, hu stuining		
-5-		в				0,0					
-6-		PA G				0.5 0.5		Sand (fire+	silty gradly (fin to cound course, loose, moist,		
-7-		ļ						ho odri, no s	streining,		
-8-		A B				0 - 0 0 - V	0,0 6,0	SAA	(6-8)		
-9-											
-10-	Type										
Sample SS = ST = D&M =			re (Denni	ຣດກ Tvr	a)			SAI9 E	s sout for analysis: E[(1-4)]A+B E[(8-10)]A+B		

William F. Cosulich Associa Environmental Engineers and Scientists	tes, P.C. LOCATION SKETCH	Date: /15/01
Project IBM Preconstruction	n Soil Sampling Programsample Crew	J. Schafer
Sample(s) Locations(s)	SA 19 EI	
Sample(s) and/or Well Number(s))	



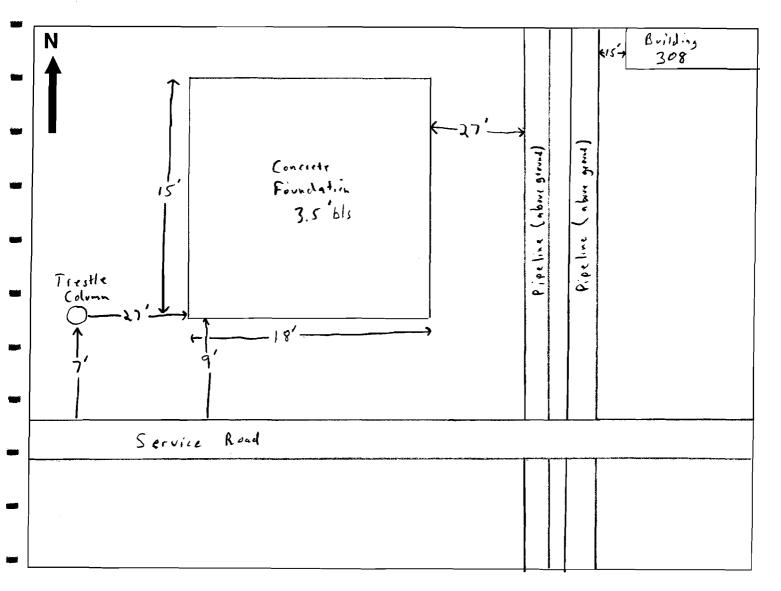
120	Environment	al Engineers a	h Associates, and Scientists		Proje Se il	Samp	: IBA	37 n - Preconstruction Frann Schafre	Boring No.: SA19EL Sheet L of L. By: J. Schafer	
Driller: Drill Ri	: A • · ig: C[ly AT Ex : 11	: Ci'ccon . cav ater 171 01		Drillin Drive Date	ng Metho Hamme Complet	od: E, er Weig ted:	covaties ht:	Boring Completion Depth: " Ground Surface Elevation: Boring Diameter:	
Depth (ft.)			I Sample Blows Per 6"	Rec	Head FID ppm	space A PID ppm	nalysis CH4 ppm		mple Description	USC
-0-		А В				0.7	0.0 6:0	Brown gr Soft, slightl odur, nu s	welly (Fire to coarse) selt, y plastic, moist, ho staining	
-1.5'-						-				
-2-		A				B 146		SAA (o-1j	
-3-		в				2.3	0.0			
-4-		A				0,0	0.0	Brown Sa Fine to coars	udy silt, w/ some c gravily + cobble, slightly	
-5-		B				0,0	•, <i>U</i>	plustic sonis staining	oft, no oclar, no	
-6-		A				0.7	ن . 0	Brown gr	arelly sind (file to Course)	
-7-		В				1.3	0.6	odur, no stain;	c, louse, moist, no "J.	
-8-		A -				1.2	0,4	544 (6	. 8]	
-9-		В				0.8	0,0			
-10-										
Sample SS = ST = D&M =	Type	s:	L	L		I		NOTES: Sampli SAI9 EL	y sent for analysis! (1-4) A+B	

William F. Cosulich Assoc Environmental Engineers and Scient	ists LOCATION	SKETCH	
Project IBM - Preconstruction	Soil Sampling Program	Sample Crew	J. Schafer
Sample(s) Locations(s)	SA 19 E2		

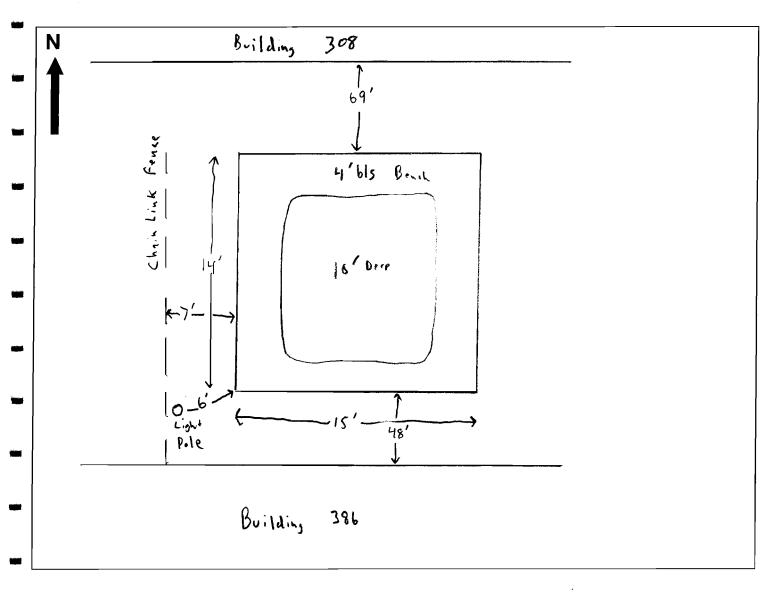


E CERT	avironment	al Engineers	h Associates, and Scientists		Proje	ct Name	1837- :: IBM <u>Ag</u> P	- Pre construction - Pre construction Frain Schafte	By: J. Schefer		
Driller: Drill Ri	And a. Cl	ly AT Ex : 1	cavator /19/01	‹	Drillin Drive Date (ig Metho Hamme Complet	od: Ex er Weigh ted:	revation ht: —	Boring Completion Depth: " (Ground Surface Elevation: Boring Diameter:		
Depth (ft.)	No		Sample Blows Per 6"	Rec	FID	PID	nalysis CH4	1	mple Description	usc	
-0-	110.	A B	reiu	Neu	ppm	ppm	ppm Bre Bre	Brook Sill grand (Fine to	t all size scaly (course), coursel		
-1.5'-		Q									
-2-		A				0. °	0,0	Brown St Moist, W/ S	it, soft, somi plastic,		
-3-		B				0,0	0.0	gravel, trai a fine, ang. material,	it, soft, somi plastic, ione fine to envice ic cobble. @ 21' ilar crushed black		
-4-											
-5-											
-6-											
-7-											
-8-											
-9-											
-10-											
Sample SS = ST = D&M =	Туре	5:	t	I	ľ			NOTES: Af Foradation.	24' a solid concrete		

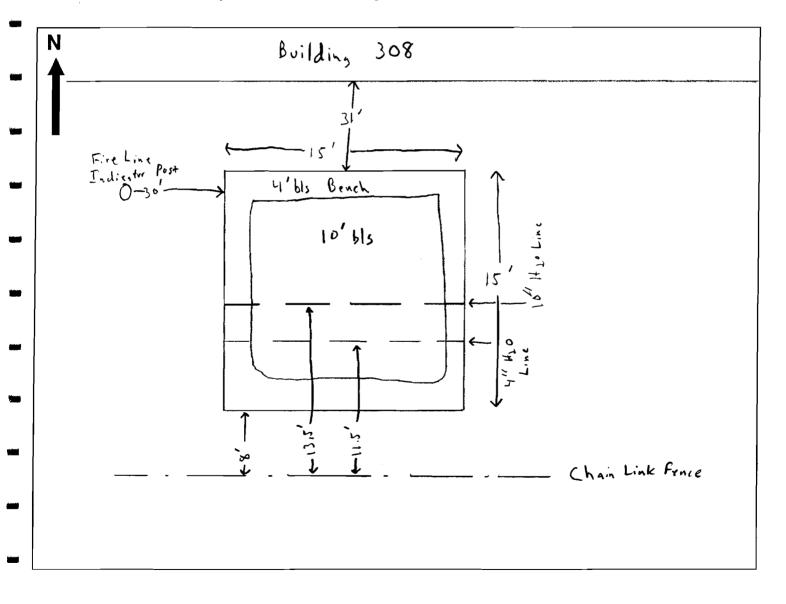
William F. Cosulich Associates, P.C. Environmental Engineers and Scientists	LOCATIO	N SKETCH	Date: //9/0]
Project IBM - Preconstruction Soil Sampling	Program	Sample Crew	J. Schafer
Sample(s) Locations(s)	SA 19	F	
Sample(s) and/or Well Number(s)			



William F. Cosulich Associate Environmental Engineers and Scientists	LOCATION	N SKETCH	
Project IBM - fre construction Su	il Sampling Program	Sample Crew	J. Schafer
Sample(s) Locations(s)	SA 19 A		



William F. Cosulich Associates, P.C. Environmental Engineers and Scientists LO	CATION	SKETCH	Date: 1/26/01
roject IBM forcen struction Soil Sampling	Program	Sample Crew	J. Schafer
mple(s) Locations(s)	ς Δ	19 B	



E Tanal E	lavironmen	tal Engineers :			Proje	ct Name לאמף	lin, P	M - Preconstruction rogram	By: J. Schafer	
Driller: Drill Ri	iq: C	ndy AT Ex	: . Cicco constar 23/01	u{ 	Drillin Drive	ig Meth	od: E er Weigl	k cava tim	Boring Completion Depth: " / Ground Surface Elevation: Boring Diameter:	0
Depth (ft.)			Sample Blows Per 6"	Rec	Heads FID ppm	space A PID ppm	Analysis CH4 ppm		mple Description	uscs
-0-		A B				0.0	0.0	Brown sit gravely muist, D-6" Asohal	t, soft, plastic, trace of no odor, no staining. t w/ a large crushed	
-1.5'-								rock base,		
-2-		A				0. ~ 	0.0	Brown plastic, moist	cobbly silt, soft, semi , he ador, he strining, us. @ 3' large croited ase, 26" thick.	*
-3-		в				0,0	0, •	w/some bruld ruck stone b	"S. (\emptyset 3' large crolad ase, $\approx 6''$ thick.	
-4-		A				0.2		conse), cobb	silt, w/ gravel (fine to le + some bouldors, from	
-5-		B				0,1	0,0	Sand (constre), plassic,	Soft, moist, semi	
-6-		A				0,3	0,0	Menter S,	AA(4-6)	
-7-		B				0,0	0,0			
-8-		A				0.7	0.0	SAA	(4-6)	
-9-		B				0,3	0.0			
-10-										
 Sample SS = ST = D&M =	Туре	s:	1	[NOTES: Sumple, SA[9A SA [9A	s analyzrd. (1-4) AtB (8-10) AtB	

1 million	Villiam I	F. Cosulici	h Associates,	P.C.	Proje	ct No.: ct Name	[\$] ε: τ R	M Preconstant.	Boring No.: SA 19 B "Sheet <u>L</u> of <u>L</u> .					
		tal Engineers	-	/	Sat	(S.	- 10 	Program						
Driller: Drill Ri	An g: CI	dy D ATE	: Ciccon le t eso excurtor 125/01		Geolo Drillin Drive	ogist: Ig Meth Hamme	ז, גע od: E er Weig	he for X(evation	By: J. Schafer Boring Completion Depth: " K Ground Surface Elevation: Boring Diameter:					
		Soi	Sample		Head	space A	nalysis							
Depth (ft.)	No.		Blows Per 6"	Rec	FID ppm	PID ppm	CH4 ppm	Sample Description						
-0-		A B			0.1		0,0	Brown sil sand, gravel (f semi plustic, m	t, w/ some fine to coarse fire to coarse), t cobble, soft oist, no oday, no strining.					
-1.5'-										┟──── 				
-2-		Ą			6.0		0.0	Brown S plastic, w/ +	silt, soft, moist, non race fine saud and some					
-3-		B			0. 4		6. c	Consise sound, Cobble,	fine to consegrand, t					
-4-		A			0.0		0,0	Brown s fine to coasse	and (fine to coarse), w/ gravel, time coble, moist to wot (@ = 5"					
-5-		в			0 < 0		o, e	bls)	, mail r to work to as					
-6-		Ą			ઝ. (0,0	Brown g	ravelly (fire to course) seend					
-7-		6			0,3		ت, 0	(for coarse wi cobler + bodd no staining	Isome medium), w/ summers, wet, louse, no odur,					
-8-		A			o.L		0.6	•	574.4 (6-8)					
-9-		B			0.1		0,0	9.5-10' plastic, wet	Gray gravelly clay, soft, , no odry, no storing.					
-10-														
Sample SS = ST =	Туре	 s:					 	SAIYB	s sout for analysis: (2-4) A+B (8-10) A+B					

[mo] ^B	Environmen	al Engineers a			Projec	ct Name	18: :: IBm ~, P. 7, Si	37 - 00 - Preconstruction Vigitim	Boring No.: SALE Sheet <u>l</u> of <u>l</u> . By: <u>J</u> , Sch.fer Boring Completion Depth: "L ^{d"} Ground Surface Elevation: Boring Diameter:					
Driller	: A.l ig: C	ат <u>Е</u> нт Е н 16	Cilli Ieso x cuntur Di/01		Drillin Drive Date (g Meth Hamme Comple	od: E er Weig ted:	kovatin ht: -						
Depth (ft.)			Sample Blows Per 6"	Rec	FID Ppm	space A PID ppm	nalysis CH4 ppm		mple Description	USC				
-0-		A B			ð.* 8.0		0.0	Brown siet Some frae-e Semi plastie, m	w/ trace contro Sond, onle gravely + cible, 5 oft, rist, no odre, he staining,					
-1.5'- -2- -3-		A B			0.5 0.4		0.+ 0,0	Brive sit some fixe + s.ft, semi staining	it, w/ trace coarse sand, Everse gravel texable, Unstic, met, ho odre, ho					
-3- -4- -5-		A B			0.4 0.3		0. * 0 ₁ 0	Brown 31 w/ Fine to C	ity sand, fire to course, coarse source, loose, and, mining,					
-6-		A B			0,9 1,0		0.0 6,0		gray silty clay, w/ gravel, soft, wet, no oder, no staining					
-8-		A B			4.5 0.9		0.0	AAZ	(6-8)					
-9-		-												
Sample SS = ST = D&M =			re (Denni					NOTES: Samp SAI9 (()-" SAI9 (() -	4) A +B					

Drilling	g Con A g: C l	tractor	h Associates, and Scientists De Ies * caunt ** /1 /0	L owe D	Project Soil S Geolo Drillin Drive	ومنامی gist: g Meth Hamme	e: IBA <u>frugian</u> J. S.	n -Preconstruction hafer icavation ht:	Boring No.: $SA 19D$ Sheet <u>1</u> of <u>1</u> . By: $S \cdot S \cdot h_A f_{er}$ Boring Completion Depth: "] Ground Surface Elevation: Boring Diameter: $1L'_{\times 15}'$							
Depth (ft.)		Soi Type	I Sample Blows Per 6"	Rec	Heads FID ppm	space A PID ppm	nalysis CH4 ppm	-	mple Description	USCS						
-0-		A 6			0,0 0,0	- F	0, 0 0, 0	Brown silt Sand, + some Some Cobbbe, Me oist, NO od	W/some fine to coasse fine to coasse gravely t semi soft, somi plastic, Wij nostaming.							
-2-		A			0,0		0.0	Brown son Fine to coarse moist, no ode	d, fine to coasso, w/ some gravel, some cubble, loose							
-3-		B			0.0			Poolsa, no ou	, , , , , , , , , , , , , , , , , , ,							
-4-		A B			0.0 0.0		0.0	Clay, Soft,	inc to conise gravelly plastic, wet, no odor,							
-5-		D						no staining								
-6-		A B			0.0 6, 0			Leaste gravel / C.	y silty clay, w/soms obbie, soft, somi plastic v/leaf matter truts,							
-7-								no odoi, no s								
-8-		A			0.0		0.0	Light brow soft, plastic,	we course gravelly clay, wet, no odor, no staining							
-9-		B			0.0		0.0									
-10-	Í															
 Sample SS = ST = D&M = JC = Ur			ore (Denni	ison Tvn	e)			NOTES: Sempl. SAI9D(1-4) SAI9D(8-10)	A + B							

ATTACHMENT 3

Laboratory Chain of Custody Forms

MITKEM Corporation

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CHAIN-OF-CUSTODY RECORD

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-PSA-14(0-2)B	10-15 /			X		02)	4	义	×													
1PSA - 14 (8-14) A	10501			×		63	14	X														
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MITKEM

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CHAIN-OF-CUSTODY RECORD

Page ____ of ____

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M I T K E M Corporation	175 Metro Center Boulevard Warwick, Rhode Island 02886-1755 (401) 732-3400 • Fax (401) 732-3499 email: mitkem@mitkem.com	Center de Islan) • Fax (. cem@m	Boulev d 0288 401) 7. itkem.c	ard 6-1755 32-3499	•		CH	AI	<u>{-0</u>	C -	UST	OD	ΥR	CHAIN-OF-CUSTODY RECOR	NRD	Page	of	
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SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	CKAB	SOIL	ОТНЕК	LAB ID	# OF CONTAINERS	<u>لا -</u>	(0) N3) NOT		17.7. 18 - 11.0 M	\nearrow	$\backslash \backslash \rangle$	$\backslash \rangle$	$\backslash \rangle$	$\langle \rangle$	COMMENTS	
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CHAIN-OF-CUSTODY RECORD

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CHAIN-OF-CUSTODY RECORD

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Page ____ of ____

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CHAIN-OF-CUSTODY RECORD

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CHAIN-OF-CUSTODY RECORD

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	175 Metro Center Boulevard Warwick, Rhode Island 02886-1755 (401) 732-3400 • Fax (401) 732-3499 email: mitkem@mitkem.com	REPORT TO	C. 51 . 6	11114	Tind transfired	bur, NY	ME: Suil Suil	DATE/TIME SAMPLED	131/01/0131	556 a / 10/12/1	5241141611	5.1.1 1 10/12/1	211/01/13.	V 1 1130	1 1115	1 10 000	1 1 1 1 1 A	`	/	/ /	RELINQUISHED BY	Xiii			
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, ,	2.0		COMPANY	NAME	ADDRESS	CITY	CLIEN CLIEN		2 81 9 5	N N	PIAS	51419	5A 19	NV5	5	5	S.				TSF#	1	2	°.	

ATTACHMENT 4

Tabulated Analytical Results

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SAMPLE LOCATION			2TP1			SA1	2TP2				
SAMPLE IDENTIFICATION	SA12TP124A	SA12TP124B	SA12TP1810A	SA12TP1810B	SA12TP224A	SA12TP224B	SA12TP2810A	SA12TP2810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2'-4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	92	87	79	89	91	89	87	87		GROUNDWATER	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane									-		10.000.000
	U	U U U	U U	l U	U	U	U U	U U	5		16,000,000
Chloromethane		U U	U	U U	U	UU	U U	U U	5		49,000
Vinyl Chloride					0	-	U U	U U	5	120	340
Bromomethane Chioroethane	-		U U		U	U U	U	U U			110,000
Trichlorofluoromethane	U U	U	U	เ <u>บ</u> ม	U	U U	l U	U U	5	1,900	49,000
	-	-	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
lodomethane	U U	U U	U U	U U	U U	U	U	U	5		
Carbon Disulfide	U	U U	U U	U U	U	U	U U	U	5	2,700	7,800,000
Methylene Chloride	U U	U	U U	U U	U	U U	U	U	5	100	85,000
trans-1,2-Dichloroethene	U U	U	U 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	U U	U	5		
1,1-Dichloroethane	U	U	l U	l u	U	U	U	U	5	200	7,800,000
Vinyl Acetate	U	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 U	U U	5		
2-Butanone	U	0	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	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	U	5		
Carbon Tetrachloride	U	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	U U	(U	5	60	22,000
Trichloroethene	U	(U	U U	U	U	(U	U	U U	5	700	58,000
1,2-Dichloropropane	U	U U	U U	U U	U U	U	U U	U U	5		9,400
Dibromomethane	U	U U	U	U	U U	U U	U U	U	5		780,000
Bromodichloromethane	U	U	U U	U U	l u	U U	U	U U	5		10,000
cis-1,3-Dichloropropene	U U	U U	U	U U) U	U U	U U	U U	5		
4-Methyl-2-pentanone	U U) U	U U	U	U	U	U U	U U	5	1,000	6,300,000
Toluene	8	8	6 J	44	. 9	32	U U	U U	5	1,500	16,000,000
trans-1,3-Dichloropropene	U U	U U	υ υ	U	υ υ	U	Ú	U	5		
1,1,2-Trichloroethane	lυ	ί υ	ί υ	U	U	U	U	U	5		11,000
1,3-Dichloropropane	υ	U	U U	U	Ŭ	U	U	Ű	5	300	

SAMPLE LOCATION		SA12				SA1:	2TP2				
SAMPLE IDENTIFICATION	SA12TP124A	SA12TP124B	SA12TP1810A	SA12TP1810B	SA12TP224A	SA12TP224B	SA12TP2810A	SA12TP2810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	92	87	79	89	91	89	87	87		GROUNDWATER	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Tetrachloroethene	Ú	U	U	U	Ū	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U	U U	ป บ	U	5		
Dibromochloromethane	U	U	U	U	U	υ	U	U	5		7,600
1,2-Dibromoethane	U U	U	U	U	ບ	U U	U	U	5		7.5
Chlorobenzene	ί υ	U U	U	U	· U	U U	U	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U) U	່ ປີ	U	U U	U U	U	U	5		25,000
Ethylbenzene	U	U	U U	ט	U	υ υ	I U	U U	5	5,500	7,800,000
Styrene	U U	U	U U	U U	U U	Ι υ	U U	U	5		21,000
Xylene (total)	U U	U U	U U	U	U U	U U	Ū	Ū	5	1,200	160,000,000
Bromoform	U U	U U	U	U	U U	υ	U	υ	5		81,000
Isopropylbenzene	U U	U U	U U	U	U U	Ū	U	Ū	5		3,100,000
1,1,2,2-Tetrachloroethane	U U	U	U	່ ບ່	υ	ບ	υ	່ ບ	5	600	3,200
Bromobenzene	U	U	U	U U	U U	U	U	U U	5		
1,2,3-Trichloropropane) U	U	U	υ (U U	U U	U U	U U	5	340	470,000
n-Propylbenzene	U	U U	U	U	U	υ	U U	Ú	5		
2-Chlorotoluene	U	υ υ	U	U	U U	U	U U	l Ū	5		1,600,000
1,3,5-Trimethylbenzene	l u	υ υ	U	U	U υ	U U	Ι υ	υ	5		
4-Chlorotoluene	U	U	U	ט	l u	լ ս	l u	Ū	5		
tert-Butylbenzene	U	U	U	U U	U	Ú	U	U	5		
1,2,4-Trimethylbenzene	U) U	ט	U U	U	Ι υ	U	U	5		
sec-Butylbenzene	U	U U	U	i U	U	U	U	U	5		
1,3-Dichlorobenzene	U	U U	U	U U	1 U	U U	U U	U	5	1,550	
4-Isopropyltoluene	U	U	U U	U U	U	U	U U	(U	5		
1,4-Dichlorobenzene	U U	υ	U U	U U	U	U	U	υ	5	8,500	27,000
n-Butylbenzene) υ	υ υ	ι U) U) U	ί U	ί υ) υ	5		
1,2-Dichlorobenzene	U	U U	U	U	Ū	U	Ŭ	Ū	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	Ū	Ū	Ū	Ū	Ū	Ū	Ū	5		29
1,2,4-Trichlorobenzene	U	Ū	U	Ū	Ū	Ū	i Ū	Ū	5	3,400	780,000
Hexachlorobutadiene	Ű	Ū –	Ū	Ū	l ū	Ū	Ū Ū	Ū	5		8,200
Naphthalene	Ú Ú	U	Ū	Ū	Ū	Ŭ	Ū Ū	(Ū	5	13,000	310,000
1,2,3-Trichlorobenzene	U	Ū	Ū	Ū	Ū	Ŭ	ں ا	່ ບັ	5		
			-			1	-				
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.

1837: BVEITH\IBM\1837\IBMVOC2V.WK4/mh

Notes:

---- : Not established.

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SAMPLE LOCATION		SA1	2TP3			SA1	2TP4	<u> </u>			
SAMPLE IDENTIFICATION	SA12TP324A	SA12TP324B	SA12TP3810A	SA12TP3810B	SA12TP424A	SA12TP424B	SA12TP4810A	SA12TP4810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	93	86	94	93	90	92	93	91		GROUNDWATER	
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 U	υ	5		16,000,000
Chloromethane	U	U	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	U	U	5		110,000
Chloroethane	U	U	U	U U	U	(υ	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U U	U	U U	U	U U	U U	U	5		23,000,000
1,1-Dichloroethene	U	U U	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
lodomethane	U U	U	U	U	U) U	U U	U	5		
Carbon Disulfide	<u>υ</u>	U	U	່	3 J	3 ງ) 3 J	3 J	5	2,700	7,800,000
Methylene Chloride	U	U U	U U	U U	U	1 J	U U	U	5	100	85,000
trans-1,2-Dichloroethene	U	U	U	U 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	U U	U U	U U	5		
1,1-Dichloroethane	U U	l u	ι υ	U U	U	U U	U	U	5	200	7,800,000
Vinyl Acetate	U	U U	U	U U	U	U U	U U	U U	5		78,000,000
cis-1,2-Dichloroethene	U U	U U	U	U U	U	U U	U U	U U	5		780,000
2,2-Dichloropropane	U	U	U	l u	U	U U	U U	U U	5		
2-Butanone	U U	5 J	ί υ	U	U	U U	U	U U	5	300	47,000,000
Bromochloromethane) U) U) U	U U) U) U) U	U	5		
Chloroform	5	6	5 J	6	U U	U	U	U U	5	300	100,000
1,1,1-Trichloroethane	U	U	U U	U U	U U	U	U U	U U	5	760	7,000,000
1,1-Dichloropropene	U U	U U	U U	U U	U U	U	U U	U U	5		
Carbon Tetrachloride	U	ู บ	U	U U	U U	{ υ	l υ	{ υ	5	600	4,900
1,2-Dichloroethane	U	U U	U	U U	U U	U	U	U	5	100	7,000
Benzene	U	U U	U	U U	U U) U	U	U	5	60	22,000
Trichloroethene	U	U	U U	U	U U	U U	U U	U U	5	700	58,000
1,2-Dichloropropane	U	(υ	U) U	υ	U	U	U	5		9,400
Dibromomethane) U) U	U (U U	i U	U U	U U	U	5		780,000
Bromodichloromethane	U	U U	U	U U	U U	U U	U U	U	5		10,000
cis-1,3-Dichloropropene	Ū	U U	U U	U U	U U	U U	U	U	5		
4-Methyl-2-pentanone	Ū	U U	U U	U	υ υ	Ū	U	U U	5	1,000	6,300,000
Toluene	2 J	2 J	1 J	υ 1	2 J	2 J	1 J	1 J	5	1,500	16,000,000
trans-1,3-Dichloropropene	Ū	Ū	Ū	U U	Ū	Ū	ί υ	Ú	5		
1,1,2-Trichloroethane	Ū	Ū	Ū Ū	Ū	1 J	Ŭ	1 J	1 J	5		11,000
1,3-Dichloropropane	Ū	Ū	Ū	U	Ū	U	Ū	Ŭ	5	300	

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SAMPLE LOCATION			TP3				2TP4				
SAMPLE IDENTIFICATION	TP324A	TP324B	TP3810A	TP3810B	SA12TP424A	SA12TP424B	SA12TP4810A	SA12TP4810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2'-4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	93	86	94	93	90	92	93	91		GROUNDWATER	
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	Ū	U	U	U	5	1,400	12,000
2-Hexanone	U	U	U	U	U U	U U	U	U U	5		
Dibromochloromethane	U	U	U	U	U U	U U) U	U U	5		7,600
1,2-Dibromoethane	U	U	U	U	U U	U U	U U	U U	5		7.5
Chlorobenzene	U	U	U	U	U	l υ	υ	υ	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U U	U	υ υ	5		25,000
Ethylbenzene	U	U	U	U	U U	U U	U	Ū	5	5,500	7,800,000
Styrene	U	U	U	U	U U	U U	U	υ υ	5		21,000
Xylene (total)	U	U	U	U	U U	υ	U	υ (5	1,200	160,000,000
Bromoform	U.	U	U	U	U	U	U	υ	5		81,000
Isopropylbenzene	υ	U	υ	U	U	U	U U	U U	5		3,100,000
1,1,2,2-Tetrachloroethane	υ	U	U	U	U U	U U	(U	U	5	600	3,200
Bromobenzene	υ	U	U	U	U U	U U	U U	U U	5		
1,2,3-Trichloropropane	U	U	U	U	U U	U	U U	U U	5	340	470,000
n-Propylbenzene	υļ	U	U	U	U	U	{ U	υ	5		
2-Chlorotoluene	U	U	U	U	U U	U U	U U	U U	5		1,600,000
1,3,5-Trimethylbenzene	U	U	U	U	U U	U	U U	U U	5		
4-Chlorotoluene	U	U	U	U	j U	U	U U	U U	5		
tert-Butylbenzene	U	U	υ	U	U	U	U U	U U	5		
1,2,4-Trimethylbenzene	U	U	U	U	U U	U U	{ U	{ υ	5		
sec-Butylbenzene	υj	U	U	U	U	U U	υ	U	5		
1,3-Dichlorobenzene	U	U	U	U	U U	U U	U	υ	5	1,550	
4-Isopropyltoluene	U	U U	U	U	U U	U U	U U	U	5		
1,4-Dichlorobenzene	U	U	U	U	U U	U	U	່ ບ	5	8,500	27,000
n-Butylbenzene	U	U	U	U	U	U U	U U	U	5		
1,2-Dichlorobenzene	U	U	U	U	U U	U U	U U	U U	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	U	U	U	U	υ	υ υ	U	Ú	5		29
1,2,4-Trichlorobenzene	U	U	Ú	Ű	Ú	Ū	Ŭ	Ū	5	3,400	780,000
Hexachlorobutadiene	U	Ū	U	Ū	Ū	Ū	U U	Ū	5		8,200
Naphthalene	U	U	U	Ū	Ú Ú	Ū	U	U	5	13,000	310,000
1,2,3-Trichlorobenzene	U	U	U	Ū	Ū	Ū	Ū	Ū	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.

1837: BVEITH\IBM\1837\IBMVOC2V.WK4/mh

Notes:

---- : Not established.

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SAMPLE LOCATION	Ţ	SA1	2TP5			SA	14]		
SAMPLE IDENTIFICATION	SA12TP524A	SA12TP524B	SA12TP5810A	SA12TP5810B	SA1402A	SA1402B	SA14810A	SA14810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	0 - 2'	0 - 2'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	90	88	92	92	83	85	76	71	1 -	GROUNDWATER	
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	υÌ	U	5		16,000,000
Chloromethane	l U	U	U	U	U	U	υ	U	5		49,000
Vinyl Chloride	U U	. U	U	U	U	U	υ	U	5	120	340
Bromomethane	U	U	U	U U	U	U	υl	U	5		110,000
Chloroethane	U U	U U	U	U	U	U	U	U	5	1,900	49,000
Trichlorofluoromethane	U	U	U	υ	U	υ	υ	υ	5		23,000,000
1,1-Dichloroethene	U U	υ υ	U	Ū	Ű	ū	Ū	Ū*	5	400	1,100
Acetone	U*	U"	Ū*	Ū*	4 J	89	Ū	12	5	110	7,800,000
lodomethane	Ū	Ι υ	Ū	Ū	Ū	u l	Ū	U	5		
Carbon Disulfide	7	4 J	2 J	4 J	ū	2 J	Ū	Ū	5	2,700	7.800.000
Methylene Chloride	Í 2 J	3 J	Ū	1 J	Ū	Ŭ	Ŭ	Ū	5	100	85.000
trans-1,2-Dichloroethene	Î Ū	Ū) Ū	l ul	Ū Ì	Ŭ l	Ŭ	Ū	5	300	1,600,000
Methyl tert-Butyl Ether	l Ū	Ū	Ū	l ūl	ū	ŭ	Ū	Ū	5		
1,1-Dichloroethane	Ū	Ū	Ū	Ū	ŭ	ŭ	ŭ	Ŭ	5	200	7.800.000
Vinvl Acetate	l ū	Ū	Ŭ	Ŭ	ŭ	Ŭ	Ŭ	Ŭ	5		78,000,000
cis-1.2-Dichloroethene	Ū	Ū Ū	Ú Ú	l ūl	ū	ū	Ū	Ū.	5		780,000
2,2-Dichloropropane	Ū	Ū	Ū	Ū	ū	ū	Ŭ	i ŭ	5		
2-Butanone	Ū	l Ū	U	l Ūl	Ū	7	Ū	ĺ	5	300	47,000,000
Bromochloromethane	Ū	l u	Ú U	l Ūļ	Ū	U	Ū	Ū	5		
Chloroform	Ū	U	Ū	Ū	Ū	Ū	Ū	Ū	5	300	100.000
1.1.1-Trichloroethane	Ū	Ū	Ū	l ū	Ũ	Ŭ	Ũ	Ū	5	760	7,000,000
1.1-Dichloropropene	υ	υ	U U	ן טן	ul	Ū	Ū	·Ū	5		
Carbon Tetrachloride	υ	U	U	U	U.	Ū	Ū	Ū	5	600	4,900
1.2-Dichloroethane	ี่ ข้) U	Ŭ	Ū	Ū	Ū	Ū	l ū	5	100	7,000
Benzene	Ū Ū	U	Ū	Ū	Ū	Ū	Ū	Ũ	5	60	22,000
Trichloroethene	U U	1 J	Ŭ	U	Ū	Ū	Ũ	l ū	5	700	58,000
1,2-Dichloropropane	Ū Ū	Ŭ	Ŭ	Ū Ū	Ū	Ū.	Ŭ	Ŭ	5		9,400
Dipromomethane	- Ū	Ū	Ū	i ū	Ŭ	ū	Ŭ	ŭ	5		780,000
Bromodichloromethane	l ŭ	ŭ	l ũ	ŭ	Ŭ	ŭ	Ŭ	l ű	5		10,000
cis-1,3-Dichloropropene	Ů Ů	Ŭ	Ū Ū	ŭ	ŭ	ŭ	ŭ	l ŭ	5		
4-Methyl-2-pentanone	Ŭ	ŭ	l ü	U U	ŭ	ŭ	Ŭ	Ŭ	5	1,000	6,300,000
Toluene	7	22	U U	U U	ŭ	1 1	Ŭ	l ŭ	5	1,500	16,000,000
trans-1,3-Dichloropropene	ί ú	ι " υ	U U	U U	ŭ	- U	. U	່ ບັ	5	1,500	10,000,000
1.1,2-Trichloroethane	2 J	2 J	U U	1 1	Ű	U U	U U	ΙŬ	5		11,000
1,3-Dichloropropane			U U	' J	Ŭ	Ű	U U	U	5	300	
		L0		0	U	0	U	U			

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1837: BVEITHNBM1837\IBMVOC2V.WK4/mh

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

Oualifiare.	TOTAL VOCs	י, ב,ט- ו ווטווטיטעפוובפוופ	1 9 3 Tricklosobostoso	Nanhthalana		1.2.4-Trichlorobenzene	1,2-Dibromo-3-chloropropane	1,2-Dichlorobenzene	n-Butylbenzene	1,4-Dichlorobenzene	4-IsopropyItoluene	1,3-Dichlorobenzene	sec-Butylbenzene	1,2,4-Trimethylbenzene	tert-Butylbenzene	4-Chlorotoluene	1,3,5-Trimethylbenzene	2-Chlorotoluene	n-Propyloenzene	- Brookbarropane				Bromotorm	Xylene (total)	Styrene	Ethylbenzene	1,1,1,2-Tetrachloroethane	Chlorobenzene	1,2-Ulbromoethane	Dibromochloromethane	2-Hexanone	Tetrachloroethene	UNITS	PERCENT SOLIDS	DILUTION FACTOR	DATE OF COLLECTION	SAMPLE DEPTH	SAMPLE IDENTIFICATION	SAMPLE LOCATION
	18	c	= c	= 0	= 0	= •	c	c	c	c	c	С	c	c	с	c	c	c		: <	: <	: c	: c	: C		: C		C	C	0	c	c	c	(ug/kg)	90		1/10/01	2'-4'	SA12TP524A	
	32	c	: <	= c	= c	= (L	c	c	c	c	c	c	c	c	c	C	c		: ⊂	: с	: <	: ⊂	: ⊂			c	c	c	_	c	c		(ug/kg)	88	1	1/10/01	2'-4'	SA12TP524B	SA12TP5
	2	c	: c	= c	: c	= 0	=	c	c	c	c	c	c	c	c	c	C	c	U	: -		: -	: -	c	C	c	c	c	c	c	c	c	c	(ug/kg)	92	1	1/10/01	8' - 10'	SA12TP5810A	TP5
	6	c	: <	: c	: 0	= 0	=	c	c	c	c	c	c	c	с	c	c	c				: -	. –	c	c	C	c	c	c		c	c		(ug/kg)	92	1	1/10/01	8' - 10'	SA12TP5810B	
	4	c	: c	: c	: c	= 0	= -		c	c	c	c	c	C	c	c	c	c	C	c	U		C	c	c	c	c	c	c	C	c	c		(ug/kg)	83		12/18/00	0 - 2'	SA1402A	
	66	_	: -	: c	: c	= 0	= •		_	c	c	c	c	C	c	c	c	c	c	c	c		c	c	c	c	c	c	c	c	c	c		(ug/kg)	85		12/18/00	0 - 2'	SA1402B	SA14
•	0	C				= 0	= •	= (L			c				c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		(ug/kg)	76	-	12/18/00		SA14810A	14
i	10	C				= c	= 0	= (=							c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		(ug/kg)	71	-	12/18/00	8' - 10'	SA14810B	
		თ	5	5	σ	'nC	אכ	ח כ	ית	υ Γ	טי ויט	Un (ורט	υ υ	5	сл ·	თ	თ	თ	5	თ	თ	თ	თ	თ	თ	5	თ	თ	σı	თ	თ	5	(ua/ka)		LIMITS	DETECTION	REQUIRED	CONTRACT	
	10 000	ł	13,000	ł	3,400		000, 1	7 000		8.500		1.550					1		-	340		600	ļ		1,200	-	5,500	1	1,700	1	1		1,400	(ua/ka)	GROUNDWATER	TO PROTECT	OBJECTIVES	SOIL CLEANUP	TAGM 4046	
			310,000	8,200	780,000	67	,000,000		- 1000	27 000				•				1.600.000	ł	470,000		3,200	3,100,000	81,000	160,000,000	21,000	7,800,000	25,000	1.600.000	7.5	7.600	1	12,000	(ua/ka)		ACTION LEVELS	CONTAINED-IN	SOIL/SEDIMENT	TAGM 3028	

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Notes: ---- : Not established.

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.

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

SAMPLE LOCATION		SA19A	9A			SA19B	19B				
SAMPLE IDENTIFICATION	SA19A24A 2' - 4'	SA19A24B	SA19A810A	SA19A810B 8' - 10'	SA19B24A	SA19B24B 2' - 4'	SA19B810A 8' - 10'	SA19B810B 8' - 10'		SOIL CI FANIJP	TAGM 3028
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	_ _	-	-1		-	1		-	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	90	90	90	91	93	92	88	06		GROUNDWATER	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	c	c	c	c	c	c	c	C	თ	1	16,000,000
Chloromethane	C	c	c	c	С	c	C	C	თ	1	49,000
Vinyl Chloride	c	С	c	c	c	c	c	c	თ	120	340
Bromomethane	c	c	c	c	c	c	c	c	сл	1	110,000
Chloroethane	c	c	c	c	c	c	c	c	сл	1,900	49,000
Trichlorofluoromethane	c	c	c	c	c	c	c	C	υ,	1	23,000,000
1,1-Dichloroethene	C	C	C	C	C	c	C	c	сл	400	1,100
Acetone	c	c	¢,	c	, C	c	¢	¢	თ	110	7,800,000
lodomethane	c	c	c	c	C	c	c	c	თ	1	1
Carbon Disulfide	c	c	c	c	c	c	c	c	თ	2,700	7,800,000
Methylene Chloride	c	c	c	c	c	c	c	c	თ	100	85,000
trans-1,2-Dichloroethene	: c		c	c	c	: כ	c	: c	i Ui	300	1,600,000
Methyl tert-Butyl Ether	C	C	c	c	c	c	c	c	თ	1	1
1,1-Dichloroethane	: c	: -	: ⊂	: -	: ⊂	: ⊂	: c	: -	יט יו	200	7,800,000
Vinyi Acetate	: c	: c	: C	: c	: c	: c	: <	: c	ں ہ	1	18,000,000
cis-1,2-Dichloroethene	: <	: ⊂	: C	: 0		: ⊂	: -	: ⊂	י <i>ני</i>	1	780,000
2,2-Dichloropropane	: c	: c	: с	: c	: с	: -	: c	: с	ι σ		
2-Butanone		: c					: c		υ Ο	300	47,000,000
Bromochloromethane	c	C	c	C	c	c	C	c	თ	1	1
Chloroform	c	c	c	c	c	c	c	c	сл	300	100,000
1,1,1-Trichloroethane	c		C	C	c	C	C	C	сл	760	7,000,000
1,1-Dichloropropene	c	c	c	c	c	C	_	C	G	1	ļ
Carbon Tetrachlonide	c	c	C	c	c	c	c	c	υ,	600	4,900
1,2-Dichloroethane	c	c	c	c	c	c	c	c	υ	100	7,000
Benzene	c	c	c	c	c	C	–	c	сл	60	22,000
Trichloroethene	c	С	c	c	c	с	С	c	G	700	58,000
1,2-Dichloropropane	c		C	c	c	c			СЛ		9,400
Dibromomethane	c	C	c	c	c	c	c	c	СЛ		780,000
Bromodichloromethane	c	C	C	c	c	c			თ	ł	10,000
cis-1,3-Dichloropropene	C	C	c	C	C	c	C	C	U	1	
4-Methyl-2-pentanone	c	c	c	c	c	c	c	c	σ	1,000	6,300,000
Toluene	c	c	c	c	c	c	c	c	υ	1,500	16,000,000
trans-1,3-Dichloropropene	c	C	c	c	c	C	c	C	сл	1	1
1, 1, 2-Trichloroethane		c	c	C	C	C			Ch	1	11,000
1,3-Dichloropropane			L	c		C			5	300	

	40	てかってつ			DATAB	20				
SA19A24A	SA19A24B	SA19A810A	SA19A810B	SA19B24A	SA19B24B	SA19B810A	SA19B810B	CONTRACT	TAGM 4046	TAGM 3028
2' - 4'	2'-4'	8' - 10'	8' - 10'	2'-4'	2'-4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANID	SOIL/SEDIMENT
1/23/01	1/23/01	1/24/01	1/24/01	1/26/01	1/26/01	1/26/01	1/26/01	DETECTION	ORIECTIVES	CONTAINED IN
1	1	-	-	-	-	-		LIMITS	TO PROTECT	
06	60	06	91	93	92	88	06		GROUNDWATER	
(ug/kg)	(ng/kg)	(ng/kg)	(ba/bn)	(ng/kg)	(ng/kg)	(na/ka)	(na/ka)	(na/ka)		(110/ku)
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	> =	> =) =	> =) =	> =	> =	n ı	1,200	160,000,000
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n	. =		> =	> =	> =	> =	> =	n u	13,000	310,000
))	þ	ס	5	2	D	n	•	1
c	<	~	c							

Notes: ---- : Not established.

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.

1837: BVEITHNBM/1837/IBMVOC2V.WK4/mh

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SAMPLE IDENTIFICATION	SA19C24A					SA1			1		
ALLEN E OF DTU	SAISO24A 1	SA19C24B	SA19C810A	SA19C810B	SA19D24A	SA19D24B	SA19D810A	SA19D810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	89	90	88	86	93	91	84	88	1	GROUNDWATER	
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	υ	υ	υ	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 U	5	120	340
Bromomethane	U	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 U	U U	5		23,000,000
1,1-Dichloroethene	U U	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
lodomethane	U U	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 U	2 J	U*	U*	3 J	3 J	7	U* U	5	100	85,000
trans-1,2-Dichloroethene	U	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	U U	5		
1,1-Dichloroethane	U	U	U	U	U U	U	່ ບ	່ ບ	5	200	7,800,000
Vinyl Acetate	U	U	U	U	U	U	U U	U U	5		78,000,000
cis-1,2-Dichloroethene	U	U	U	U	U	U U	U U	U U	5		780,000
2,2-Dichloropropane	U	U	U	U	U	U U	U U	U U	5	-+	
2-Butanone	U	U	U	U	U	U	ļυ	U U	5	300	47,000,000
Bromochloromethane	U	U	U	U	U U	U U	U U	U U	5		
Chloroform	U	U	U	U	U	U U	U U	U U	5	300	100,000
1,1,1-Trichloroethane	U	U U	U	U	U	U U	U	U U	5	760	7,000,000
1,1-Dichloropropene	U	U U	U	U	U	U U	U	. U	5		
Carbon Tetrachloride	<u></u> U	ן U	ប	υ	υ	U	U) U	5	600	4,900
1,2-Dichloroethane	U	U U	U (U U	U	U U	U U	U U	5	100	7,000
Benzene	U U	U U	U U	U U	U	U U	U U	U U	5	60	22,000
Trichloroethene	U	U	U U	U U) U	U U	U U	U U	5	700	58,000
1,2-Dichloropropane	U	U	U	U	U	U	U	U U	5		9,400
Dibromomethane	U	U U	U U	U U	U U) U	U U	U	5		780,000
Bromodichloromethane	U	U	U	U	U	Ű	U	U	5		10,000
cis-1,3-Dichloropropene	U	U	υ	U	U U	U U	U U	U	5		
4-Methyl-2-pentanone	U	l u	U U	Ū	Ū	U U	U U	U	5	1,000	6,300,000
Toluene	Ū	Ū	Ū	Ū	Ū Ū	Ū	4 J	2 J	5	1,500	16,000,000
trans-1,3-Dichloropropene	Ū	Ū	Ū	Ū	Ū	Ū	Ŭ	Ū	5		
1.1.2-Trichloroethane	Ū	l ū	Ū	Ū	l ŭ	Ū	Ū	Ŭ	5		11,000
1.3-Dichloropropane	Ŭ	Ū	Ū	Ū	Ū Ū	Ū	Ū	Ū	5	300	

SAMPLE LOCATION		SA	19C			SA	19D]		
SAMPLE IDENTIFICATION	SA19C24A	SA19C24B	SA19C810A	SA19C810B	SA19D24A	SA19D24B	SA19D810A	SA19D810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	89	90	88	86	93	91	84	88	1	GROUNDWATER	
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	Ū	U	8	5 J	5	1,400	12,000
2-Hexanone	υ	U	Ú U	U U	U	U) U) υ	5		
Dibromochloromethane	U	U	U	U	U	U	υ	U	5		7,600
1,2-Dibromoethane	υ	U	U	U	U	U	U U	U	5		7.5
Chlorobenzene	υ	U	U	U	U	U	Ū	U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U U	U	Ū	Ū	Ŭ	Ū	5		25,000
Ethylbenzene	U	U	U	Ū	Ū	Ū	Ū	Ū	5	5,500	7,800,000
Styrene	Ū	Ū	Ū	Ū	Ū	Ŭ	Ū	Ū	5		21,000
Xylene (total)	U	U	U U	ίU	U	U	U	Ū	5	1,200	160,000,000
Bromoform	υ	υ	U U	Ű	U	U	U	Ū	5		81,000
Isopropylbenzene	U	U	ί υ	υ	U	Ū	Ū	Ū	5		3,100,000
1,1,2,2-Tetrachloroethane	U	U	Ι υ	υ	ບ	Ū	Ū	Ū	5	600	3,200
Bromobenzene	Ū	Ū) Ū	Ū	Ū	Ū	Ū	Ŭ	5		
1,2,3-Trichloropropane	Ū	Ū	l ū	Ū	Ū	Ŭ	Ū	Ŭ	5	340	470,000
n-Propylbenzene	Ŭ	U	l Ū	U	Ū	Ū	Ū	Ŭ	5		
2-Chlorotoluene	Ŭ	Ű	Ū	Ū	Ū	Ū	Ū	Ū	5	****	1,600,000
1,3,5-Trimethylbenzene	Ŭ	U	Ū	Ū	Ū	Ū	Ū	Ū	5		
4-Chlorotoluene	Ŭ	Ŭ	Ū	U	ັບ	່ ບົ	Ū Ū	Ŭ	5		
tert-Butylbenzene	Ŭ	Ū	Ū	Ū	Ū	ŭ	Ú Ű	Ŭ	5		
1,2,4-Trimethylbenzene	Ŭ	Ū	Ŭ Ŭ	Ŭ	Ū	l ū	l ŭ	Ŭ	5		
sec-Butylbenzene	Ū Ū	Ŭ	ů ů	Ŭ	l ŭ	Ū	Ŭ	Ŭ	5		
1,3-Dichlorobenzene	l ŭ	l ŭ	Ū	l ŭ	l ŭ	Ū	Ŭ	Ū Ū	5	1,550	
4-Isopropyltoluene	Ŭ	Ŭ	Ū Ū	l ŭ	Ū Ū	Ŭ	Ů	l ŭ	5		
1.4-Dichlorobenzene	Ŭ	Ŭ Ŭ	Ŭ	Ŭ Ŭ	ŭ	Ŭ	i u	u u	5	8,500	27,000
n-Butylbenzene	Ŭ	ŭ	Ŭ	l ŭ	ŭ	i ŭ	U U	U U	5		
1.2-Dichlorobenzene	Ŭ Ŭ	i ŭ	Ŭ	l ŭ	Ŭ Ŭ	Ŭ	<u> </u>	(u	5	7,900	7,800,000
1,2-Dibromo-3-chloropropane	Ū Ū	l ŭ	Ŭ	l ŭ	Ŭ	Ŭ	U U	ŭ	5	7,900	29
1.2.4-Trichlorobenzene	Ŭ	ŭ	Ŭ	l ŭ	ŭ	Ŭ	U U	U U	5	3,400	780,000
Hexachlorobutadiene	υ.	í ŭ	Ŭ Ŭ	ů ů	Ŭ Ŭ	Ŭ	Ŭ	U U	5	3,400	8,200
Naphthalene	Ŭ	U U	3 J	l ŭ	ŭ	U U	U U	U	5	13,000	310,000
1.2.3-Trichlorobenzene	U U		J U		ŭ	U U	U U		Š	13,000	310,000
			0			0	0	0			
TOTAL VOCs	8	10	22	23	27		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	
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SAMPLE LOCATION	SA19E124A	SA19E124B S		SA19E1810B	SA19E224A		SA19E2 IB SA19E2810A	SA19E2810B	CONTRACT	,	TAGM 4046
AMPLE DEPTH	2'-4'	2'-4'	8' - 10'	8' - 10'	2' - 4'	2'-4	8' - 10'	8' - 10'	2 70	REQUIRED	s
DILUTION FACTOR	1	1	1	1	1	1	1	-	2		
PERCENT SOLIDS	94	92	92	92	88	89	95	93	1		_ ۵
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/kg)	
Dichlorodifluoromethane			c	c	c	c		c		<i>с</i> т	
Chloromethane	c	c	c	c	c	c	c			σı	IJ.
Vinyl Chloride			c	c	L	c			C		
Bromomethane		_	c	C	c	c			C		თ
Chloroethane		_	c	c	c	c	_		c		
Trichlorofluoromethane		-	c	C	c	c			C		сл
1,1-Dichloroethene	~		c	c	c	c			C		сл
Acetone	ç		¢,	Ţ	Ç	Ľ,			~		сл
lodomethane			c	c	c	c			_		<i>с</i> л
Carbon Disulfide			c	c	c	c			_		თ
Methylene Chloride			c	c	c	c	4		<u>د</u>		л
trans-1,2-Dichloroethene			c	c	c	c			_		-
Methyl tert-Butyl Ether			c	c	c	c			C		5
1, 1-Dichloroethane		-	c	c	c	- L		-	C		ζη
Vinyl Acetate			c	c	c	c			<u> </u>		5
cis-1,2-Dichloroethene			c	c	c	C	_		C		5
2,2-Dichloropropane	с		c	c	c	c			<u> </u>		5
2-Butanone	c		c	c	с	c			C		5
Bromochloromethane			с	c	c	c			C		сл
Chloroform	- -		c	c	c	c			С		J
1, 1, 1-Trichloroethane	c			c	c	c			C		J
1,1-Dichloropropene	c		c	c	c	c			c		ι υ
Carbon Tetrachloride	c		c	c	C	c			c	_	CJ
1,2-Dichloroethane				c	c	c			C		
Benzene			c	c	c	c			c		5
Trichloroethene			c	C	c	c			C		σı
1,2-Dichloropropane		_	c	C	c				c		J
Dibromomethane			c	c	c				c		
Bromodichloromethane			c	c	_ _	с			c		
cis-1,3-Dichloropropene				c	c	c			~		
4-Methyl-2-pentanone			c	c	c	с			c	_	5
Toluene			c	c	c	c	c		C		5
rans-1,3-Dichloropropene			c	c	c	c			C		
1,1,2-Trichloroethane			c	c	c	c			c		
1.3-Dichloropronane	U)	c	U		_ _			c		

1837: BVEITHNBMN1837NBMVOC2V.WK4/mh

SAMPLE LOCATION		SA1	9E1			SA1	9E2		1		
SAMPLE IDENTIFICATION	SA19E124A	SA19E124B	SA19E1810A	SA19E1810B	SA19E224A	SA19E224B	SA19E2810A	SA19E2810B	CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
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	DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	94	92	92	92	88	89	95	93]	GROUNDWATER	
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	U U	5		
Dibromochloromethane	U	U	U U	U	U	U	U	U	5		7,600
1,2-Dibromoethane	U	U) U	U	U	U U	U U	U U	5		7.5
Chlorobenzene	U	U	U	U	U	ן U	U U	U U	5	1,700	1,600,000
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U U	U	5		25,000
Ethylbenzene	U	U	U	U	U	U	U U	U U	5	5,500	7,800,000
Styrene	U	U	U	U	ี ป	ប	<u></u> ປ	່ ບ	5		21,000
Xylene (total)	U	U	υ	U	U	U U	U	U	5	1,200	160,000,000
Bromoform	U	U	υ	υ.	U	U	U	U	5		81,000
Isopropylbenzene	U	U	υ	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	υ	U	່ ບ	່ບ່	ບ່	υ	U	U U	5		
1,2,3-Trichloropropane	U U	U	U	U	U	U U	U U	U U	5	340	470,000
n-Propylbenzene	U	. U) ປ	U	U	U	U	U U	5	****	
2-Chlorotoluene	U	U	ן U	U	U	U	U	U U	5		1,600,000
1,3,5-Trimethylbenzene	U	U	U U	U	U	U	U U	U	5		
4-Chlorotoluene	U) U) U) U	U	<u>່</u> ປ) U	U U	5		
tert-Butylbenzene	U	U	U	່ ບ	U	U	U U	U U	5		
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U U	5		
sec-Butylbenzene	U	U	U	U	U	U	U U	U U	5		
1,3-Dichlorobenzene	U	J. U	lυ	U U	U	U	U	U U	5	1,550	
4-Isopropyltoluene	U	U U	υ	U	U	U	U U	U U	5		
1,4-Dichlorobenzene	U U	ປ	ן U	U) U	U	U U	U U	5	8,500	27,000
n-Butylbenzene	U U	U	ι. υ	U	U U	U	U U	U U	5		
1,2-Dichlorobenzene	U U	U	U U	U U	U U	U	U	U	5	7,900	7,800,000
1.2-Dibromo-3-chloropropane	U	Ű	U U	່ ບ	Ú	υ	υ	ι υ	5		29
1,2,4-Trichlorobenzene	U	Ū	Ū	U	U U	Ū	Ū	Ū	5	3,400	780,000
Hexachlorobutadiene	Ū	Ū	Ū	Ū	Ū	Ū	l ū	Ū	5		8,200
Naphthalene	Ū•	Ū	Ū•	Ū	Ū	Ŭ	ū	l ū	5	13,000	310,000
1.2.3-Trichlorobenzene	Ŭ	Ŭ	Ŭ	Ū	i ŭ	Ŭ	ū	l ū	5		
		Ĭ					1 -]	
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.

1837: BVEITH\\BM\1837\IBMVOC2V.WK4/mh

Notes:

---- : Not established.

SAMPLE LOCATION	SA1	9F								
SAMPLE IDENTIFICATION	SA19F24A	SA19F24B		 	-			CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'						REQUIRED	SOIL CLEANUP	SOIL/SEDIMENT
DATE OF COLLECTION	1/19/01	1/19/01		 				DETECTION	OBJECTIVES	CONTAINED-IN
DILUTION FACTOR	1	1		 			·	LIMITS	TO PROTECT	ACTION LEVELS
PERCENT SOLIDS	86	88		 					GROUNDWATER	
UNITS	(ug/kg)	(ug/kg)						(ug/kg)	(ug/kg)	(ug/kg)
Dichlorodifluoromethane	U	U				ĺ		5		16,000,000
Chloromethane	U	U						5		49,000
Vinyl Chloride	U	U					ļ	5	120	340
Bromomethane	ί υ	υļ			1	ļ		5	+ 	110,000
Chloroethane	U	U						5	1,900	49.000
Trichlorofluoromethane	U U	U						5		23,000,000
1,1-Dichloroethene	U	U						5	400	1,100
Acetone	U*	Ū*						5	110	7,800,000
lodomethane	U U	U				ļ	ļ	5		
Carbon Disulfide) Ū	Ū						5	2,700	7,800,000
Methylene Chloride	4 J	4 J						5	100	85,000
trans-1,2-Dichloroethene	l Ū	Ũ	1					5	300	1,600,000
Methyl tert-Butyl Ether	l Ū	ŭ						5		
1,1-Dichloroethane	Ū	ŭ						5	200	7,800,000
Vinyl Acetate	Ŭ	ŭ				1		5		78.000.000
cis-1,2-Dichloroethene	Ŭ	u u u				l l		5		780.000
2,2-Dichloropropane	Ŭ	ŭ						5		
2-Butanone	Ŭ	ŭ						5	300	47,000,000
Bromochloromethane	Ŭ	ŭ						5		
Chloroform	Ŭ	Ŭ				1		5	300	100.000
1.1.1-Trichloroethane	ี บ้	Ŭ						5	760	7,000,000
1,1-Dichloropropene	Ŭ	Ŭ						5		7,000,000
Carbon Tetrachloride	Ŭ	Ŭ						5	600	4,900
1,2-Dichloroethane	Ŭ	ŭ						5	100	7,000
Benzene	Ū	Ŭ						5	60	22,000
Trichloroethene	. U	Ű			(I			5	700	58,000
1,2-Dichloropropane	U U	ı ü						5	700	9,400
Dibromomethane	U U	Ŭ						5		
Bromodichloromethane	U U	U U						5		780,000
cis-1,3-Dichloropropene	U U			}				5		10,000
		U U				Í		5		
4-Methyl-2-pentanone		u u						5	1,000	6,300,000
Toluene	U	-						5	1,500	16,000,000
trans-1,3-Dichloropropene	U U	U						5		
1,1,2-Trichloroethane	U	U U						5		11,000
1,3-Dichloropropane	υ	U	L	 <u>_</u>	L			5	300	

	SA19F24A	SA19F24B		CONTRACT	TAGM 4046	TAGM 3028
SAMPLE DEPTH	2'-4'	2' - 4'		REQUIRED	SOIL CLEANIP	SOIL/SEDIMENT
DATE OF COLLECTION	1/19/01	1/19/01		DETECTION	OBJECTIVES	
DILUTION FACTOR	-	-		I IMITS	TO PROTECT	
PERCENT SOLIDS	86	88		; ;	GROUNDWATER	
UNITS	(ug/kg)	(ng/kg)		(na/ka)	(na/ka)	(na/ka)
Tetrachloroethene	>	<u> </u>		5	1.400	12.000
2-Hexanone	>	D		5		
Dibromochloromethane	>	D		0.10	I	7 600
1,2-Dibromoethane	D	C		, n	1	7 5
Chlorobenzene	J	D		о ис	1 700	1 600 000
1,1,1,2-Tetrachloroethane	>	D) (r.		25,000
Ethylbenzene	5	C) (r.	5 500	7 800 000
Styrene	D	D) (C		21000
Xylene (total)	D	_ 0		, ru	1 200	160 000 000
Bromoform	5	D		, .c.		B1000
isopropylbenzene	C	D		, r		3 100 000
1,1,2,2-Tetrachloroethane	D	D		ک در	600	3 200
Bromobenzene	>	D		у (г		0,200
1,2,3-Trichloropropane	5	C			340	470.000
n-Propylbenzene	D) и ^с	6	
2-Chlorotoluene	D	כ		о <i>к</i> .		1 600 000
1,3,5-Trimethylbenzene)	J) и.	ļ	
4-Chiorotoluene	>	D) (C		
tert-Butylbenzene	⊃			2		ł
1,2,4-Trimethylbenzene	<u> </u>	D		о 10 0		
sec-Butylbenzene	D	D		ۍ د ا	1	
, 3-Dichlorobenzene	5	D		5	1.550	-
4-lsopropyltoluene	∍	D		2		I
1,4-Dichlorobenzene	⊃	D		2	8.500	27.000
n-Butylbenzene	>	D		2		
1,2-Dichlorobenzene	>	D		о ко	7.900	7 800 000
,2-Dibromo-3-chloropropane	0	C) IC		00
1,2,4-Trichlorobenzene	>	J) IC	3 400	780.000
Hexachlorobutadiene	>			21.0	2	8 200
Naphthalene	>	D		о ю	13 000	310.000
1,2,3-Trichlorobenzene	D	D		ι ις		
TOTAL VOCs	4	4			10,000	
					10,000	
Qualifiers:			Natas			

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.

1837: BVEITHNBM:1837JBMVOC2V.WK4/mh

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SAMPLE LOCATION		SA1	2TP1			SA1	2TP2]		
SAMPLE IDENTIFICATION	SA12TP124A	SA12TP124B	SA12TP1810A	SA12TP1810B	SA12TP224A	SA12TP224B	SA12TP2810A	SA12TP2810B		TAGM 4046	TAGM 3028
SAMPLE DEPTH	2'-4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
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	DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	LEVELS	ACTION LEVELS
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	υ	 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		0.002	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 (111), 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	υ	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	UU	U	υ	Ū	Ū	l <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
		<u> </u>									

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.

SAMPLE LOCATION		SA1:	2TP3			SA1	2TP4				
SAMPLE IDENTIFICATION	SA12TP324A	SA12TP324B	SA12TP3810A	SA12TP3810B	SA12TP424A	SA12TP424B	SA12TP4810A	SA12TP4810B		TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
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	DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	_1	1	1	LIMITS	LEVELS	ACTION LEVELS
PERCENT SOLIDS	93	86	94	93	90	92	93	91	1		
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
Antimony	υ	U	U	υ	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 (111), 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 U	0.019 B	U U	0.0001	0.001 - 0.2	23
Nickel	18.4	<u>21.</u> 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	U	U U	0.002		390
Thallium	UU	U	UU	U	<u></u>	<u>0.57</u> B	U	UU	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
									I		

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.

	<u> </u>		0 T DC						1		
SAMPLE LOCATION			2TP5			SA					
SAMPLE IDENTIFICATION	SA12TP524A	SA12TP524B		SA12TP5810B	SA1402A	SA1402B	SA14810A	SA14810B		TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	<u>2'</u> - 4'	8' - 10'	<u>8' -</u> 10'	0 - 2'	0 - 2'	8' - 10'	8' - 10'	INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
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	DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	LEVELS	ACTION LEVELS
PERCENT SOLIDS	90	88	92	92	83	85	76	71			
	(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 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	U	0.038 B	0.043 B	0.016 B	υ	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	<u> </u>	U	0.002		390
Thallium	U] ປ	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
				T I					I		

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.

SAMPLE LOCATION		SA	19A			SA	19B		1		
SAMPLE IDENTIFICATION	SA19A24A	SA19A24B	SA19A810A	SA19A810B	SA19B24A	SA19B24B	SA19B810A	SA19B810B		TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	8' - 10'	INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
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	DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	LEVELS	ACTION LEVELS
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		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	U U	0.004	0.1 - 3.9	390
Silver	U	U	U	U	[U	U	U	U U	0.002		390
Thallium	0.91	<u> </u>	0.74	0.44 <u>B</u>	0.41 B	0.29 B	0.20 B	່ ບ	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
								T			

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.

SAMPLE LOCATION		SA	19C				19D				
SAMPLE IDENTIFICATION	SA19C24A	SA19C24B	SA19C810A	SA19C810B	SA19D24A	SA19D24B	SA19D810A	SA19D810B		TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' • 4'	<u>2'</u> - 4'	8' - 10'	8' - 10'	2'-4'	2' - 4'	8' - 10'	8' - 10'	INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
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	DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	1	1	1	LIMITS	LEVELS	ACTION LEVELS
PERCENT SOLIDS	89	90	88	86	93	91	84	88			
	(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 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	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 U	0.54 B	U	0.57 B	0.39 B	U	U U	U U	0.004	0.1 - 3.9	390
Silver	U U	0.33 B	U U	U	U	U	U U	U U	0.002		390
Thallium	<u> </u>		0 <u>.24</u> 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
						1				1	1

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.

SAMPLE LOCATION		SA1	9E1			SA1	9E2				
SAMPLE IDENTIFICATION	SA19E124A	SA19E124B	SA19E1810A	SA19E1810B	SA19E224A	SA19E224B	SA19E2810A	SA19E2810B		TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	8' - 10'	8' - 10'	2' - 4'	2' - 4'	8' - 10'	<u>8'</u> - 10'	INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
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	DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1	1	1	1	<u> </u>	<u> </u>	1	LIMITS	LEVELS	ACTION LEVELS
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	0.0 32 B	0.024 B	0.024 B	0.0 23 B	0.011 B	0.021 <u>B</u>	<u>0.</u> 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>	U	0.002		390
Thallium	UU	U	<u> </u>	U	U	UU	U U		0.003		7.8
Zinc	85.8	<u>8</u> 6.3	68.5	84.1	75.8	67.4	82.1	80.7	• 0.004	9 - 50	23,000
									l		

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.

We : Value exceeds TAGM 3028 Contained-in Action Level.

SAMPLE LOCATION	SA	19F							
SAMPLE IDENTIFICATION	SA19F24A	SA19F24B						TAGM 4046	TAGM 3028
SAMPLE DEPTH	2' - 4'	2' - 4'	 				INSTRUMENT	EASTERN USA	SOIL/SEDIMENT
DATE OF COLLECTION	1/19/01	1/19/01					DETECTION	BACKGROUND	CONTAINED-IN
DILUTION FACTOR	1	1					LIMITS	LEVELS	ACTION LEVELS
PERCENT SOLIDS	86	88					1		
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				1	0.0004	0.1 - 1, (10***)	78
Chromium	12.5	14.6					0.002	1.5 - 40*, (50***)	78,000 (111), 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>	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
			(l				

Qualifiers:

U: Compound analyzed for but not detected.

B: Compound concentration is less than the CRDL,

but greater than the IDL.

Notes:

200

---- : 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.

ATTACHMENT 5

Data Validation Sheets

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DATA VALIDATION – METALS

Site Nan	ne: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewe	r: <u>R.Petrella</u>	Date of Review:02/01
1.	boratory Control Sample Analysis Was a laboratory control sample Yes	analyzed at the contract required frequency?
2.	Were the percent recoveries with and Sb) for each analyte?	in the control limits of 80-120% (except for Ag
Co	Yes mments:	

DATA VALIDATION - METALS

A DECK

Site Name: IBM- East Fishkill	_ Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
VII. ICP Interference Check Sample Su4. Was the ICP interference check	mmary (continued): k sample analyzed at the contract specified
frequency: Yes	
Comments:	
 Were the ICP interference chec =w-20% of the mean value? 	ck sample results within the control limit of
Yes If "No", not analytes	

DATA VALIDATION - METALS

Review	er: R.Petrella	Date of Review:02/01
VII. IO	CP Interference Check Sample Su	mmary
1	. Was the ICP serial dilution anal Yes	yzed at the contract specified frequency?
С	comments:	
2.	. Ψere the serial dilution differen =w 10%?	ces within the contract specified limits of
	Yes	
C	omments:	
		lard analyzed at the contrast analified
З.	frequency for the analytes requi	lard analyzed at the contract specified red?
	Yes	
С	omments:	

Site Na	me: IBM- East Fi	shkill	Laboratory Name: Mitkem
Review	er: <u>R.Petrella</u>		Date of Review:02/01
Site sp	ecific QC not pr	ovided	
VI. M	latrix Spike Analy	/sis	
1.	. Was a matrix	spike prepared an	d analyzed at the contract specified frequency?
1.	. Was a matrix Yes	spike prepared an No	d analyzed at the contract specified frequency?
			d analyzed at the contract specified frequency?
	Yes comments:	No	d analyzed at the contract specified frequency?

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.

No.

DATA VALIDATION - METALS		
Site Na	me: IBM- East Fishkill	Laboratory Name:Mitkem
Review	er: <u>R.Petrella</u>	Date of Review:02/01
-	ecific QC not provided uplicate Analysis	
1.	. Was a duplicate prepared a Yes	nd analyzed at the contract specified frequency? No
C	omments:	
2.	Were control limits for the re analyte?	lative percent differences (RPD) met for each
	Yes	No
	omments:	

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

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 N	Vam	e: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>		
Revie	ewer	: <u>R.Petrella</u>	Date of Review:02/01		
IV.	Bla	nk Summary			
	Α.	Method Blanks			
	1.	Was a method blank prepared an frequency?	nd analyzed at the contract specified		
		Yes			
	2.	Were all the analytes below the	CRDL in the method blank?		
	Yes				
	Cor	nments:			
-	В.	Calibration Blanks			
	1.	Were all initial and continuing ca specified frequency/	libration blanks analyzed at the contract		
		Yes			
	2.	Were all the analytes below the Yes	CRDL in all the calibration blanks?		
	Comments:				

No.



Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>				
Reviewer: <u>R.Petrella</u>	Date of Review:02/01				
Associated Samples:					
III. Continuing Calibration					
 Were the continuing calibration v specified frequency? 	erification standards analyzed at the contract				
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 Nan	ne: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewe	r: <u>R.Petrella</u>	Date of Review:02/01
Associat	ed Samples:	
ll. Ini	tial Calibration	
1.	Were all initial instrument calibra Yes	tions performed?
Cc	omments:	
2.	Were the initial calibration verific	ation standards analyzed at the contract
	specified frequency?	
	Yes	
Co	omments:	
3.	Were the initial calibration result	s within the control limits listed below?
	For tin and mercury: 80-120% o For all other metals: 90-110% o	
	Yes	
	If "No", note analytes	

Name



Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review:02/01

I. Holding times

Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	Holding Time <u>Exceeded?</u>
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	e specific qc not provided	i		
XI. Mat	rix Spike/Matrix Spike Dup	lication Summary		
Sampla ID		N.A Auditor		
Sample ID	: 	Matrix:		
		the contract recommended requirements ?		
Sample ID Did the MS				
Did the MS		the contract recommended requirements?	,	
Did the MS If No, pleas	S/MSD recovery data meet	the contract recommended requirements? Yes No	,	
Did the MS If No, pleas	S/MSD recovery data meet se note below.	the contract recommended requirements? Yes No	· · · · · · · · · · · · · · · · · · ·	
Did the MS If No, pleas	S/MSD recovery data meet se note below.	the contract recommended requirements? Yes No	, ,	
Did the MS If No, pleas	S/MSD recovery data meet se note below.	the contract recommended requirements? Yes No	······································	

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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 li	imits ?
	Yes
If No, please note below.	
Surrogate Compound	Amount Above

<u>Sample</u>

Surrogate CompoundAmount AboveOutside Recovery LimitsContract Requirement

Comments

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Site Name: IBM- East Fis	hkill	Laboratory Name: Mitkem		
Reviewer: R.Petrella		Date of Review:02/01		
Fraction: <u>VOA</u>		-		
IX. Blank Summary				
Date/Time of Analysis:		File ID:		
	concentration	< <u>CROL</u>	<u>Comments</u>	
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.

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Site Name:	IBM- East Fishkill	Laboratory Name:Mitkem					
Reviewer:	R.Petrella	Date of Review:02/01					
Fraction:	VOA						
VIII. Inter	VIII. Internal Standard Area Summary (GC/MS)						
Were all int	Were all internal standard peak areas within the contract limits ?						
		Yes					
If No, please note below							
<u>Sample</u>	Internal Standard Outside Limits	Amount Above Contract Requirement	<u>Comments</u>				

+0020\80225 VALIDATION FORM.DOC\8

	– ORGANICS
Site Name: IBM- East Fishkill La	boratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
VI. Continuing Calibration Summary (GC/MS	S)
Date of Initial Calibration: 1/31,2/13,1/31	
Date of Continuing Calibration: 2/06, 2/7, 2/8,2/	V2D8071
	V2D8101, V2D8232, V6B0721A
A. 1. All SPCC met criteria?	
Yes	
Calculate a SPCC RRF	
Commenter	
Comments:	
2. All CCC met criteria ?	
Yes	
Calculate a CCC % D	
Comments:	
 B. Overall assessment of Continuing Ca (list associated samples) 	alibration
Protocol allows up to 4 %D to be outside limits i	if <40%

Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>			
Reviewer: <u>R.Petrella</u>	Date of Review:02/01			
Fraction: <u>VOA</u>	Date of Calibration: <u>1/31, 2/13, 1/31</u>			
IV. Initial Calibration Summary (contin	ued)			
2. All CCC met Criteria ?				
Yes				
Comments:				
Calculate a CCC % RSD				
C. 1. Was the tune for the initial calib	ration acceptable ?			
Yes				
2. Was the calibration conducted v	vithin 12 hours of the tune			
Yes				
Comments:				
	·			
 D. Overall assessment of the initial calibr (list the associated samples) Initial calibration meets CQ requirements, 				

Site Name: IBM- East Fisl	nkillLa	boratory Name: <u>M</u>	itkem			
Reviewer: <u>R.Petrella</u>		Date of Review: <u>02</u>	2/01			
Fraction: VOA						
IV. Initial Calibration Summary (GC/MS)						
Date of Calibration: <u>1/31,</u>	Date of Calibration: <u>1/31, 2/13, 1/31</u>					
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, Conc: 50 V6B0515			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: _____

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.		

利用は

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review:2/01

II. Holding Times

te Holding Time <u>yzed Exceeded?</u> NO
NO

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DATA VALIDA	ATION – ORGANICS	
Site Name: IBM- East Fisakill	Laboratory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	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	te 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
F. Chain-of-Custody Record	Yes	-
G. Sample Data Complete	Yes	
H. Standard Date Complete	Yes	
I. Raw QC Data Complete	Yes	i i
Comments: SDG 80225		<u>الإ</u>
12 soils for Voa and metals and 1 FB.		
		त् इ
		e

DATA VALIDATION - METALS

Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
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:

$\mathbf{\hat{\mathbf{U}}}$	\checkmark
DATA VAI	LIDATION – METALS
Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
VII. ICP Interference Check Sample	Summary (continued):
Was the ICP interference ch frequency:	eck sample analyzed at the contract specified
Yes	
Comments:	
 Were the ICP interference clining =w-20% of the mean value 	heck sample results within the control limit of ?
Yes	
If "No", not analytes	

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DATA VALIDATION - METALS

/ .	ICP Interference Check Sample Summary
	 Was the ICP serial dilution analyzed at the contract specified frequency? Yes
	Comments:
	· · · · · · · · · · · · · · · · · · ·
	 Were the serial dilution differences within the contract specified limits of <u>=</u>w 10%?
	Yes
	Comments:
	 Was the ICP CRDL check standard analyzed at the contract specified
	frequency for the analytes required? Yes
	Comments:

-

	I	DATA VALIDATION – METALS
Site Na	me: <u>IBM- East Fishki</u>	Laboratory Name:Mitkem
Review	er: <u>R.Petrella</u>	Date of Review:02/01
-	ecific QC not provid	ed
VI. N	latrix Spike Analysis	
1	. Was a matrix spik	e prepared and analyzed at the contract specified frequency?
	Yes	No
C	comments:	
2	. Were the matrix sp (75-125%)?	bike recoveries within the contract specified control limits
	Yes	No
lf	"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.

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Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Site specific QC not provide	d
V. Duplicate Analysis	
1. Was a duplicate prep	pared and analyzed at the contract specified frequency?
Yes	No
Comments:	
2. Were control limits for analyte?	or the relative percent differences (RPD) met for each
Yes	No
Comments:	

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

		DATA VAL	IDATION - METALS
ite	Nam	e: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
evi	ewer	R.Petrella	Date of Review:02/01
1.	Bla	nk Summary	
	A.	Method Blanks	
	1.	Was a method blank prepare frequency?	ed and analyzed at the contract specified
		Yes	
	2.	Were all the analytes below t Yes	the CRDL in the method blank?
	Со	mments:	
	B.	Calibration Blanks	
	1.	Were all initial and continuing specified frequency/	g calibration blanks analyzed at the contract
		Yes	
	2.	Were all the analytes below the Yes	the CRDL in all the calibration blanks?
	Со	mments:	

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DATA VALIDATION – METALS

Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Associated Samples:	
III. Continuing Calibration	
 Were the continuing calibration v specified frequency? 	verification standards analyzed at the contract
Yes	
Comments:	
2. Were the continuing calibration r	esults within the control limits listed below?
For tin and mercury: 80-120% of For all other metals: 90-110% of	

Yes

If "No", note analytes ______

DATA V	ALIDATION METALS
Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: R.Petrella	Date of Review:02/01
Associated Samples:	
II. Initial Calibration	
1. Were all initial instrument of Yes	calibrations performed?
Comments:	
2. Were the initial calibration specified frequency?	verification standards analyzed at the contract
Yes	
Comments:	
3. Were the initial calibration	results within the control limits listed below?
For tin and mercury: 80-12 For all other metals: 90-11	
Yes	

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DATA VALIDATION – METALS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: <u>R.P</u>etrella

Date of Review: 02/01

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I. Holding times

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

		<u> </u>	
DATA VALIE	DATION – OR	GANICS	
Site Name: IBM- East Fishkill	Laborato	ory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	Date o	of Review: <u>02/01</u>	
Fraction: <u>VOA</u>			
Site specific qc not provided	ation Original		
XI. Matrix Spike/Matrix Spike Duplic	ation Summai	У	
Sample ID:		Matrix:	
Did the MS/MSD recovery data meet th	e contract rec	ommended requirements?	
	Yes	No	
If No, please note below.			
Blank spikes were provided and meet C	C requirement	nts	

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Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: R.Petrella	Date of Review:02/01
Fraction: <u>VOA</u>	
X. Surrogate Recovery Summary	
Were all surrogate recoveries within the contract lin	nits ?
	Yes
If No, please note below.	

<u>Sample</u>

Surrogate Compound Outside Recovery Limits

Amount Above Contract Requirement

Comments

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Site Name: IBM- East Fishkill	Laboratory N	lame:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Re	eview:02/01
Fraction: VOA		
IX. Blank Summary		
Date/Time of Analysis:		File ID:
<u>Compound</u> <u>Concentration</u>	< <u>CROL</u>	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.

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DATA VALIDATION - ORGANICS				
Site Name: <u>IBM- I</u>	East Fishkill	Laboratory Name: <u>Mitken</u>	<u>ו</u>	
Reviewer: <u>R.Petrella</u>		Date of Review:02/01		
Fraction: <u>VOA</u>		_		
VIII. Internal Sta	andard Area Summary	(GC/MS)		
Were all internal s	standard peak areas wi	thin the contract limits ?		
		Yes		
If No, please note	below			
Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	<u>Comments</u>	

1

-ishkillLabo	ratory Name: <u>Mitkem</u>
Da	te of Review: <u>02/01</u>
ration Summary (GC/MS)	
n: <u>1/31</u>	
bration: <u>2/3</u>	File ID: <u>V2D7961</u>
CC met criteria ?	
Yes	
criteria ?	· · · · · · · · · · · · · · · · · · ·
Yes	
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	\smile	\checkmark	
	DATA VALIDA	TION – ORGANICS	
Site Name	: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>	
Reviewer:	R.Petrella	Date of Review:02/01	
Fraction:	VOA	Date of Calibration: 1/31	
IV. Initia	al Calibration Summary (continu	ued)	
2.	All CCC met Criteria ?		
	Yes		2 1986
Comments	:		
Calc	culate a CCC % RSD		
C. 1. V	Vas the tune for the initial calibr	ration acceptable ?	
	Yes		
2. V	Vas the calibration conducted w	vithin 12 hours of the tune	
	Yes		•••
Comments	:		
			```
(list the	l assessment of the initial calibre associated samples)		r i de la composition de la composition de la composition de la de la composition de la de la composition de la de la composition de
Initial calib	ration meets CQ requirements,	no qualification of the data is required	

Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
Fraction: VOA	
IV. Initial Calibration Summary (GC/MS))
Date of Calibration: <u>1/31</u>	
A. Standard Data Files	
Standard 1 ID: V2D7792	Conc: <u>5</u>
Standard 2 ID: V2D7795	Conc: <u>10</u>
Standard 3 ID: V2D7791	Conc: <u>50</u>
Standard 4 ID: V2D7794	Conc: <u>100</u>
Standard 5 ID: V2D7793	Conc: 200
B. 1. All SPCC met Criteria ?	
Yes	
2. Calculate a SPCC average l	RRF
Comments:	

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.		



Site Name: IBM- East Fishkill

Laboratory Name:Mitkem

Reviewer: R.Petrella

Date of Review: 2/01

II. Holding Times

<u>Sample I.D.</u> SA-19B(2-4)A	Date <u>Received</u> 1/27/01	Date <u>Extracted</u>	Date <u>Analyzed</u> 2/3/01	Holding Time <u>Exceeded?</u> 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

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DATA VALIDA	ATION – ORGANICS	
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem	
Reviewer: R.Petrella	Date of Review:2/01	6 4
I. Data Deliverable Requirements		
A. Legible	Yes	
B. Paginated	Yes	89 96
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		
<u> </u>		
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DATA VALIDATION - METALS

Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.</u> 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:

	DATION - METALS
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
VII. ICP Interference Check Sample Su	ummary (continued):
Was the ICP interference chec frequency:	k sample analyzed at the contract specified
Yes	
Comments:	
 5. Were the ICP interference che =w-20% of the mean value? 	ck sample results within the control limit of
Yes	
If "No", not analytes	

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DATA VALIDATION – METALS

Review	er: R.Petrella	Date of Review:02/01
VII. IC	CP Interference Check Sample Sum	mary
1.	Was the ICP serial dilution analy Yes	zed at the contract specified frequency?
C	omments:	
2.	Were the serial dilution difference =w 10%? Yes	es within the contract specified limits of
Co	omments:	
3.		ard analyzed at the contract specified
	frequency for the analytes require Yes	su :
Co	omments:	

	DAT	A VALIDATION - METALS
Site Name	e: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer	: <u>R.Petrella</u>	Date of Review:02/01
Site spec	ific QC not provided	
∕I. Mat	rix Spike Analysis	
1.	Was a matrix spike pre	epared and analyzed at the contract specified frequency?
	Yes	Νο
Con	nments:	
2.	Were the matrix spike (75-125%)?	recoveries within the contract specified control limits
2.	-	recoveries within the contract specified control limits

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.

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Site I	Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Revie	ewer: <u>R.Petrella</u>	Date of Review:02/01
Site s	specific QC not provided	1
V.	Duplicate Analysis	
	1. Was a duplicate prepa	ared and analyzed at the contract specified frequency
	Yes	No
	Comments:	
	2. Were control limits for analyte?	the relative percent differences (RPD) met for each
	Yes	No
	Comments:	

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

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Site	Nam	e: IBM- East Fishkill Laboratory Name: Mitkem
Revi	ewer	r: R.Petrella Date of Review:02/01
IV.	Bla	nk Summary
	Α.	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
	Со	mments:
	В.	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
	Со	mments:
	_	

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Site Nar	me: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewe	er: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
Associat	ted Samples:	
III. Co	ontinuing Calibration	
1.	Were the continuing calibration ve specified frequency? Yes	erification standards analyzed at the contract
Co	omments:	
	Wore the continuing calibration re	esults within the control limits listed below?
Ζ.	For tin and mercury: 80-120% of t For all other metals: 90-110% of t	the true value

Yes

If "No", note analytes _____

DATA VALIDATION - METALS

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Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: R.Petrella	Date of Review:02/01
Associated Samples:	
II. Initial Calibration	
 Were all initial instrument calibration Yes 	ons performed?
Comments:	
Were the initial calibration verificati specified frequency?	ion standards analyzed at the contract
Yes	
Comments:	
3. Were the initial calibration results v	vithin the control limits listed below?
For tin and mercury: 80-120% of the For all other metals: 90-110% of the second	
Yes	
If "No", note analytes	



Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 02/01

I. Holding times

Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	Holding Time <u>Exceeded?</u>
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

	ALIDATION – ORGANICS
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
Site specific qc not provide	ed
XI. Matrix Spike/Matrix Spike Du	uplication Summary
Sample ID:	Matrix:
	Matrix:
Did the MS/MSD recovery data mee	et the contract recommended requirements ?
Did the MS/MSD recovery data mee f No, please note below.	et the contract recommended requirements ? Yes No
Did the MS/MSD recovery data mee f No, please note below.	et the contract recommended requirements ? Yes No
	et the contract recommended requirements ? Yes No

N

Site Name: IB	M- East Fishkill	Laboratory Name: Mitker	ກ
Reviewer: <u>R.</u>	Petrella	Date of Review:02/01	
Fraction: VC	DA		
X. Surroga	ate Recovery Summary		
Were all surrog	gate recoveries within the contrac	ct limits ?	
		Yes	
lf No, please n	ote below.		
Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

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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 Concentrati	on < 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.

Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>	
Reviewer: <u>R.Petrella</u>	Date of Review:02/01	
Fraction: VOA	_	
VIII. Internal Standard Area Summary (GC/MS)	
Were all internal standard peak areas with	hin the contract limits ?	
	Yes	
If No, please note below		
Internal Standard	Amount Above	

<u>Sample</u>

Outside Limits Contract Requirement

<u>Comments</u>

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Site Name: IBM- East Fishkill Laboratory Nam	e: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u> Date of Revie	w: <u>02/01</u>
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:V2D784 V2D793 V2D796
A. 1. All SPCC met criteria ?	
Yes	
Calculate a SPCC RRF	
Comments:	
Comments:	
Comments: 2. All CCC met criteria ?	
2. All CCC met criteria ?	
2. All CCC met criteria ? Yes	
2. All CCC met criteria ? Yes	
2. All CCC met criteria ? Yes Calculate a CCC % D	
2. All CCC met criteria ? Yes Calculate a CCC % D	

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	DATA VALIDA	TION – ORGANICS	
Site Name:	BM- East Fishkill	Laboratory Name:Mitkem	
Reviewer:	R.Petrella	Date of Review:02/01	
Fraction:	VOA	Date of Calibration: 1/25, 1/31	
IV. Initia	al Calibration Summary (continu	ued)	
2.	All CCC met Criteria ?		
	Yes		100 A
Comments	:		
Calc	culate a CCC % RSD		
C. 1. V	Vas the tune for the initial calib	ration acceptable ?	
	Yes		
2. V	Vas the calibration conducted v	within 12 hours of the tune	
	Yes		
Comments	:		
	l assessment of the initial calibr associated samples)	ration:	
-		no qualification of the data is required	

Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
IV. Initial Calibration Summary (GC/MS)	
Date of Calibration: <u>1/25, 1/31</u>	
A. Standard Data Files	
Standard 1 ID: V2D7512, V2D7	792 Conc: <u>5</u>
Standard 2 ID: V2D7515, V2D7	795 Conc: 10
Standard 3 ID: V2D7511, V2D7	791 Conc: 50
Standard 4 ID: V2D7514, V2D7	794 Conc: 100
Standard 5 ID: V2D7513, V2D7	793 Conc: 200
B. 1. All SPCC met Criteria ?	
Yes	
2. Calculate a SPCC average F	RRF

Comments: _____

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Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review:02/01

Fraction: VOA

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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.		

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 2/01

II. Holding Times

<u>Sample I.D.</u> SA-19A(2-4)A	Date <u>Received</u> 1/25/01	Date <u>Extracted</u>	Date <u>Analyzed</u> 2/3/01	Holding Time <u>Exceeded?</u> 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

Site Name: <u>IBM- East Fjstikill</u>	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	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

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DATA VALIDATION - METALS

Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
VIII. Laboratory Control Sample Analysis1. Was a laboratory control sampleYes	e analyzed at the contract required frequency?
Comments:	
2. Were the percent recoveries wit and Sb) for each analyte? Yes	thin the control limits of 80-120% (except for Ag
Comments:	

DATA VALIDATION -- METALS

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
VII. ICP Interference Check Sample Sum	mary (continued):
 Was the ICP interference check s frequency: 	ample analyzed at the contract specified
Yes	
Comments:	
5. Were the ICP interference check =w-20% of the mean value?	sample results within the control limit of
Yes	
If "No", not analytes	

DATA VALIDATION - METALS

Site Na	ame: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviev	ver: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
VII. I	CP Interference Check Sample Sum	mary
1	. Was the ICP serial dilution analyz Yes	zed at the contract specified frequency?
C	Comments:	
2	Were the serial dilution difference <u>=</u> w 10%?	es within the contract specified limits of
	Yes	
C	Comments:	
3	. Was the ICP CRDL check standa frequency for the analytes require	rd analyzed at the contract specified
	Yes	
C	Comments:	

	DA	ATA VALIDATION - METALS
Site Nar	ne: <u>IBM- East Fishkill</u>	Laboratory Name:Mitkem
Reviewe	er: <u>R.Petrella</u>	Date of Review:02/01
Site spe	ecific QC not provide	d
/I. M	atrix Spike Analysis	
1.	Was a matrix spike p	prepared and analyzed at the contract specified frequency
	Yes	No
Co	omments:	<u></u>
,	Were the matrix spik	ke recoveries within the contract specified control limits
2.	(75-125%)?	
2.	(75-125%)? Yes	Νο

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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.

Laboratory Name:Mitkem				
Date of Review:02/01				
Duplicate Analysis				
1. Was a duplicate prepared and analyzed at the contract specified frequency?				
NO				
ne relative percent differences (RPD) met for each				
No				
s the CRDL, the RPD control limit is ±20%.				

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Site	Nam	e: IBM- East Fishkill	Laboratory Name: Mitkem
Revi	ewer	: R.Petrella	Date of Review:02/01
IV.	Bla	nk Summary	
		Method Blanks	
	1.	Was a method blank prepared a frequency?	nd analyzed at the contract specified
		Yes	
	2.	Were all the analytes below the	CRDL in the method blank?
		Yes	
	Со	mments:	
	В.	Calibration Blanks	
	1.	Were all initial and continuing ca specified frequency/	libration blanks analyzed at the contract
		Yes	
	2.	Were all the analytes below the	CRDL in all the calibration blanks?
		Yes	
		165	



Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Associated Samples:	
III. Continuing Calibration	
 Were the continuing calibration specified frequency? 	verification standards analyzed at the contract
Yes	
Comments:	
2. Were the continuing calibration	results within the control limits listed below?
For tin and mercury: 80-120% of	of the true value

For all other metals: 90-110% of the true value

Yes

If "No", note analytes _____

		DATION – METALS	
	DATA VALI	JATION - METALS	
Site Nar	ne: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>	
Reviewe	er: <u>R.Petrella</u>	Date of Review:02/01	
Associa	ted Samples:		
II. Ini	tial Calibration		
1.		rations performed?	
Co	Yes omments:		
2.	Were the initial calibration verit specified frequency?	ication standards analyzed at the contract	
	Yes		×* 4 5
Co	omments:		
3.	Were the initial calibration resu	Its within the control limits listed below?	-
	For tin and mercury: 80-120% For all other metals: 90-110%		
	Yes		
	If "No", note analytes		



 Site Name: IBM- East Fishkill
 Laboratory Name: Mitkem

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

 I.
 Holding times

Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	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 VA	LIDATION - ORGANICS
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: <u>VOA</u>	
Site specific QC not provide	ed with this data pkg
XI. Matrix Spike/Matrix Spike Dup	plication Summary
Sample ID:	Matrix:
Did the MS/MSD recovery data meet	t the contract recommended requirements ?
Did the MS/MSD recovery data meet	t the contract recommended requirements ? Yes No
Did the MS/MSD recovery data meet If No, please note below. Blank spikes were provided and m	Yes No
If No, please note below.	Yes No
If No, please note below.	Yes No

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Site Name: <u>II</u>	3M- East Fishkill	Laboratory Name: <u>Mitke</u>	m
Reviewer: <u>F</u>	.Petrella	Date of Review:02/01	
Fraction: <u>V</u>	'OA		
X. Surrog	ate Recovery Summary		
Were all surre	ogate recoveries within the contrac	et limits ?	
		Yes	
If No, please	note below.		
<u>Sample</u>	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	<u>Comments</u>

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Site Name: IBM- Ea	ast Fishkill	Laboratory Name	e:Mitkem
Reviewer: <u>R.Petre</u>	lla	Date of Review	w: <u>02/01</u>
Fraction: VOA		_	
IX. Blank Summ	ary		
Date/Time of Analy	sis:	Fil	le ID:
<u>Compound</u>	Concentration	< <u>CROL</u>	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

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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. Inter	nal Standard Area Summary (G	C/MS)	
Were all int	ernal standard peak areas withi	n the contract limits ?	
	`	Yes	
lf No, pleas	e note below		

<u>Sample</u>

Internal Standard Outside Limits Amount Above Contract Requirement

Comments

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Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	-
VI. Continuing Calibration Summary (G	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 ?	
Ye	e
Calculate a SPCC RRF	
2. All CCC met criteria ?	
Yes	3
Yes Calculate a CCC % D	5

ite Name: IBM- East Fishkill	Laboratory Name:Mitkem	
eviewer: R.Petrella	Date of Review:02/01	
action: <u>VOA</u>	Date of Calibration: <u>11/26/00</u>	
Initial Calibration Summary (cont	inued)	
2. All CCC met Criteria ?		
Yes		
omments:		
Calculate a CCC % RSD		
. 1. Was the tune for the initial cal	ibration acceptable ?	
Yes		
2. Was the calibration conducted	d within 12 hours of the tune	
Yes		
omments:		
·		
. Overall assessment of the initial cal (list the associated samples)	ibration:	

Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
Fraction: VOA	
IV. Initial Calibration Summary (GC/MS)	
Date of Calibration: <u>11/26/00</u>	
A. Standard Data Files	
Standard 1 ID: V6A9248	Conc: <u>5</u>
Standard 2 ID: V6A9247	Conc: <u>20</u>
Standard 3 ID: V6A9243	Conc: <u>50</u>
Standard 4 ID: V6A9246	Conc: <u>100</u>
Standard 5 ID: V6A9245	Conc: 200
B. 1. All SPCC met Criteria ?	

Yes

2. Calculate a SPCC average RRF

.

Comments: ______

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: <u>R.Petrella</u>

Date of Review:02/01

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Fraction: voa

III. Tune Summary

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



Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 2/01

II. Holding Times

<u>Sample I.D.</u> 19E124A	Date <u>Received</u> 1/18/01	Date <u>Extracted</u>	Date <u>Analyzed</u> 1/25/01	Holding Time <u>Exceeded?</u> _{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

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Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	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 (dimethylnaphth	nalenes) are present in 19E1810A

♥ DATA VALIDATION - METALS

Site I	Nam	e: IBM- East Fishkill [_aboratory Name: <u>Mitkem</u>
Revie	ewe	: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
VIII.	Lat	ooratory Control Sample Analysis	
	1.	Was a laboratory control sample ar Yes	nalyzed at the contract required frequenc
	Co	nments:	
	2.	Were the percent recoveries within and Sb) for each analyte?	the control limits of 80-120% (except for
	0.0	Yes	
		nments:	



Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
/II. ICP Interference Check Sample Sum	mary (continued):
 Was the ICP interference check s frequency: 	sample analyzed at the contract specified
Yes	
Comments:	
 5. Were the ICP interference check =w-20% of the mean value? 	sample results within the control limit of
Yes	
If "No", not analytes	

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DATA VALIDATION - METALS

Site in	lame: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Revie	wer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
VII.	ICP Interference Check Sample Sum	mary
	 Was the ICP serial dilution analyz Yes 	zed at the contract specified frequency?
(Comments:	
4	' <u>=</u> w 10%?	es within the contract specified limits of
(Yes Comments:	
	 Was the ICP CRDL check standa frequency for the analytes require 	rd analyzed at the contract specified
	Yes	
Comments:		

Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Site specific QC not provided	
VI. Matrix Spike Analysis	
1. Was a matrix spike pre	pared and analyzed at the contract specified frequer
Yes	No
Comments:	
	recoveries within the contract specified control limits
2. Were the matrix spike	recoveries within the contract specified control limits

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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.

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Site	Name: IBM- East Fishkill	Laboratory Name: Mitkem
Rev	iewer: <u>R.Petrella</u>	Date of Review:02/01
Site	specific QC not provided	
V.	Duplicate Analysis	
		ed and analyzed at the contract specified frequency?
	Yes	No
	Comments:	
	 Were control limits for t analyte? 	he relative percent differences (RPD) met for each
	Yes	No
	Comments:	

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

	DATA VALIC	DATION - METALS
Name: I	3M- East Fishkill	Laboratory Name: Mitkem
_		_
viewer: <u>F</u>	.Petrella	Date of Review: <u>02/01</u>
Blank S	Summary	
A. <u>Me</u>	<u>thod Blanks</u>	
	is a method blank prepared quency?	and analyzed at the contract specified
	Yes	
2. We	•	e CRDL in the method blank?
Comme	Yes	
В. <u>Са</u>	libration Blanks	
	ere all initial and continuing c ecified frequency/	calibration blanks analyzed at the contract
	Yes	
2. We	ere all the analytes below the Yes	e CRDL in all the calibration blanks?
Comme	onts.	

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Associated Samples:	<i></i>
III. Continuing Calibration	
 Were the continuing calibration v specified frequency? Yes 	erification standards analyzed at the contract
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 – METAL	.s
Site Name: IBM- East Fishkill Laboratory Na	me:Mitkem
Reviewer: <u>R.Petrella</u> Date of Revie	w: <u>02/01</u>
Associated Samples:	
II. Initial Calibration	
1. Were all initial instrument calibrations performed? Yes	?
Comments:	
2. Were the initial calibration verification standards specified frequency?	analyzed at the contract
Yes Comments:	
3. Were the initial calibration results within the contr	rol 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	

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Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review:02/01

I. Holding times

Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	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: <u>R.Petrella</u>	Date of Review: <u>02/01</u>	
Fraction: VOA		
Site specific qc not provide	d	
XI. Matrix Spike/Matrix Spike Du	olication Summary	
Sample ID:	Matrix:	
Did the MS/MSD recovery data mee	t the contract recommended requirement	nts ?
	Yes No	
If No, please note below.		
Blank spikes were provided and me	et QC requirements	

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
X. Surrogate Recovery Summary	
Were all surrogate recoveries within t	he contract limits ?
	Yes
If No, please note below.	
Surrogate Comp	ound Amount Above

<u>Sample</u>

Surrogate Compound Outside Recovery Limits

Amount Above Contract Requirement

Comments

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: R.Petrella	Date of Review:02/01
Fraction: <u>VOA</u>	
IX. Blank Summary	
Date/Time of Analysis:	File ID:
Compound Concentration	< <u>CROL</u> <u>Comments</u>
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.

	ATION – ORGANICS		
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem		
Reviewer: <u>R.Petrella</u>	Date of Review:02/01		J.
Fraction: <u>VOA</u>	_		
VIII. Internal Standard Area Summary ((GC/MS)		
Were all internal standard peak areas wit	thin the contract limits ?		:
	Yes		
If No, please note below			
Internal Standard Sample <u>Outside Limits</u>	Amount Above Contract Requirement	<u>Comments</u>	

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	Laboratory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	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		D7801 30441,
A. 1. All SPCC met criteria ?		
Ye		
Calculate a SPCC RRF		
Comments:		
2. All CCC met criteria ?		
Ye	S	
	S	
Ye Calculate a CCC % D		
Ye		

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Site N	Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Revie	ewer: <u>R.Petrella</u>	Date of Review:02/01
Fract	ion: <u>VOA</u>	Date of Calibration: 1/31, 1/30
IV.	Initial Calibration Summary (continue	ed)
	2. All CCC met Criteria ?	
	Yes	
Comr	ments:	
	Calculate a CCC % RSD	
C.	1. Was the tune for the initial calibra	ation acceptable ?
	Yes	
	2. Was the calibration conducted wi	thin 12 hours of the tune
	Yes	
Comr	nents:	
	overall assessment of the initial calibra	tion:

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

Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
IV. Initial Calibration Summary (GC/MS)
Date of Calibration: <u>1/31, 1/30</u>	
A. Standard Data Files	
Standard 1 ID: <u>V2D7792, V6B</u>	0442 Conc: <u>5</u>
Standard 2 ID: V2D7795, V6B	0444 Conc: 10
Standard 3 ID: V2D7791, V6B0	0441 Conc: 50
Standard 4 ID: V2D7794, V6B0	
Standard 5 ID: V2D7793, V6B0	0445 Conc: 200
B. 1. All SPCC met Criteria?	
Yes	
2. Calculate a SPCC average	RRF
Comments:	

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer:	R.Petrella	

Date of Review:02/01

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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.		

Site Name: IBM- East Fishkill

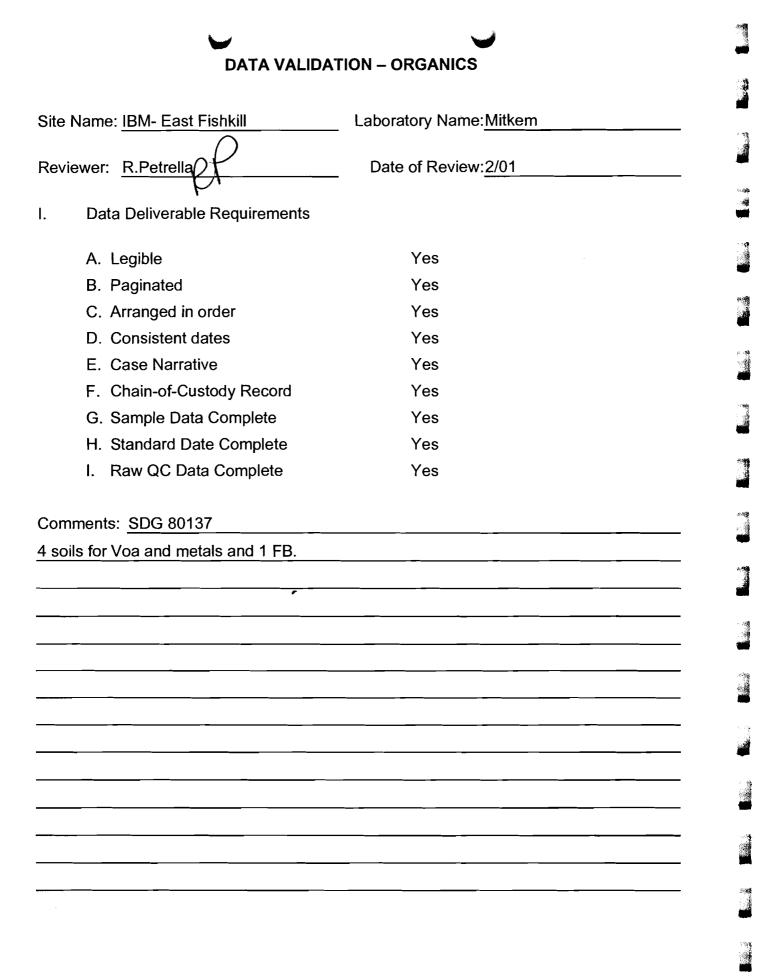
Laboratory Name: Mitkem

Reviewer: <u>R.Petrella</u>

Date of Review: 2/01

II. Holding Times

<u>Sample I.D.</u> E2810A	Date <u>Received</u> 1/20/01	Date <u>Extracted</u>	Date <u>Analyzed</u> 1/31/01	Holding Time <u>Exceeded?</u> 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





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: <u>Mitkem</u>	
Reviewer: <u>R.Petrella</u>	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 \pm w-20% of the mean value?

Yes

If "No", not analytes _____

DATA VALIDATION - METALS

Site Na	me: IBM- East Fishkill	Laboratory Name:Mitkem
Review	er: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
VII. IC	CP Interference Check Sample Sum	mary
1.	Was the ICP serial dilution analy: Yes	zed at the contract specified frequency?
Co	omments:	
2.	Were the serial dilution difference ≘w 10%? Yes	es within the contract specified limits of
Co	omments:	
3.	frequency for the analytes require	rd analyzed at the contract specified
Сс	Yes omments:	
<u> </u>		<u>.,</u>

Site Nan	ne: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewe	er: R.Petrella	Date of Review:02/01
-	ecific QC not provided atrix Spike Analysis	
1.	Was a matrix spike p Yes	epared and analyzed at the contract specified frequenc No
	Yes	

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.

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Site	Name: IBM- East Fishkill	Laboratory Name:Mitkem	
Rev	viewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>	
Site	e specific QC not provide	ł	
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	r each
	analyte?		
	analyte? Yes	No	
	•	No	
	Yes	No	
	Yes Comments:	No es the CRDL, the RPD control limit is ±20%.	
	Yes Comments: For sample values >5 tim		

♦0020\80094 VALIDATION FORM.DOC\16

ame: <u>IBM- East Fis</u> l	nkill	Laboratory Name:Mitkem
wer: <u>R.P</u> etrella		Date of Review:02/01
Blank Summary		
A. Method Blanks		
1. Was a method l frequency?	olank prepai	red and analyzed at the contract specified
Yes		
	alytes below	the CRDL in the method blank?
Yes		
Comments:		
B. <u>Calibration Blan</u>	<u>ks</u>	
1. Were all initial a specified freque		ng calibration blanks analyzed at the contract
Yes		
2. Were all the ana Yes	alytes below	the CRDL in all the calibration blanks?
Comments:		

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Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: R.Petrella	Date of Review:02/01
Associated Samples:	
III. Continuing Calibration	
 Were the continuing calibration v specified frequency? Yes 	verification standards analyzed at the contract
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 _____

		DATION - METALS
Site Na	ame: IBM- East Fishkill	Laboratory Name: Mitkem
Reviev	ver: R.Petrella	Date of Review:02/01
Associ	ated Samples:	
H. 1	nitial Calibration	
1	 Were all initial instrument calib Yes 	rations performed?
(Comments:	
2	 Were the initial calibration verif specified frequency? 	ication standards analyzed at the contract
	Yes	
	Comments:	· <u> </u>
3	8. Were the initial calibration resu	Its within the control limits listed below?
	For tin and mercury: 80-120% For all other metals: 90-110%	
	Yes	
	If "No" note enablished	

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Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review:02/01

I. Holding times

Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	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	Laborator	y Name: <u>Mitkem</u>	
Reviewer: <u>R.Petrella</u>	Date of	Review:02/01	
Fraction: VOA			
Site specific QC not provided	l with this data _l	okg	
XI. Matrix Spike/Matrix Spike Dupli	cation Summary		
Sample ID:		Matrix:	
Did the MS/MSD recovery data meet t	he contract reco	mmended requirements ?	
	Yes	No	
If No, please note below.			
Blank spikes were provided and me	t QC requireme	nts	

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Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
X. Surrogate Recovery Summary	
Were all surrogate recoveries within the contract	t limits ?
	Yes
If No, please note below.	

<u>Sample</u>

Surrogate Compound Outside Recovery Limits Amount Above Contract Requirement

Comments

DATA VALIDATION - ORGANICS				
Site Name: <u>IBM- Eas</u>	t Fishkill	Laboratory Name:	Mitkem	
Reviewer: <u>R.Petrella</u>	ì	Date of Review:	02/01	
Fraction: VOA				
IX. Blank Summa	У			
Date/Time of Analysis	s:	File	ID:	
<u>Compound</u>	Concentration	< <u>CROL</u>	<u>Comments</u>	

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Qualified as non-detect in all samples in this SDG

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List the samples associated with this method blank.

Acetone (VBLK2K) 2

Ś	Site Name: IBM- East Fishkill		Laboratory Name: <u>Mitkem</u>	
F	Reviewer: <u>R.Petrella</u>		Date of Review: <u>02/01</u>	
F	Fraction: <u>VOA</u>			
١	/III. Internal Standard Area Sum	mary (G	C/MS)	
١	Were all internal standard peak are	eas withi	n the contract limits ?	
		,	Yes	
ŀ	f No, please note below			

<u>Sample</u>

Internal Standard Outside Limits Amount Above <u>Contract Requirement</u>

Comments

DATA VALIDATION – ORGANICS		
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	Date of Review:02/01	
Fraction: VOA		
VI. Continuing Calibration Summary (GC	:/MS)	
Date of Initial Calibration: 1/2/01		
Date of Continuing Calibration: <u>1/16</u>	File ID: <u>V2D7321</u>	
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 (list associated samples) 	g Calibration	
(iist associated samples)		

Site Name:	IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer:	R.Petrella	Date of Review:02/01
Fraction:	VOA	Date of Calibration: 1/02/01
IV. Initia	Calibration Summary (continu	ed)
2. <i>F</i>	NI CCC met Criteria ?	
	Yes	
Comments:		
	late a CCC % RSD	ation acceptable ?
	Yes	
2. W	as the calibration conducted wi	thin 12 hours of the tune
	Yes	
Comments:		
	assessment of the initial calibra associated samples)	tion:
	uirements were met for this o	alibration

-		
DATA	VALIDATION	– ORGANICS

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: <u>VOA</u>	
IV. Initial Calibration Summary (GC/MS)
Date of Calibration: <u>1/02/01</u>	
A. Standard Data Files	
Standard 1 ID: V2D6943	Conc: <u>5</u>
Standard 2 ID: V2D6946	Conc: <u>20</u>
Standard 3 ID: V2D6941	Conc: <u>50</u>
Standard 4 ID: V2D6945	Conc: <u>100</u>
Standard 5 ID: V2D6944	Conc: <u>200</u>
 B. 1. All SPCC met Criteria ? Yes 2. Calculate a SPCC average 	RRF
2. Calculate a SFCC average	
Comments:	



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.		
<u>10.</u>		

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R.

Site Name: IBM- East Fishkill

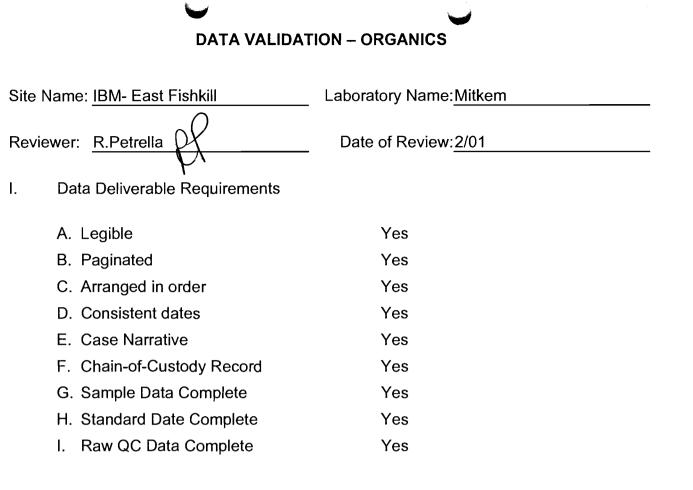
Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 2/01

II. Holding Times

<u>Sample I.D.</u> 12TP524A	Date <u>Received</u> 1/13/01	Date <u>Extracted</u>	Date <u>Analyzed</u> 1/16/01	Holding Time <u>Exceeded?</u> 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



Comments: SDG 80094

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LATE eluting hydrocarbons (dimethylnaphthalenes) are present in 19E1810A

DATA VALIDATION -- METALS

Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
VIII. Laboratory Control Sample Analysis	

 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

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Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
VII. ICP Interference Check Sample Sum	mary (continued):
 Was the ICP interference check s frequency: 	sample analyzed at the contract specified
Yes	
Comments:	
 Were the ICP interference check =w-20% of the mean value? 	sample results within the control limit of
Yes	
If "No", not analytes	

DATA VALIDATION - METALS

	me: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewe	er: <u>R.Pe</u> trella	Date of Review: <u>02/01</u>
VII. IC	P Interference Check Sample Sur	nmary
1.	Was the ICP serial dilution analy Yes	yzed at the contract specified frequency?
Co	omments:	
2.	Were the serial dilution difference $\underline{=}$ w 10%?	ces within the contract specified limits of
	Yes	
Co	omments:	
3.		ard analyzed at the contract specified
	frequency for the analytes requin Yes	'ed ?
Со	omments:	

	DATA VALIDATION – METALS				
Site Na	ame	: IBM- East Fishkill		Laboratory Name:Mitkem	
Review	Reviewer: <u>R.Petrella</u>			Date of Review:02/01	
Site s	peci	fic QC not provided			
VI. I	Matr	ix Spike Analysis			
1	1. \	Was a matrix spike pr	epared and	I analyzed at the contract specified frequency?	
		Yes	No		
(Com	ments:			
		•	recoveries	within the contract specified control limits	
	(75-125%)? Yes	No		
I	f "No	o", note analytes			

A. A. A.

ALC: N

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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.

Site	Name: IBM-East Fishkill	Laboratory Name:Mitkem		
Rev	iewer: 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:			
	 Were control limits for t analyte? 	he relative percent differences (RPD) met for each		
	Yes	No		
	Comments:			

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

UDATA VALIDATION - METALS					
		DATA VALII	DATION - METALS		
Site I	Site Name: IBM- East Fishkill Laboratory Name: Mitkem				
Revie	ewe	r: R.Petrella	Date of Review:02/01		
IV.	Bla	ank Summary			
	A.	Method Blanks			
 Was a method blank prepared and analyzed at the contract specified frequency? 					
		Yes			
	2.	Were all the analytes below th	e CRDL in the method blank?		
	_	Yes			
	Со	mments:			
	В.	Calibration Blanks			
	1.	Were all initial and continuing specified frequency/	calibration blanks analyzed at the contract		
		Yes			
	2.	-	e CRDL in all the calibration blanks?		
		Yes			
	Со	mments:			

1. A. A.

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DATA VALIDATION – METALS

Laboratory Name: <u>Mitkem</u>
Date of Review:02/01
verification standards analyzed at the contract

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

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DATA	VALIDATION – METALS
Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Associated Samples:	
II. Initial Calibration	
1. Were all initial instrumen	t calibrations performed?
Yes Comments:	· ·
2. Were the initial calibratio specified frequency?	n verification standards analyzed at the contract
Yes	
Comments:	
3. Were the initial calibratio	n results within the control limits listed below?
For tin and mercury: 80- For all other metals: 90-	
Yes	
If "No", note analytes	

Section of

DATA VALIDATION -- METALS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review:02/01

I. Holding times

Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	Holding Time _ <u>Exceeded?</u>
SA12TP2(8-10)A	1/10/01		1/11/01	
SA12TP2(8- 10)B	1/10/01	1	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	

	\checkmark	
DATA VA	LIDATION – ORGANICS	
Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitker</u>	<u>n</u>
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>	
Fraction: VOA		
Site specific QC not provide	d with this data pkg	
XI. Matrix Spike/Matrix Spike Du	lication Summary	
Sample ID:	Matrix:	
Did the MS/MSD recovery data mee	the contract recommended requ	uirements ?
	Yes No	
If No, please note below.		
Blank spikes were provided and n	et QC requirements	

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Site Name: <u>IE</u>	3M- East Fishkill	Laboratory Name: <u>Mitkem</u>	
Reviewer: <u>R</u>	.Petrella	Date of Review:02/01	,
Fraction: V	OA	_	
X. Surrog	ate Recovery Summary		
Were all surro	ogate recoveries within the contract	limits ?	
		Yes	
If No, please	note below.		
Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

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DATA VALIDA	TION – ORGANICS	
Site Name: IBM- East Fishkill	_ Laboratory Name: <u>Mitkem</u>	
Reviewer: <u>R.Petrella</u>	Date of Review:02/01	
Fraction: VOA	-	
IX. Blank Summary		
Date/Time of Analysis:	File ID:	
<u>Compound</u> <u>Concentration</u> No compounds found	<u>< CROL</u> <u>Comme</u>	<u>≥nts</u>

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Sec.

List the samples associated with this method blank.

 Site Name: IBM- East Fishkill
 Laboratory Name: Mitkem

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

Fraction: <u>VOA</u>_____

VIII. Internal Standard Area Summary (GC/MS)

Were all internal standard peak areas within the contract limits ?

Yes

If No, please note below

<u>Sample</u>

Internal Standard Outside Limits Amount Above Contract Requirement

Comments

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DATA VALIDAT	TION – ORGANICS	
ite Name: IBM- East Fishkill	Laboratory Name: Mitkem	
Reviewer: R.Petrella	Date of Review:02/01	
raction: <u>VOA</u>		
I. Continuing Calibration Summary (G	C/MS)	
Date of Initial Calibration: <u>1/2/01</u>		
Date of Continuing Calibration: <u>1/11/01</u> A. 1. All SPCC met criteria ?	File ID: <u>V2D7221</u>	
Yes	3	
Calculate a SPCC RRF		
Comments:		
2. All CCC met criteria ?		
Yes	;	
Calculate a CCC % D		
Comments:		
Comments:		

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
Fraction: <u>VOA</u>	Date of Calibration: <u>1/2/01</u>
IV. Initial Calibration Summary (cont	inued)
2. All CCC met Criteria ?	
Yes	
Comments:	
Calculate a CCC % RSD C. 1. Was the tune for the initial cal	ibration acceptable ?
Yes	
2. Was the calibration conducted	I within 12 hours of the tune
Yes	
Comments:	
 D. Overall assessment of the initial cali (list the associated samples) 	bration:

Site Name	: IBM- East Fishkill	Laboratory Name:Mi	itkem		
Reviewer:	R.Petrella	Date of Review: <u>02</u>	2/01		
Fraction:	VOA				
IV. Initia	al Calibration Summary (GC/MS)				
Date of Ca	libration: <u>1/2/01</u>				
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		
В.	 All SPCC met Criteria ? Yes 				
	2. Calculate a SPCC average F	RRF			
Comments:					

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: <u>R.Petrella</u>____

Date of Review:02/01

Fraction: <u>voa</u>_____

III. Tune Summary

Tune File I.D. Number	Acceptable ?	Comments
<u>1. V2D6940</u>	YES	
2. V2D7220	YES	SAMPLES
3		
4		
5		
6		
7		
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10.		

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Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: <u>R.Petrella</u>

Date of Review: 2/01

II. Holding Times

<u>Sample I.D.</u> SA12TP2(8-10)A	Date <u>Received</u> 1/10/01	Date <u>Extracted</u>	Date <u>Analyzed</u> 1/1/01	Holding Time <u>Exceeded?</u> ^{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

Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	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
Commonts: SDC 80048	
Comments: <u>SDG 80048</u>	
6 soils for VOA and metals	
· · · · · · · · · · · · · · · · · · ·	

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DATA VALIDATION - METALS		
Name: IBM- East Fishkill	Laboratory Name:Mitkem	
iewer: <u>R.Petrella</u>	Date of Review:02/01	
Laboratory Control Sample Analysis 1. Was a laboratory control sample Yes	e analyzed at the contract required frequency?	
Comments:		
	hin the control limits of 80-120% (except for Ag	
and Sb) for each analyte? Yes		

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DATA VALIDATION - METALS

Site Name: IBM- East Fishkill	Laboratory Name:Mitkem
Reviewer: <u>R.Petrella</u>	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 \pm w-20% of the mean value?

Yes

If "No", not analytes _____

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DATA VALIDATION – METALS		
Site Name: IBM- East Fishkill	Laboratory Name: Mitkem	
Reviewer: <u>R.Petrella</u>	Date of Review:02/01	
VII. ICP Interference Check Sample Su	mmary	
1. Was the ICP serial dilution anal	lyzed at the contract specified frequency?	
Yes		
Comments:		
······		
 2. Were the serial dilution differen <u>=</u>w 10%? 	ces within the contract specified limits of	
Yes		
Comments:		
 Was the ICP CRDL check stand frequency for the analytes requ 	dard analyzed at the contract specified ired?	
Yes		
Comments:		

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Site Na	ame: <u>IBM- East Fish</u>	kill Laboratory Name: <u>M</u>	litkem
Review	ver: <u>R.Petrella</u>	Date of Review:02/	/01
Site sp	pecific QC not prov	ded	
VI. N	Matrix Spike Analysis		
1. Was a matrix spike prepared		ke prepared and analyzed at the cont	ract specified frequency?
	Yes	No	
C	Yes Comments:	No	
2	Comments:	No spike recoveries within the contract sp	Decified control limits
	Comments:		Decified control limits

B.

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: <u>IBM- East Fishkill</u>	Laboratory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	Date of Review:02/01	
Site specific QC not provided V. Duplicate Analysis		
1. Was a duplicate prepar Yes	red and analyzed at the contract specified frequency? No	
Comments:		
2. Were control limits for t analyte?	he relative percent differences (RPD) met for each	
Yes	No	
Comments:		
For sample values >5 time	is the CRDL, the RPD control limit is $\pm 20\%$.	
For sample values >5 time	s the CRDL, the RPD control limit is \pm CRDL.	

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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: <u>Mitkem</u>
Rev	ewer: <u>R.Petrella</u>	Date of Review:02/01
Asso	ociated Samples:	
111.	Continuing Calibration	
	 Were the continuing calibration v specified frequency? 	erification standards analyzed at the contract
	Yes	
	Comments:	
	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 Na	me: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewe	er: R.Petrella	Date of Review:02/01
Associa	ted Samples:	
II. In	itial Calibration	
1.	Were all initial instrument calibra Yes	tions performed?
C	omments:	
2.	Were the initial calibration verification specified frequency?	ation standards analyzed at the contract
	Yes	
Co	omments:	
3.	Were the initial calibration results	s within the control limits listed below?
	For tin and mercury: 80-120% of For all other metals: 90-110% of	
	Yes	
	If "No", note analytes	

DATA VALIDATION – METALS

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: <u>R.Petrella</u>

Date of Review: 02/01

I. Holding times

<u>Sample</u>	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	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	Νο
SA12TP2(2-4)A	1/8/01		1/10-1/11	No
SA12TP2(2-4)B	1/8/01		1/10-1/11	No

	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
Site specific qc not provid	ded
XI. Matrix Spike/Matrix Spike D	Ouplication Summary
Sample ID:	Matrix:
Did the MC/MCD recovery data me	at the contract recommended requirements?
	eet the contract recommended requirements? Yes No
If No, please note below.	Yes No
	Yes No
If No, please note below.	Yes No
If No, please note below.	Yes No
If No, please note below.	Yes No
If No, please note below.	Yes No

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Site Name:	IBM- East Fishkill	Laboratory Name:Mitkem		
Reviewer:	R.Petrella	Date of Review:02/01		
Fraction:	VOA	_		
X. Surr	ogate Recovery Summary			
Were all su	rrogate recoveries within the contract li	mits ?		
	,	Yes		
lf No, pleas	se note below.			
<u>Sample</u>	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	<u>Comments</u>	

Site Name: IBM- East Fishkill	Laboratory N	Laboratory Name:Mitkem		
Reviewer: <u>R.Petrella</u>	Date of Re	Date of Review:02/01		
Fraction: VOA				
IX. Blank Summary				
Date/Time of Analysis:		File ID:		
<u>Compound</u> <u>Concentr</u> Acetone (VBLK2A) 4	ation <u>< CROL</u> <	<u>Comments</u> 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: I	BM- East Fishkill	Laboratory Name: Mitke	m	
Reviewer: <u>R.Petrella</u> Date of Review: <u>02/01</u>				
Fraction:	/OA	-		
VIII. Intern	al Standard Area Summary (GC/MS)		
Were all inte	rnal standard peak areas with	in the contract limits ?		
		Yes		
lf No, please	e note below			
<u>Sample</u>	Internal Standard <u>Outside Limits</u>	Amount Above Contract Requirement	<u>Comments</u>	

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
Fraction: VOA	
VI. Continuing Calibration Summary (GC	/MS)
Date of Initial Calibration: 1/2	
Date of Continuing Calibration: <u>1/8</u>	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	
Corriments:	
B. Overall assessment of Continuing (list associated samples)	Calibration
Protocol allows up to 4 %D to be outside limit	ts if <40%

DATA VALIDATION - ORGANICS		
	IUN – URGANICS	
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	Date of Review:02/01	
Fraction: VOA	Date of Calibration: 1/2	
IV. Initial Calibration Summary (continu	ued)	
2. All CCC met Criteria ?		
Yes		
Comments:		
Calculate a CCC % RSD		
C. 1. Was the tune for the initial calibr	ration acceptable ?	2. 494 - 625 - 100
Yes		
2. Was the calibration conducted w	vithin 12 hours of the tune	ج اللہ اللہ اللہ
Yes		L in the
Comments:		
D. Overall assessment of the initial calibrative (list the associated samples)	ation:	
Initial calibration meets CQ requirements,	no qualification of the data is required	

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Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: <u>VOA</u>	
IV. Initial Calibration Summary (GC/MS)
Date of Calibration: <u>1/02</u>	
A. Standard Data Files	
Standard 1 ID: V2D6943	Conc: <u>5</u>
Standard 2 ID: V2D6946	Conc: <u>20</u>
Standard 3 ID: V2D6941	Conc: <u>50</u>
Standard 4 ID: V2D6945	Conc: <u>100</u>
Standard 5 ID: V2D6944	Conc: <u>200</u>
B. 1. All SPCC met Criteria ?	

Yes

2. Calculate a SPCC average RRF

Comments: _____



Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer:	R.Petrella	

Date of Review:02/01

Fraction: VOA

Tune Summary

III.

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

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 2/01

II. Holding Times

	Date	Date	Date	Holding Time
Sample I.D.	Received	Extracted	Analyzed	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

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DATA VALIDATION – ORGANICS		
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem	
Reviewer: <u>R.Petrella</u>	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	₹. 9 8/10
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.		
		郑 王
		5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

DATA VALIDATION - METALS

Site Nar	ne: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Reviewe	er: <u>R.Petrella</u>	Date of Review:02/01
VIII. La	boratory Control Sample Analysis	
1.	Was a laboratory control sample Yes	analyzed at the contract required frequency
Co	omments:	
2.	Were the percent recoveries with and Sb) for each analyte?	in the control limits of 80-120% (except for
	Yes	
Co	mments:	

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DATA VALIDATION - METALS			
Site Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>		
Reviewer: <u>R.Petrella</u>	Date of Review:02/01		
 VII. ICP Interference Check Sample S 4. Was the ICP interference check frequency: Yes 	ummary (continued): ck sample analyzed at the contract specified		
103			

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

Yes

If "No", not analytes _____

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	Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Revi	iewer: R.Petrella	Date of Review:02/01
VII.	ICP Interference Check Sample Sun	nmary
	-	zed at the contract specified frequency?
	Yes	
	Comments:	
	 Were the serial dilution difference =w 10%? 	es within the contract specified limits of
	Yes	
	Comments:	
	3. Was the ICP CRDL check stand frequency for the analytes requir	ard analyzed at the contract specified ed?
	Yes	
	Comments:	

110	Nam	e: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
₹ev	iewer	: R.Petrella	Date of Review:02/01
Site	spec	ific QC not provide	i
/I.	Mat	rix Spike Analysis	
	1.	Was a matrix spike	repared and analyzed at the contract specified frequer
		Yes	No
	Cor	Yes nments:	No
	Cor 2.	nments:	No

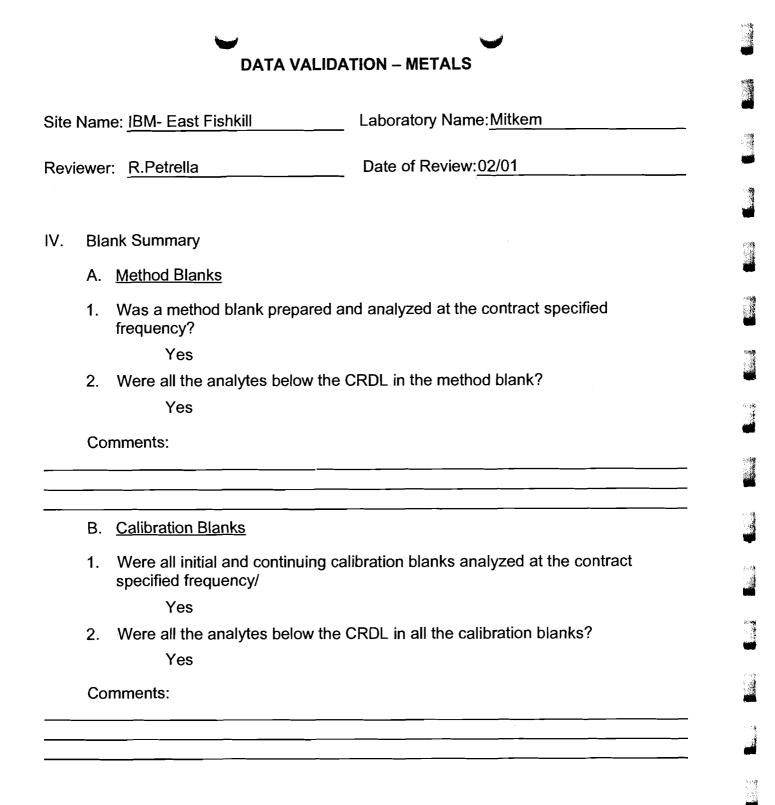
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Data should have been flagged with "N" for analytes out of control limits. If the sample concentration exceeds the spike concentration by a factor of four or more, no flag is required.

Site	Name: IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>
Revi	iewer: <u>R.Petrella</u>	Date of Review:02/01
Site	specific QC not provided	
V.	Duplicate Analysis	
	1. Was a duplicate prepa	red and analyzed at the contract specified frequency
	Yes	No
	Comments:	
	Were control limits for tanalyte?	the relative percent differences (RPD) met for each
	Yes	No
	165	116

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





Site Na	me: IBM- East Fishkill	Laboratory Name:Mitkem
Review	er: <u>R.Petrella</u>	Date of Review:02/01
Associa	ited Samples:	
III. C	ontinuing Calibration	
1.	Were the continuing calibration ve specified frequency? Yes	erification standards analyzed at the contract
C	omments:	
2.	Were the continuing calibration re	esults within the control limits listed below?
	For tin and mercury: 80-120% of t For all other metals: 90-110% of t Yes	

If "No", note analytes _____

	A VALIDATION – METALS				
Site Name: IBM- East Fishkill	Laboratory Name:Mitkem				
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>				
Associated Samples:					
II. Initial Calibration					
 Were all initial instrume Yes 	ent calibrations performed?				
Comments:					
	ion verification standards analyzed at the contract				
specified frequency? Yes					
Comments:					
3. Were the initial calibrat	ion results within the control limits listed below?				
	0-120% of the true value 0-110% of the true value				
Yes					
If "No", note analytes					

DATA VALIDATION - METALS

Site Name: IBM- East Fishkill		Labora	tory Name: Mitke	em
Reviewer: <u>R.I</u>	Petrella	Date of	of Review: <u>02/01</u>	
I. Holding t	imes			
Sample	Date <u>Received</u>	Date <u>Digested</u>	Date <u>Analyzed</u>	Holding Time Exceeded?
TPSA-14(0-2)A	12/21/00		12/22, 12/23	No
TPSA-14(0-2)B	12/21/00		10/00 10/03	No

12/22, 12/23

12/22, 12/23

12/22, 12/23

No

No

No

TPSA-14(8-10)A 12/21/00 TPSA-14(8-10)B 12/21/00

DATA VALIDATION - ORGANICS			
Site Name: IBM- East Fishkill	Laboratory Name: Mitkem		
Reviewer: <u>R.Petrella</u>	Date of Review:02/01		
Fraction: VOA			
Site specific qc not provided			
XI. Matrix Spike/Matrix Spike Duplica	tion Summary		
Sample ID:	Matrix:		
Did the MS/MSD recovery data meet the	e contract recommended requirements ?		
	Yes No		
If No, please note below.			
Blank spikes were provided and meet Q	C requirements		

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Site Name: <u>IE</u>	BM- East Fishkill	Laboratory Name:Mitkem	
Reviewer: <u>R</u>	R.Petrella	Date of Review:02/01	
Fraction: V	/OA	-	
X. Surrog	ate Recovery Summary		
Were all surro	ogate recoveries within the contract li	rnits ?	
		Yes	
If No, please	note below.		
Sample	Surrogate Compound Outside Recovery Limits	Amount Above Contract Requirement	Comments

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Site Name: IBM- East Fishkill			Laboratory Name:Mitkem		
Reviewer: <u>R.Petrella</u>			Date of Revi	ew: <u>02/01</u>	
Fraction: VOA		_			
IX. Blank Summary					
Date/Time of Analysis:			F	File ID:	
Compound	<u>Concentration</u>		<u>≤ CROL</u>	<u>Comments</u>	
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.

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Site Name:	IBM- East Fishkill	Laboratory Name: <u>Mitkem</u>	
Reviewer:	R.Petrella	Date of Review: <u>02/01</u>	
Fraction:	<u>VOA</u>		
VIII. Inter	mal Standard Area Summary (C	GC/MS)	
Were all int	ternal standard peak areas with	in the contract limits ?	
		Yes	
lf No, pleas	se note below		
Sample	Internal Standard Outside Limits	Amount Above Contract Requirement	<u>Comments</u>

Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review: <u>02/01</u>
Fraction: VOA	
VI. Continuing Calibration Summary (GC/	/MS)
Date of Initial Calibration: <u>11/26</u>	
Date of Continuing Calibration: 12/29, 12/30,	, 12/31 File ID:V6B00 V6B00 V6B01
A. 1. All SPCC met criteria ?	
Yes	
Calculate a SPCC RRF	
Comments:	
2. All CCC met criteria ?	
Yes	
103	
Calculate a CCC % D	
Calculate a CCC % D	

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DATA VALIDA	TION – ORGANICS	
	Laboratory	
Site Name: IBM- East Fishkill	Name:Mitkem	
Reviewer: <u>R.Petrella</u>	_ Date of Review:02/01	
Fraction: <u>VOA</u>	_ Date of Calibration: <u>11/26</u>	
IV. Initial Calibration Summary (contin	ued)	
2. All CCC met Criteria ?		
Yes		
Comments:		
Calculate a CCC % RSD		
C. 1. Was the tune for the initial calib	ration acceptable ?	4-4 2 2 4
Yes	,	
2. Was the calibration conducted v	within 12 hours of the tune	
Yes		
Comments:		
	· · · · · · · · · · · · · · · · · · ·	
D. Overall assessment of the initial calib (list the associated samples)	ration:	#*************************************
Initial calibration meets CQ requirements,	no qualification of the data is required	

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Site Name: IBM- East Fishkill	Laboratory Name: Mitkem
Reviewer: <u>R.Petrella</u>	Date of Review:02/01
Fraction: VOA	
IV. Initial Calibration Summary (GC/MS)	
Date of Calibration: <u>11/26/00</u>	
A. Standard Data Files	
Standard 1 ID: V6A9248	Conc: <u>5</u>
Standard 2 ID: V6A9247	Conc: <u>10</u>
Standard 3 ID: V6A9243	Conc: <u>50</u>
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: _____



Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

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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.		

Site Name: IBM- East Fishkill

Laboratory Name: Mitkem

Reviewer: R.Petrella

Date of Review: 2/01

II. Holding Times

Sample I.D. TPSA-14(0-2)A	Date <u>Received</u> 12/21/00	Date <u>Extracted</u>	Date <u>Analyzed</u> 12/30/00	Holding Time <u>Exceeded?</u> 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 VALIDAT	TION – 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: <u>SDG 72111</u> 4 soils for Voa and metals.		
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Memorandum

To: Project File 1837-00 From: Robbin Petrella



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.